# Extended Producer Responsibility

## A GUIDANCE MANUAL FOR GOVERNMENTS

ENVIRONMENT

OECD

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

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## FOREWORD

OECD work on Extended Producer Responsibility (EPR) began in 1994, under the Pollution Prevention and Control Group. Member countries, in their efforts to further explore ongoing activities OECD-wide, requested the Secretariat to undertake a project on EPR. To date, two phases of the project have been completed. This Guidance Manual is the final product of EPR Phase 3.

EPR Phase 1, which began in 1994, encompassed intensive research on legal and administrative aspects of EPR activities in Member countries. The EPR Phase 1 Interim Report was presented at the 1995 Waste Minimisation Workshop in Washington, D.C. At this workshop EPR was adopted as both a basic principle and a key strategy for waste minimisation. In addition, members of OECD's Waste Management Policy Group and the Pollution Prevention and Control Group strongly supported continued analysis of EPR as an important waste minimisation tool for contributing to and strengthening product policies.

The Phase 1 report was completed in 1995, after 70 interviews had been carried out across the OECD. The report identifies common issues in Member countries developing and implementing EPR approaches. It contains information on government activities and discusses common themes and characteristics of emerging EPR policies and programmes.

EPR Phase 2 began in 1995, with the objective to carry out in-depth studies of two EPR programmes for packaging and to develop a framework report on EPR. Several common issues raised under Phase 1 were examined, and as result of this work three documents were published in 1998: the EPR Framework Report; a case study on the Dutch Packaging Covenant; and a case study on the German Packaging Ordinance.

The main purpose of EPR Phase 3 has been to examine many of the issues identified under Phases 1 and 2. Under Phase 3, four multi-stakeholder workshops were held to achieve two primary objectives: for Member countries to share information and discuss policy and programme design issues that have arisen in implementing EPR; and for the Secretariat to obtain information and input from Member countries on EPR.

The OECD wishes to express special thanks to: Environment Canada, for hosting the first EPR workshop, "Who is the Producer?" in December 1997; the Ministry of Environment of Finland for hosting the second EPR workshop, "Limiting Barriers to EPR", in May 1998; the United States Environmental Protection Agency for hosting the third EPR workshop, "Environmental Effectiveness and Economic Efficiency", in December 1998 (and for collating and binding all the papers and presentations from the first three workshops); and the Ministry of Health and Welfare of Japan for hosting the fourth EPR workshop, "Extended Producer Responsibility and Waste Minimisation in Support of Environmental Sustainability", in May 1999 in Paris.

The OECD would also like to thank the Ministry of Health and Welfare of Japan, the Environment Agency of Japan, and the United Kingdom's Department of Trade and Industry for their financial support of the EPR project, as well as all the participants in all four workshops for their contributions.

Jan Adams, a trade and industry expert, prepared Chapter 5 of this report. Claudia Fénérol of the OECD Secretariat, prepared the Manual under the auspices of the Working Party for Pollution Prevention and Control. It is published on the responsibility of the Secretary-General of the OECD.

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# EXECUTIVE SUMMARY

## Introduction

Over the last few decades, OECD Member countries have actively implemented policies and programmes to reduce pollution and waste generation. Yet, environmental pressures are still increasing. While major progress has been made in many cases to lessen the per capita generation of air and water pollution, the generation of both hazardous and municipal waste has continued to grow. Municipal waste has increased in both per capita and absolute terms.

In the mid-1990s, approximately 64% of municipal wastes were destined to landfills, 18% for incineration and 18% for recycling. At the same time, the difficulty of siting new waste disposal facilities has increased. Regulations on landfills and incinerators have strengthened and the cost of waste management has risen. The NIMBY syndrome (*Not In My Back Yard)* reflects the growing concern of the public regarding waste as an aesthetic problem as well as a risk to human health and the environment. In addition, the tightening of disposal options has placed an emphasis on options for reducing waste and increasing reuse and recycling.

Faced with the increase of waste, many governments have reviewed available policy options and concluded that there was a need to apply new instruments to address this problem, including placing the responsibility for the post-consumer phase of certain goods on producers. Extended producer responsibility (EPR) is a policy approach in which producers accept significant responsibility (financial and/or physical) for the treatment or disposal of post-consumer products. Assigning such responsibility could provide incentives to prevent wastes at source, promote environmentally compatible product design and support the achievement of public recycling and materials management goals. This Guidance Manual provides governments with information about issues, general considerations, and the potential benefits and costs associated with extended producer responsibility.

## Understanding EPR

OECD *defines* EPR as an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. There are two related features of EPR policy: (1) the shifting of responsibility (physically and/or economically; fully or partially) upstream toward the producer and away from municipalities, and (2) to provide incentives to producers to incorporate environmental considerations in the design of their products. While other policy instruments tend to target a single point in the chain, EPR seeks to integrate signals related to the environmental characteristics of products and production processes throughout the product chain.

EPR programmes can be best understood as changing the traditional balance of responsibilities among the manufacturers and importers of consumer goods, consumers and governments with regard to waste management. Although they take many forms, these programmes are all characterised by the continued involvement of producers and importers with commercial goods at the post-consumer stage. EPR *extends* the traditional environmental responsibilities that producers and importers have previously been assigned (i.e. worker safety, prevention and treatment of environmental releases from production, financial and legal responsibility for the sound management of production wastes) to include the management of their products at the post-consumer stage.

Allocating responsibility and determining who is the producer are two of the most important policy design issues. In the context of this Guidance Manual, the producer is considered to be the brand owner and importer except in cases such as packaging, where the filler of the packaging rather than the firm that makes the product container or wrapping would be considered the producer. In situations where the brand owner cannot be clearly identified, as is possible in the case of electronics, the manufacturer (and importer) would be considered the producer. Sharing of responsibilities is a significant aspect of EPR, and retailers, distributors, consumers and other actors in the product chain play a vital role in the performance of an EPR programme.

**Why Extended Producer Responsibility**

There is a growing awareness that the traditional environmental policy focus on production processes may no longer bring about the needed changes to protect human health and the environment. While industrial and energy production remains an important source of pollution and waste, the relative importance of post-consumer wastes has risen over the past two decades. Many policies and programmes have been initiated to address the rise in waste, but they have not been sufficient to compensate for the corresponding need for new landfills and incinerators. At the same time, the sheer resistance to new landfills or incinerators in many OECD countries is escalating.

The important implications and changes associated with EPR come from both the treatment of products at their post-consumer phase and addressing the upstream activities in the selection of materials and in the design of a product. It is believed that, under these conditions, appropriate signals can be sent to the producer to internalise a substantial portion of the environmental externalities from the final disposal of the product. With this in mind, EPR can help promote the common environmental goals shared by OECD governments: namely, waste prevention and reduction, increased use of recycled materials in production, and increased resource efficiency.

The Polluter-Pays Principle (PPP) has been advocated as a means of ensuring that polluters bear the expenses for the environmental impacts that they generate, rather than them being borne by society more generally. It has long been argued that the point of policy intervention should be as close as possible to the point of externality (i.e. the polluter). However, in recent years measures such as EPR have extended the application of the "polluter" in a broader sense, often incorporating others in the product chain such as manufacturers of products creating environmental impacts. Responsibility is, therefore, shared. Whether or not EPR is cost-effective depends upon whether such measures generate stronger and more appropriate incentives to mitigate the externality than other measures - a subject which is well beyond the scope of this report. Factors such as administrative costs of policy implementation, post-consumption sorting costs, and the structure of product markets will play an important role in determining whether or not EPR is more or less effective and efficient than other instruments.

## EPR Today

There are many EPR programmes in operation today. The most widely publicised is the German Green Dot System (Duales Systeme Deutchland), which makes producers and distributors of packaging responsible for establishing and managing a system to take back the wastes associated with their products. Between 1991 and 1998, the percentage of consumption of packaging in Germany was reduced from 94.7 kilograms to 82 kilograms per capita, a 13.4% decrease.

Strictly voluntary efforts, either company-specific or sector-wide, are also emerging as part of corporate programmes, as public relations gestures, as purely defensive strategies to avoid government intervention, or as a means to increase a market share. They often involve taking back products from the consumer at the time replacements are bought. IBM, for example, has initiated voluntary take-back programmes in Austria, France, Italy, Switzerland and the UK. Likewise, Xerox has initiated a significant programme internationally to take-back cartridges from copying machines. Dell computers has also embarked on a programme to take back products and has designed casing for a certain computer line to be more easily recycled. Nike has initiated an effort to take back used sport shoes, which are then recycled and the material used to make sporting surfaces.

Several countries have developed voluntary agreements for various products and waste streams, some legally binding and others not. In the case of voluntary agreements, governments and the private sector (usually and industry sector as a whole) negotiate guidelines. The Netherlands implemented a negotiated Packaging Covenant with industry in 1991 that is legally binding on Covenant signatories. The Covenant has recently been updated and expanded. Environment Australia has recently entered into a covenant with its packaging sector. It has embraced the idea of product stewardship and numerical targets were set for the reduction of packaging materials. The packaging sector has the flexibility to select the means to meet these targets. However, companies that do not participate in the covenant fall subject to the requirements set forth in the National Environment Protection Measure (NEPM) on packaging.

## Purpose of the Guidance Manual

This Manual is intended to make information available to Member governments on EPR issues and benefits and on the actions required to establish effective EPR policies and programmes. It does not attempt to prescribe a specific course of action for countries that wish to initiate an EPR programme. Nor does it judge EPR performance relative to that of other instruments. Rather, it examines various issues and framework conditions related to the design of EPR policies and programmes. This Manual is meant to provide a foundation, rooted in basic principles, for whatever EPR approach is deemed most useful by a government. Where possible, it draws on experience to date, as well as attempting to guide government policy-makers with regard to relevant conceptual issues. It provides guiding principles and lists of questions for decision-makers to help them as they make their decisions about EPR.

The information in this Manual is derived from a variety of sources, including contributions from stakeholders (governments, the private sector, academia, citizens groups, legal and trade experts, international bodies and trade associations) who attended the four OECD-sponsored EPR workshops, papers submitted to them, and other research. The Manual is intended to help governments that have opted to implement EPR ensure that benefits outweigh costs, that their EPR programme will meet their goals and priorities, and that it will assist in meeting their environmental and sustainable development objectives.

**Summary of contents**

Chapter 1 provides a definition of EPR, places it in the context of economic activity, describes its relationship to internalisation of costs, and raises points that policy makers should take into account as they consider EPR as a policy option. This chapter also discusses the issues of sharing responsibility and the use of targets. While sharing responsibilities across the product chain is an inherent part of EPR, a key characteristic of EPR is that the producer accepts a significant degree of the physical and/or financial responsibility of products at the post-consumer phase. Whereas arrangements for policy implementation could be shared, this Manual emphasises the importance of having one actor as a focal point to organise and implement EPR policy. As governments consider the idea of EPR policy, it is important to evaluate whether and how it could be done. The Chapter also provides a set of questions to assist governments with their analysis. Additionally, socio-economic and socio-cultural considerations that can affect decisions about EPR are described.

Chapter 2 addresses important policy design considerations. Guiding principles for EPR policy and programmes are provided. Other key points addressed are the definition of goals, targets, the importance of stakeholder consultations, transparency of policy and its development, the distribution of information to the public, and in particular, which products, product groups or waste streams are most suitable for addressing through EPR. This chapter also discusses a continuum of approaches for implementing EPR – ranging from fully voluntary (industry-based) to mandatory. Governments contemplating EPR will need to decide early on whether to make the programme voluntary or mandatory or to use a combination of the two (e.g. negotiated agreements or covenants). Some governments have undertaken actions to promote industry-based EPR programmes by creating incentives to encourage voluntary efforts and to form partnerships with a particular sector through voluntary challenge programmes.

Chapter 3 describes a range of policy instruments available to implement the principles of EPR. There are three basic categories of EPR instruments: take-back requirements, economic instruments, and performance standards. Take-back requirements (product take-back) can meet policy objectives by assigning responsibility for the end-of-life management of products. Economic instruments can be used to meet the same objectives (deposit/refund schemes, advance disposal fees, material taxes, upstream combination tax/subsidy). These instruments are incentive-based and provide flexibility to the private sector to establish the means. In addition, performance standards, such as minimum recycled content, can be established to specify a particular percentage of recycled materials to be used in a product. When more than one instrument is being considered, the mix of instruments with the best performance should be chosen. Other complementary measures are described in this chapter, including unit based pricing of household waste (by volume/weight); landfill bans and taxes; removal of virgin material subsidies; materials, product and chemical bans and restrictions; eco-labelling; green government purchasing, marketable permits, and recycling credit programmes. Some OECD governments have suggested that these instruments could be used as alternative policies to EPR.

Chapter 4 addresses roles and responsibilities under EPR policies and programmes. The core of EPR is the extension of the physical and/or financial responsibility of products at the end of their useful life to the producer of the product. For the purposes of EPR, the producer is defined as the entity with the greatest control over decisions relating to materials selection and product design. This would be the brand owner/importer, filler, or manufacturer depending on the structure of the policy and the goods falling under its scope. As previously noted, responsibilities under EPR are inherently shared. While there should be a leader or focal point assigned to organise and undertake action, retailers, distributors and consumers also have key roles in the implementation of EPR policy.

Chapter 5 examines trade and competition issues. Producers have addressed concerns about the potentially trade distorting effects by co-operating to fulfil their individual responsibilities in a non-discriminatory manner. However, it is still important for policy makers to scrutinise the full range of effects that an EPR programme could have on international trade. Different types of policy instruments – take-back requirements, economic instruments, and regulations – will have different trade effects. Some effects will be intentional; for example trade patterns could be expected to change in favour of those products better able to meet the requirements of the EPR policy. Unintended negative trade effects, however, could add unnecessary economic costs to the running of EPR programmes and give rise to opposition from affected business interests. Chapter 5 also discusses the potential for trade-related disputes. For example, international "dumping" of collected materials could cause unfair competition, undermine recycling efforts of the importing country, and constitute a case for anti-dumping action. It concludes that EPR policies can be designed to be transparent, non-discriminatory and not to cause unnecessary obstacles to international trade, and thus can be consistent with WTO disciplines. At the national level, EPR policies could generate some potential competition issues, primarily in two areas. The first arises within the product markets covered by the EPR policy, given the opportunities for collusion among Producer Responsibility Organisations (PROs). The second concerns the markets for secondary materials in light of the market relationships between PROs and the broader waste management industry. Specific steps, however, can be taken to avoid such outcomes. One such measure would be to eliminate artificial regulatory barriers to efficient co-operation, including regulatory provisions that seek to dictate particular forms of co-operation.

Chapter 6 addresses three important policy design issues: free-riding; orphan products and existing (pre-existing) products. With respect to free-riding two particular points are raised: how to minimise free riding and to consider the extent to which the costs of free-riding warrant elimination (i.e. some free-riding might be indigenous to the programme and not worth the expense to monitor and control). Decisions on how to deal with existing and orphaned products (those products whose producer is non-existent due to bankruptcy or other reasons) are directly linked to the policy objectives. Funding schemes to address existing and orphaned products are also described.

Chapter 7 addresses a number of design and implementation aspects. It is devoted to guiding policy makers through a series of practical design and implementation features. It also offers a set of guidelines to help walk policy makers through some of the fundamental programme features.

Chapter 8 outlines future steps and research needs related to EPR. Further research is recommended on the applicability of EPR policy to new and different products, or waste streams as well as which policy instruments tend to be more applicable to which products (and product groups). Integrated product policy (IPP) is an emerging concept within the European Union and in other OECD countries. How EPR policy and programmes can operate in relation to IPP is another area where additional research is needed. Some other areas that are recommended for further study under the policy domain of EPR include, the impact of electronic commerce, the role of industry-based voluntary EPR programmes, the current status of EPR programmes in OECD countries and how certain instruments perform in relation to the evaluation criteria described in Chapters 1 and 7.

## Conclusion

EPR provides governments with a policy approach for addressing environmental pressures created by products at the post-consumer stage. It has an important role to play in increasing resource efficiency by harnessing materials that would have gone to landfill or been incinerated, while at the same time influencing designers to select materials that can be more easily reused and recycled. The principle of

EPR is reflected in a new generation of pollution prevention policies that focus on the product instead of on production facilities. Through such policies, producers are encouraged to re-evaluate decisions concerning materials (and chemical) selection, production processes, design, packaging, and marketing strategies. While EPR began as an approach to address the large volume of packaging entering the waste stream, the trend is toward the extension of EPR to new products, product groups and waste streams - such as electrical appliances and electronics.

# CHAPTER 1:

# OVERVIEW AND CONTEXT

## 1.1 Introduction

Over the past three decades, OECD governments, the private sector and others have spent considerable resources on pollution control and waste reduction. While there have been improvements in pollution reduction and control at the facility level, waste generation is still on the rise. Statistics indicate that within the OECD volumes of waste have been increasing at a rate similar to that of economic growth. Growth of private household consumption between 1980 and 1997 was 37.5%.[1] Over the same time period, municipal waste production has increased 40% in absolute terms and 22% in per capita terms (see figures in Annex 1). These data show that unless different actions are taken there will continue to be more landfills, incinerators and pollution.

To help OECD governments address the increase in waste and pollution, new policy concepts and instruments are being investigated and developed to provide longer-term solutions and increase resource efficiency. Extended Producer Responsibility (EPR) is one new policy approach being examined within the OECD that could help reduce environmental pressures. The guidance and information developed under the OECD's EPR work programme provide governments with an additional tool to help them tackle increasing waste and pollution problems.

## 1.2 Purpose of the Guidance Manual

The purpose of this Guidance Manual is to provide information to national governments that may wish to establish EPR policies and programmes. It does not seek to prescribe a specific course of action; nor does it justify EPR performance relative to other instruments. Rather, it presents a set of options concerning the principles underlying the design of EPR policies and programmes. Conditions within each country dictate the precise details of how policies and programmes would be developed in practice**.** The Manual is meant to provide a foundation, rooted in basic principles, for whatever EPR approach is deemed most useful by a national government. Where possible, it draws on experience to date and attempts to guide government policy makers with regard to relevant conceptual issues.

The information in the Manual is derived from a variety of sources, including contributions from stakeholders (governments, the private sector, academia, citizens groups, legal and trade experts, international bodies and trade associations) who attended the four OECD-sponsored EPR workshops,

[1] In 1997, household consumption waste accounted for 67% of the municipal waste stream.

papers submitted to the workshops and other research. The Manual is intended to help governments that have opted to implement EPR to ensure that benefits outweigh costs, that their EPR programme will meet their goals and priorities, and assist them in meeting their environmental and sustainable development objectives.

Chapters 1 and 2 of this Manual guide policy makers through some of the important conceptual issues about EPR and describe some basic policy design aspects that policy-makers need to consider as they make decisions about EPR. Chapters 3 through 6 give guidance on the range of EPR policy instruments, outline roles and responsibilities and provide a review of four key policy and programme design matters. Chapter 7 sets out basic features of a policy framework and provides guidance on specific implementation aspects. Chapter 8 describes future steps and potential areas for future research.

## 1.3 Background

Governments today are seeking to attain sustainable development by balancing economic progress, social concerns and protection of the environment. Under the OECD's Pollution Prevention and Control Programme, many environmental policy mechanisms and instruments are being examined and developed for climate change, sustainable transport, sustainable construction, product policies, waste management and increasing resource efficiency. Similarly, the OECD Environment Directorate is working on various economic instruments such as eco-taxes, tradable permits, production and consumption, the safe management of chemicals, and other measures to offer governments a mix of tools to help them meet the challenge of reducing pollution and improving the quality of life of their citizens.

OECD Member countries, through the Working Party on Pollution Prevention and Control, have identified EPR as a policy approach that can assist governments in their efforts toward sustainable development. EPR can help minimise environmental impacts over the life cycle of a product by providing producers with incentives to design products with less (or different) material input and which are also easier and more economical to reuse, recycle and recover (see Box 1).

## 1.4 Context

Economic activities place pressures on the natural environment through the use of resources as material inputs, the associated disruption of natural areas and ecosystems, and the generation of pollution and waste flows.

Many aspects of the natural environment are "public goods".[2] In such cases the adverse effects arising from the use of the environment's assimilative capacity and resource stocks are not borne exclusively by those who are responsible for the economic activities which generate the damages. Relative prices in the market will differ from those prices that are socially optimal, and there will be economic incentives to "over-use" the environment. The gap between these prices is a reflection of the existence of an externality.

[2] A pure public good has two characteristics: it is non-excludable (consumption can not be restricted) and it is non-subtractible (additional levels of consumption do not affect availability for others).

**Box 1**

**What are the Benefits of EPR?**

Properly designed EPR policy can be a driving force for waste avoidance and associated pollution reduction throughout many sectors of the economy. Further benefits could include:

- reducing the number of landfills and incinerators and their accompanying environmental impacts;
- reducing the burden on municipalities for the physical and/or financial requirements of waste management;
- fostering recycling and reuse of products or parts thereof;
- improving the ease and timeliness of disassembling products for recycling or reuse;
- reducing or eliminating potentially hazardous chemicals in products;
- promoting cleaner production and products;
- promoting more efficient use of natural resources;
- improving relations between communities and firms;
- encouraging more efficient and competitive manufacturing;
- promoting more integrated management of the environment by placing an emphasis on the product's life cycle;
- improving materials management.

As such, environmental degradation is not just an incidental and unwanted result of some minor deficiencies in the economic process. Rather, its roots may go as deep as, among other things, the decision-making mechanisms at work within the market and the social and political forces that shape all economic activities. If the market operated optimally, there would be no reason to influence behaviour in order to take such effects into consideration. However, this is not the case and the existence of environmental externalities leads to the need for a government response or intervention.[3]

Extending the responsibility for the treatment of products at the post consumer stage to the producer is one means of providing a signal to the producers of goods with adverse environmental impacts to address the externalities associated with products at the post-consumption phase. Therefore, it should influence product design. While some producers and distributors have actively undertaken programmes to take back their products voluntarily (e.g. newspapers, batteries, special cartridges for a copying machine), such behaviour is not yet widespread.

### *1.4.1 Internalisation of costs*

As stated in the recent OECD report on sustainable development, a major obstacle in achieving sustainable economic development arises from the presence of external environmental costs. The Council Recommendation on the Use of Economic Instruments in Environmental Policy (adopted on 31st January 1991, C(90)177/FINAL) states that sustainable and economically efficient management of environmental resources requires the internalisation of pollution prevention and control and damage costs. The importance of internalising costs as clearly acknowledged in this formal Act of the Organisation, is a fundamental aspect of environmental policy design. Within the context of EPR, the extension of the producer's responsibility could explicitly lead to a substantial internalisation of social

[3] For further information, refer to Managing the Environment: The Role of Economic Instruments, OECD, 1994, Environment and Economics, OECD, 1995. Other types of market failures (e.g. information-related failures) may also lead to over use of the environment. However in this Manual, we are concerned with the environmental market failure.

costs for treatment and disposal. It could also implicitly correct other environmental impacts along the life cycle, not currently reflected in the final product price.[4]

## 1.5 What is Extended Producer Responsibility?

OECD *defines* EPR as an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle. There are two related features of EPR policy: (1) the shifting of responsibility (physically and/or economically; fully or partially) upstream to the producer and away from municipalities, and (2) to provide incentives to producers to incorporate environmental considerations in the design of their products.

With the point of incidence at the post-consumer phase of the product's life cycle, an implicit signal is sent to the producer to alter the design of his products so as to reduce the environmental impact in question. Producers accept responsibility when they design their products to minimise environmental impacts over the product's life cycle and when they accept physical and/or economic responsibility for those impacts that cannot be eliminated by design.

A primary *function* of EPR is the transfer of the financial and/or physical responsibility of waste management from local government authorities and the general taxpayer to the producer. Environmental costs of treatment and disposal could then be incorporated into the cost of the product. This creates the setting for a market to emerge that truly reflects the environmental impacts of the product, and in which consumers could make their selection accordingly.

## 1.6 Why Extended Producer Responsibility?

There is a growing awareness that the traditional environmental policy focus on production processes may no longer bring about the needed changes to protect human health and the environment. While industrial and energy production remains an important source of pollution and waste, the relative importance of post-consumer wastes has risen over the past two decades. Many policies and programmes have been initiated to address the rise in waste, but they have not been sufficient enough to compensate for the corresponding need for new landfills and incinerators. At the same time, the sheer resistance to add landfills or incinerators in many OECD countries is escalating. EPR is one means to address this problem. (See Box 2 for a review of the results achieved by the German Packaging Ordinance.)

The increase in waste has also placed new demands on municipal waste management systems and on the revenue needed from taxpayers to pay for the increased load. As governments step up their efforts to address the growing problem of municipal waste, they need a range of policy options available to help them address new and growing environmental pressures. The important implications and changes

[4] It is worth noting, that in countries such as Japan, the internalisation of externalities under their Home Electric Appliances Law (regarding TV sets, refrigerators, washing machines, air conditioners and so forth) is not realised through price of the product at point of purchase, but rather through the mandatory payment of a recycling fee at the end of a product's useful life. As it is expected that all electrical appliances and equipment are properly returned and recycled according to the Home Electric Appliances Law, and that consumers are fully informed of the exact fee at the point of sale and behave accordingly, this system will have the same effect as the internalisation of externalities into the price of the product.

from EPR come from how products are treated at their post-consumer phase and by addressing the upstream activities such as the selection of materials and the design of a product. It is believed that, under these conditions, appropriate signals can be sent to the producer to internalise a substantial portion of the environmental externalities from the final disposal of the product. With this in mind, EPR can help promote the common environmental goals shared by OECD governments: namely, waste prevention and reduction, increased use of recycled materials in production, and increased resource efficiency.

EPR seeks to extend responsibility so as to give producers appropriate incentives and signals concerning the *life cycle* environmental impacts of the product.[5] It addresses what many regard as the *weakest link* in the product responsibility chain: the final disposal of products after their purchase and use by consumers. Because it has not been common for producers to extend their responsibility to address the upstream or downstream environmental impacts of their products, these impacts have rarely been considered in product design strategies. With its focus on extending responsibility of a producer to post-consumer products, EPR can provide a *pressure point* to drive upstream changes in materials selection and in the design aspects of a product. Well-conceived EPR programmes could therefore help reduce environmental pressures from a particular product, product group, or waste stream.

**Box 2**

**The German Packaging Ordinance - What are the Results after Seven Years?**

Nearly seven years after the German Packaging Ordinance entered into force, this policy has proved successful in several areas:

1. Manufacturers have changed their packaging habits. Environmentally-friendly disposal of packaging is taken into account during the production process and is also increasingly considered a competitive advantage for firms.

2. Changes in the packaging market can be seen due to differences in licence fees for different materials and the burden of the fees themselves. Packaging has become lighter and smaller. Some types of packaging with proportionately higher licence fees apply (i.e. plastics, glass) have been replaced by types that are subject to lower fees (i.e. cardboard). Useless packaging has been eliminated.

3. Use of packaging has fallen considerably in Germany. In 1997, 1.4 million tonnes less packaging was used than in 1991, the year the Packaging Ordinance came into force. (For trend data from 1988-1997, see Figure 1, page 31.)

4. In the field of transport packaging, there is a trend towards reusable packaging. Examples are packaging for furniture, food, pharmaceutical products and bicycles.

5. Industry has set up a nation-wide collection system for throwaway packaging and increased recycling capacities for all packaging material. In 1997, 5.45 million tonnes (80.6%) of used sales packaging was recycled. Recycling quotas of 64% for plastics, 72% for compounds (beverage cartons), 79% for tinplate, 80% of aluminium, 83% for glass and 87% for paper and cardboard were reached.

*Source:* Dr. Ulf Jaekel, Federal Ministry for the Environment, Germany, "EPR in Germany – Key Elements," paper presented at the 1998 EPR Workshop in Washington, D.C.

[5] Davis, Gary, *Principles for Application of Extended Producer Responsibility*, paper presented at OECD EPR Workshop, May, 1999, Paris.

## 1.7 Debate

There continues to be a debate around the applicability of EPR as an instrument that can explicitly reduce the amount of waste going to final disposal and implicitly drive upstream changes in product design. Two primary issues in this context are: (1) the OECD's definition of EPR (see Section 1.4) and the extent to which other actors in the product chain share responsibility; and (2) the acceptability of targets.

### *1.7.1 Participation of actors in the product chain - sharing responsibilities*

Part of the EPR debate concerns the concept of shared responsibility – or more explicitly, whether a producer should have primary responsibility under EPR. Sharing responsibilities across the product chain is an inherent part of EPR. While the policy mechanism is called Extended Producer Responsibility, it should be borne in mind that all actors in the product chain and in society must participate in order to optimise its effects. The workshops, held under EPR Phase 3, demonstrated that sharing responsibilities is a delicate aspect of EPR. All actors, including consumers, have an important role to play in effectuating EPR policy. Similarly, the *co-operative nature* implicit under EPR requires careful planning and communication among all affected and interested parties in the product chain.

Goals, objectives, and the type of policy instrument selected will dictate the allocation of responsibility (see Chapter 4). Regardless of the EPR mechanism selected, effective EPR implementation depends on the *participation of all the actors in the product chain*; they are all responsible in some way or other for the environmental externalities. The challenge for governments is to design their policies and programmes so that responsibility is appropriately shared without diminishing the incentives placed on producers to reduce the product's environmental impacts at the post-consumer phase.

### *1.7.2 Setting targets*

Often, EPR programmes have included recycling and recovery targets (e.g. the Dutch Packaging Covenant and the German Packaging Ordinance). Targets and quotas for specific waste treatment methods can be effective incentives within the context of EPR. However, it is important not to confuse the costs of a selected waste management method or alternative with the efficiency of EPR as a policy instrument. As concerns the costs of waste treatment alternatives (e.g. recycling, reuse, recovery or landfilling), these vary considerably across Member countries and fluctuate due to a variety of factors such as product, product groups, type of waste stream, proximity to facility, technology and capacity. Similarly, the costs of EPR will vary from country-to-country depending on the type of policy instrument selected, programme designed, products or waste streams addressed along with numerous other factors. Therefore, EPR in the context of this Manual leaves decisions on treatment alternatives to Member countries.

The idea of targets associated with EPR, whether for collection, recycling, or recovery, is often debated. With respect to the setting of targets for EPR, these should be established in consultation with affected and interested parties to ensure that they can be achieved under current conditions and that future changes in targets are based on achievable recycling, re-use or recovery capacity (see Section 2.8). Consultation with affected and interested parties can increase understanding of the targets and their purpose.

Targets for recycling and quotas for take-back of products have been set in many of the operating EPR programmes. Setting targets can be of key importance when increasing recovery or recycling rates or when reducing the amount of waste for final disposal is an objective. If recycling targets are included under an EPR programme, the carrying capacity of the recycling market should be taken into consideration before they are established. Targets that do not consider the capacity of the market can have a negative effect and lead to failure. In situations where the capacity does not exist for a material collected, surpluses can create an effect on trade if the materials are disposed of internationally at below market prices.

## 1.8 The Polluter-Pays Principle

In 1972 the OECD enshrined the Polluter-Pays Principle (PPP) as the overarching economic and social principle with regard to promoting efficient resource allocation for environmental protection while avoiding distortions in international trade and investment.[6] The Polluter-Pays Principle states that the polluter should bear the expenses of preventing and controlling pollution to ensure that the environment is in an acceptable state, irrespective of whether these expenses are incurred through a charge on pollutant emissions or in response to direct regulation. Nearly 30 years of environmental regulations are based on the PPP.

### *1.8.1 EPR and PPP*

Some OECD governments believe that in practice the price signals associated with the application of PPP at different points in the economy are not being transmitted effectively up and down the product chain. Depending upon the nature of the market structure and inter-firm relationships, environmental policies applied at the level of the externality may not always achieve their environmental objective. Moreover, in the case of waste generation, the administration costs associated with targeting waste flows with different environmental impacts may be excessive due to the complex nature of household waste.

EPR, on the other hand, seeks to influence the reduction of life cycle impacts from products by creating such incentives explicitly. Rather than relying only upon price changes arising from policies applied at the point of waste generation to transmit the appropriate signals, EPR seeks to achieve this by integrating the appropriate incentives through responsibility. This is particularly important in cases where there is a very extended production-consumption chain, little vertical integration, and imperfect markets. With respect to EPR and PPP, there is nothing inconsistent about EPR insofar as the externalities are internalised within the product chain responsible for generating the externality.

## 1.9 Principle of EPR

EPR was identified as a principle and strategy for waste minimisation at the 1995 Waste Minimisation Workshop held in Washington D.C. In this context, the principle of Extended Producer Responsibility would be stated as: *"Producers of products should bear a significant degree of responsibility (physical and/or financial) not only for the environmental impacts of their products downstream from*

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[6] OECD, *Council Recommendation on Guiding Principles Concerning International Aspects of Environmental Policies*, 26 May, 1972 in *The Polluter Pays Principle: Definition, Analysis, Implementation,* OECD, Paris, 1975.

*the treatment and/or disposal of the product, but also for their upstream activities inherent in the selection of materials and in the design of products.*

## 1.10 EPR and Integrated Product Policy

Over the past decade, product policy has moved to the forefront of environmental policy. Life cycle analysis, green procurement, eco-labelling, design for environment and cleaner production are all directed at different aspects of product policies. Recently the concept of Integrated Product Policy (IPP) has been examined within the context of the European Union and in other fora. It is broadly defined as a concept that looks at the entire life cycle of products with the aim of reducing their environmental impacts. An important question here is: Where does EPR fit under the concept of Integrated Product Policy? And, how would EPR operate in relation to IPP?

While there is not yet an agreed definition of IPP, it does have two basic characteristics: (1) it covers all product systems and their environmental effects, while taking a life cycle perspective as the lead principle; and (2) it must involve all relevant stakeholders along the product chain. In this context, it is as important to avoid shifting environmental problems between different media during the production process (integrated pollution control), so as to avoid shifting environmental problems between the various stages within the life cycle of a product.

The1998 EU workshop on IPP recommended the following as *Building Blocks for IPP*:

- measures targeted at the innovation of more environmentally sound products;
- measures aimed at reducing and managing wastes generated by the consumption of products;
- measures to create markets for more environmentally sound products;
- measures for transmitting information up and down the product chain; and
- measures which allocate responsibility for managing the environmental burdens of product systems.[7]

EPR provides a policy framework for measures aimed at reducing wastes generated by the consumption of products and for allocating responsibility to encourage the management of a given product's environmental impacts. In relation to the *Building Blocks* listed above, EPR can have direct and indirect effects on all measures, and can therefore play an important role under IPP. EPR specifically provides measures to allocate responsibility for managing the environmental burdens of product systems. Nevertheless, until the IPP concept is further defined, it would be presumptuous at this stage to imply specifically where the concept of EPR might fall under umbrella of IPP.

## 1.11 Framework for analysis

Before a government takes steps to select EPR as a policy, it is important to *evaluate whether and/or how* this should be done. Government policy-makers may wish to use the following decision criteria

[7] *Integrated Product Policy: Final Report*, European Commission DGXI (March 1998).

typically used for environmental policy deliberations (and applicable in the case of governments contemplating EPR) to help with such an evaluation. These criteria should be used in conjunction with the set of questions (also listed below) that are specific to EPR policy. When devising new strategies, it is important to carefully consider how EPR would fit within the spectrum of national environmental policies, goals and priorities. Costs and benefits of a given approach ought to be weighed in relation to the cultural context in which the decision is made. Lastly, policy makers, in examining the criteria and questions listed below, should consult with stakeholders.

Decision criteria typically used for environmental policy deliberations include:

- environmental effectiveness;
- economic efficiency;
- equity and distributional effects;
- administrative feasibility and costs;
- concordance with institutional frameworks;
- political and social acceptability;
- adjustment costs associated with transactions (as well as those associated with the operation of the programme);[8] and
- incentives for innovation of environmentally compatible products.

More specific questions to review would include:

- What are the issues that have led decision-makers to consider EPR?
- If a policy instrument is not put into place, what will be the fate of products at the end of their useful life (post-consumer phase)?
- What are the views of the main stakeholders on the issues of concern, and what targets do they consider achievable?
- Could the EPR option being considered result in lower consumption of natural resources?
- Would this policy approach stimulate upstream product redesign to consider design for the environment features?
- What other options, or combination of policy options, could bring about the same desired results?
- Could the policy instrument stimulate the use of less toxic/hazardous materials or chemicals or the use of materials that are easier to recycle?

[8] For more information refer to the OECD Council Act C(90)/177/Final, 31 January 1991.

- What is the international dimension in relation to the domestic situation? How can one ensure that policy implementation meets national goals while maintaining domestic and international competition?

- Could this policy option encourage the organised collection and sorting of post-consumer waste without increasing costs to municipalities?

- Could this policy approach help to augment or ameliorate materials management?

### 1.12 Socio-economic and socio-cultural considerations

Different parts of the OECD follow different courses in their implementation of environmental policies and instruments. The socio-economic and cultural factors listed below can affect decisions on the type of EPR policy, the instrument selected, or how the programme is designed:

- general political outlooks (e.g. market interventions);

- political environments in which individual countries operate (e.g. the European Union, North American Free Trade Agreement/NAFTA);

- political structures (e.g. federalism);

- administrative cultures and societal responses to intervention;

- priorities attached to environmental problems and public support for environmental policies;

- basic tenets of environmental policy (e.g. quality or source oriented);

- distribution of responsibilities for economic sectors;

- distribution of responsibilities for economic aspects over ministries, policy levels and agencies.[9]

[9] *Managing the Environment: The Role of Economic Instruments*, OECD, Paris, 1994.

**Box 3**
**Socio-cultural Factors That Can Influence the Choice of EPR**

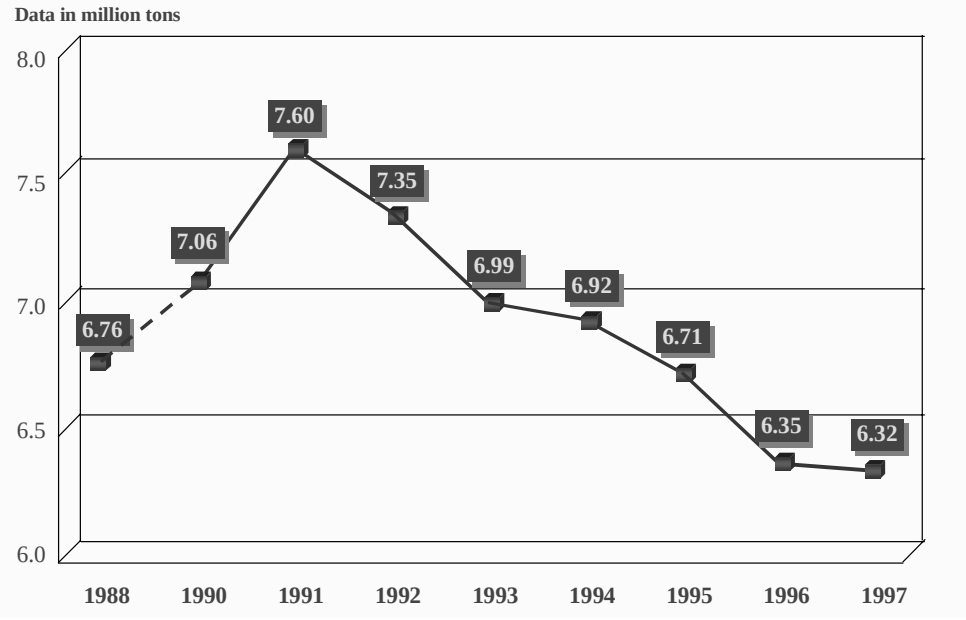
This box has been included in order to set out for governments some factors that might need to be taken into consideration when the activities of one country are compared to those of another:

- A culture of "government by consensus" is characterised by good government-industry relations in which consultation and persuasion are the preferred instruments.
- A "liberal" culture is also characterised by good government-industry relations. Consultation and voluntary agreements are favoured, as well as use of economic instruments.
- An "adversarial culture" is one in which openly declared conflicting interests and positions have to be settled by a process of political arbitration. It will incline towards the use of legislative and regulatory instruments, but this does not exclude a basically liberal element and hence the use of some economic instruments.
- A culture of "planning and programming" will opt to use legislative and regulatory instruments after due consideration of all points of view and the balance of power, even in a "corporatist" cultural context.[10]

Socio-cultural factors often underpin the drivers for policy selection (see Box 3). Cultural acceptance of the ***importance of environmental quality*** can have an impact on the acceptance of environmental quality goals - and thus on EPR. In one country, 30% recycling is viewed as a successful target, while other countries might view 60% or 80% as more acceptable, even if economic and environmental conditions are the same. The ***urgency*** of the situation calling for the adoption of environmental policy will also drive different actions and means. One country might not view waste disposal as an environmental issue; in another country, additional landfills and incinerators could be considered one of its most pressing environmental problems.

[10] Bertolini, Gerard, *Which Policies, Which Tools?* OECD Washington Waste Minimisation Workshop, Volume II, *Conditions Which Favour or Discourage Waste Minimisation*, 1995.

Figure 1. **Packaging Consumption in Germany, 1988-1997**




*Source*: GVM, Wiesbaden and German Ministry for the Environment.
Notes: Data collected from households and small businesses. The Packaging Ordinance came into force in 1991.

# CHAPTER 2:

# EPR POLICY AND CONSIDERATIONS

## 2.1 Introduction

EPR has been recognised by most OECD countries as a policy approach that can provide incentives to reduce the amount of post-consumer waste going to final disposal. However, in order to realise the benefits of EPR, a number of considerations should be taken into account to ensure that the policy yields the desired effect in the areas it addresses. For instance, as with many environmental policies, a single approach may not apply to all products, product groups, waste streams or countries. Effective policy design will depend on national circumstances, conditions, markets and priorities. Therefore this chapter discusses how the policy context and other factors can influence the design and outcome of EPR. It also provides a set of principles that were developed to guide policy makers as they establish EPR policy.

While the promotion of market-driven solutions is generally the preferred approach, this document attempts to provide government decision-makers with information that can help them decide on the direction and approach most appropriate for application in their country. Product characteristics, markets, and intra-firm relations all affect the selection of an EPR instrument. To better understand these relationships, a set of matrices were developed through the EPR Phase 3 Workshop Series and are included in this Chapter. These matrices provide policy makers with a general guide to identify in what situations EPR could be a more effective policy choice and under which conditions.

## 2.2 Guiding principles for EPR

The following ***guiding principles*** for the design and development of EPR policies and programmes emerged from the series of workshops held under EPR Phase 3. These principles underlie the development of effective EPR policies and programmes.

- EPR policies and programmes should be designed to ***provide producers with incentives*** to incorporate changes upstream at the design phase in order to be more environmentally sound.

- Policies should stimulate ***innovation*** by focusing more on results than on the means of achieving them, thus allowing producers flexibility with regard to implementation.

- Policies should take into consideration a ***life cycle approach*** so that environmental impacts are not increased or transferred somewhere else in the product chain.

- ***Responsibilities*** should be well defined and not be diluted by the existence of multiple actors across the product chain.

- The ***unique characteristics and properties*** of a product, product category or waste stream should be factored into policy design. Given the diversity of products and their different characteristics, one type of programme or measure is not applicable to all products, product categories or waste streams.

- The ***policy instrument(****s)* selected should be flexible and chosen on a case-by-case basis, rather than setting one policy for all products and waste streams.

- Extension of producer responsibilities for the product's life cycle should be done in a way to ***increase communication*** between actors across the product chain.

- A ***communication strategy*** should be devised to inform all the actors in the product chain, including consumers, about the programme and to enlist their support and co-operation.

- To enhance a programme's acceptability and effectiveness, a ***consultation of stakeholders*** should be conducted to discuss goals, objectives, costs and benefits.

- ***Local governments*** should be consulted in order to clarify their role and to obtain their advice concerning the programme's operation.

- Both ***voluntary and mandatory approaches*** should be considered with a view on how to best meet national environmental priorities, goals and objectives.

- A ***comprehensive analysis*** of the EPR programme should be made (e.g. which products, product categories and waste streams are appropriate for EPR, whether historical products should be included, and the roles of the actors in the product chain).

- EPR programmes should undergo periodic ***evaluations*** to ensure that they are functioning appropriately and are flexible enough to respond to these evaluations.

- Programmes should be designed and implemented in a way that environmental benefits are obtained while domestic ***economic dislocations*** are avoided.

- The process of developing and implementing EPR policy and programmes should be based on ***transparency***.

## 2.3 Goals and objectives

One of the most important steps in designing an effective EPR scheme is the establishment of clear policy goals and programme objectives. Goals should be transparent and established in relation to specific environmental improvements such as biodiversity, natural resource preservation or

conservation, and energy conservation. While this section lists goals and objectives suggested by Member countries and participants in the EPR workshop series, the list is not comprehensive.

There are four principal goals for EPR:

- Source reduction (natural resource conservation/materials conservation).
- Waste prevention.
- Design of more environmentally compatible products.
- Closure of materials use loops to promote sustainable development.

A good example of goals used in Member countries is Germany, where EPR is a cornerstone of the national goal of a closed loop economy. In the Netherlands, EPR is one of the policies used to help meet the national environmental goals of maintaining space (quality and quantity - referring to waste management issues), biodiversity and energy conservation.

A number of *objectives* for EPR policies can help meet stated policy goals. In this document an objective is viewed as a specific action or tactical step toward the policy goal. The objective(s) selected will vary depending on the type of product or product category, waste stream or sector to be addressed, as well as national priorities, conditions and circumstances.

Examples of possible objectives for EPR policies include, *inter alia*:

- reducing use of [particular] natural resources;
- reducing use of [specified] raw materials;
- reducing use of certain toxic substances and/or other potential hazardous components;
- reducing littering;
- reducing the spread of incinerators and their pollution;
- reducing the spread of landfills and their pollution;
- reducing the amount of waste going to final disposal;
- reducing energy use;
- financing a portion of waste management costs;
- internalising costs of waste management (or other externalities) into the price of the product;
- increasing reuse and recycling of products;
- increasing the recycling of materials to retain their maximum value;

- creating an organised system for collecting specific products, product groups or waste streams;
- reducing waste management costs to taxpayers;
- reducing the costs of waste management borne by municipalities;
- developing cleaner production and products, which can include:
  - incentives for more environmentally compatible products;
  - products with less toxic and/or hazardous compounds;
  - developing new recycling techniques and capacity; or
  - improving materials management.

In setting goals and objectives, a number of issues affecting the nature, operation and results of EPR policies should be taken into account. These include defining the programme's terms and scope, setting targets or quotas, and identifying the roles and relationships of other laws and regulations already in place. The following sections address these points.

## 2.4 Defining terms

Terms such as *producer*, *final product*, *recovery*, *recycling* and *distribution chain* need to be clearly defined from the start. Governments may wish to consult the glossary found at Annex A of the OECD Extended and Shared Producer Responsibility Phase 2 Framework Report (1998). Policy-makers could choose to use these definitions or to fine-tune specific terms to suit national needs, circumstances and conditions.

## 2.5 Scope

The scope of an EPR programme should be considered in relation to stated goals and relative objectives. The types of products, product groups, waste streams and/or sectors to be addressed need to be determined since they can greatly affect how a programme should be designed and developed. The packaging waste stream is a well-known application of EPR, and increasingly, more products, waste stream and sectors are being assessed to identify the feasibility of EPR. Without a clear and concise definition of scope, many issues, such as the complicated mix of product characteristics, can affect the allocation of responsibilities and the clarity of the roles of those affected by a policy.

## 2.6 Which products or waste streams?

In focusing on the type of products that are likely to work best with an EPR approach, there are a number of factors to consider. The type of product, its durability, composition, market, distribution, and secondary material markets are all factors that can influence the choice of an instrument for a particular product, product group or waste stream. Other factors to consider are the number of products, the degree of homogeneity within a product category and the size and scope of the product distribution network.

Determining which products or characteristics of product groups or waste streams can be more readily addressed under the different EPR instruments can be a difficult task. To date, OECD countries have used EPR principally for packaging waste, electronic and electrical equipment, batteries, bottles, paint cans, automobiles, waste oil, tyres, refrigerants, and other products. Drink containers are prime candidates for many deposit/refund systems and advance disposal fees have been used on longer life products such as refrigerators. *(N.B. There was a programme in the US State of Florida in which an advance disposal fee was placed on fast food packaging.)*

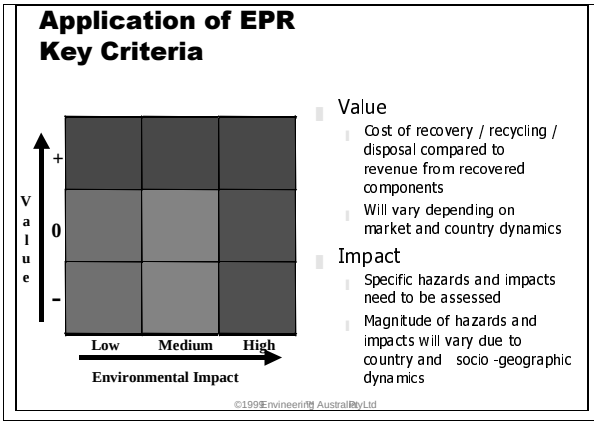
At the 1999 Paris EPR Workshop a set of decision-making matrices or guides were developed as a screening tool to help policy makers select a course of action (Box 4). These matrices, which are *still under discussion in the OECD context*, could provide a starting point for government decision-making. For instance, Matrix A indicates that products with a high residual or positive value at the post-consumer stage are generally voluntarily collected or taken back by the producer. As shown in Matrix E, products, product groups or waste streams with low residual value and high environmental impacts could be considered candidates for stronger government intervention. In situations where a high volume of a material (e.g. packaging) goes to final disposal or where landfill is very limited or unavailable, EPR could, and has, played an important role in helping governments reduce the volume of material going to landfill and incineration.

High and low volume transactions, potential risk or hazard from product or components, and the perceived urgency of the waste management problem are other factors that should be incorporated into the decision-making process. For instance, high volume product transactions of low residual value products might be an area that a programme may be necessary to promote improvement. On the other hand, low volume transactions for high-value residuals may be a product group that could generate voluntary initiatives. High-risk products with low residual value might be an area for mandating a programme, however, the liability of such products often results in producers creating a voluntary programme. *(N.B. Other factors can be incorporated into the matrices, such as the likelihood of cost-effective policy intervention in relation to environmental impacts*.) Indications from these matrices could help policy-makers better match products or waste streams with EPR programmes and more effectively leverage scarce resources.

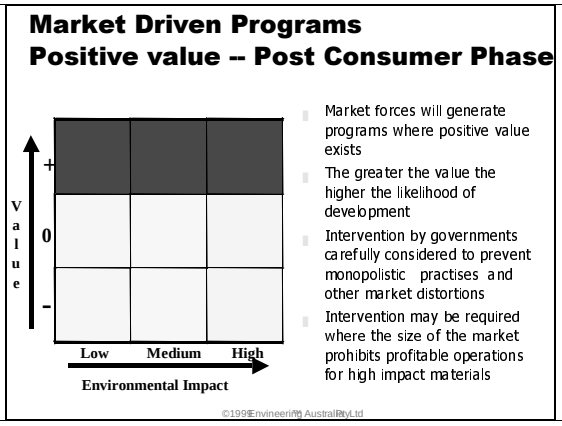
Generally speaking, products and product groups with the potential to produce undesirable effects (e.g. pressure on the environment, added volume of waste from the product or product group, low potential for recovery and recycling, etc.) are the clearest candidates for EPR. However, the question still remains as to which products and for which sectors or waste streams EPR approach tends to be more applicable. More precise advice and information from these matrices requires additional study and research. Further examination on how these matrices function relative to current operating programmes, and perhaps one or two hypothetical programmes, is clearly warranted. Such a study could provide empirical data and information about the applicability of the matrices under varying conditions.

**Box 4**
**Application Matrices for Extended Producer Responsibility Programmes**

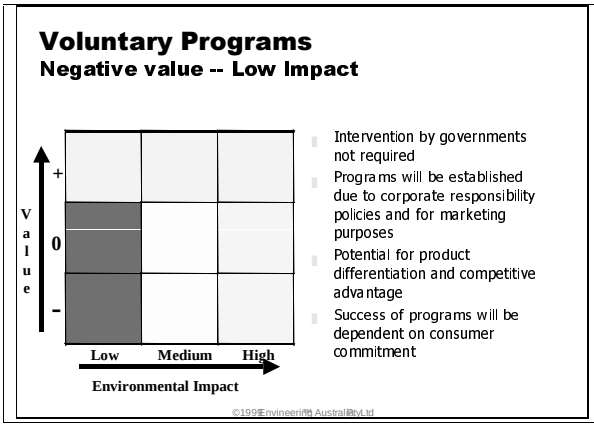
**Matrix A**



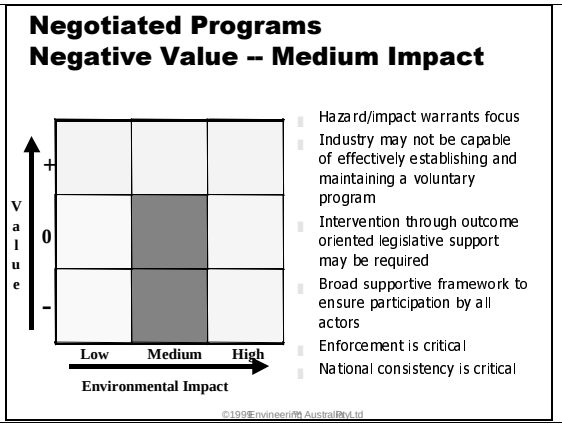

**Matrix B**



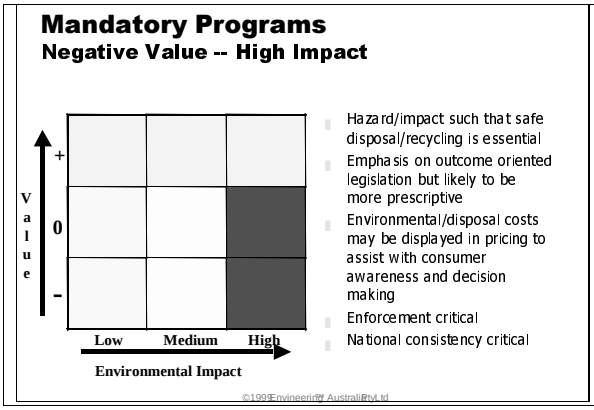

**Matrix C**




**Matrix D**




**Matrix E**




*Source*: Michael Bennett, Engineering, TM Australia, Pty Ltd., presented at the OECD EPR and Waste Minimisation Workshop, "Towards Sustainability", 4-7 May, 1999, Paris.

## 2.7 Legal and administrative approaches

There is a continuum of approaches for implementing EPR – from fully voluntary to mandatory. Policy-makers contemplating EPR will need to decide early on whether to make the programme voluntary or mandatory, or to use a combination of the two (e.g. negotiated agreements or covenants). While particular EPR instruments and measures are discussed in Chapter 3, the following Sections provide an overview of approaches for decision-makers to bear in mind.

### *2.7.1 Mandatory approaches*

Many OECD Member countries have used legal mechanisms (such as regulations and ordinances) for implementing EPR programmes. Decisions on whether to pursue a mandated programme should be made *vis a vis* the EPR policy, goals and national environmental priorities. Governments considering the establishment of a mandatory programme must first identify whether appropriate authority exists. If not, the enabling legislation, regulation or ordinance would need to be developed. Additionally, under a mandatory programme, a formal oversight role may be needed and provisions for sanctions would be necessary to ensure compliance. Also, the costs of implementing a mandatory programme could be significant and should be evaluated.

### *2.7.2 Voluntary approaches*

Voluntary approaches are a category of environmental policy instruments, covering a wide variety of arrangements. They range from industry-based to government-based initiatives and include:

- unilateral commitments by industry;
- agreements achieved through direct bargaining between polluters and pollutees;
- agreements negotiated between industry and public authorities;
- voluntary programmes developed by public authorities to which individual firms are invited to participate.

A pervasive use of voluntary approaches can be observed in OECD countries. Negotiated agreements like the Dutch Packaging Covenant are well known. Increasingly, company specific or sector-wide unilateral commitments are emerging in the area of EPR, especially with product take-back. The motivations behind these programmes can include economic drivers to recover high-value items, public relations gestures, means to avoid government intervention, or means to secure greater market share. Often such programmes result in reduced resource and energy consumption, reduced operational costs, and increased credibility with shareholders and the public. The Responsible Care programme embodies the concept of product stewardship and is a well-known example of a multilateral (voluntary) commitment made by the chemical industry in many countries.

Recently, more and more industry-based initiatives like product stewardship (which often includes product take-back) and take-back have emerged. An evaluation of the drivers for these programmes and their expansion under certain product categories can provide valuable insights to decision-makers considering EPR.

## 2.8 Targets and quotas

Targets for recycling and quotas for the take-back of products are found in most currently operating EPR programmes. This mechanism can be critical when the objectives are, for example, to increase reuse or recycling rates or to reduce the amount of waste going to final disposal. Targets and quotas, which could be quantitative and/or qualitative, might include recycling or recovery rates, performance quotas or specific quality objectives.[11] Consultations with affected and interested parties can help increase the acceptability of targets by the public, industry, and all levels of government.[12]

Specific considerations to take into account when setting targets include:

- Who is involved in setting the target? (e.g. stakeholders).
- Will the target be voluntary or mandatory?
- What is the time period for meeting the target? Will there be a phase-in period?
- What would happen if the target is not met in the established time period?
- Are baseline data available to measure the target against?
- What is the capacity of the market to meet set targets or quotas?

## 2.9 Matching supply and the capacity to manage the demand for recyclables

The public response to the German Packaging Ordinance was such that the initial targets were significantly overachieved. German secondary materials markets became saturated, and the excess material was "dumped" on the international market at below-market prices (see Chapter 5). The key issue was that the capacity and technical capability available to handle all the secondary materials did not fully exist when the Ordinance came into force. Over time, this market failure has corrected itself and decision-makers took away the lesson that national capacity and the capability to recycle secondary materials need to be scrutinised before setting targets and quotas.

The development of new recycling capacity requires time and investment, and governments may wish to introduce specific targets and quotas on an incremental basis to ensure that there is adequate time for the market to react to any unanticipated impacts. In order to avoid inhibiting innovation and perhaps stifling recycling capacity, care should be taken not to set targets at arbitrary rates or shift the focus from longer-term changes to shorter-term fixes. In order to avoid such negative effects, one option could be to establish a *phased-in* schedule of targets or quotas to help build capacity and technical capability over time. Decision-makers might also want to establish a public awareness programme concerning the targets and what they mean.

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[11] The OECD EPR Phase 2 *Framework Report* (*ENV/EPOC/PPC(97)20/REV2*, pp. 15-16) provides further information on targets, as do the EPR Phase 2 reports on the *Case Study on the German Packaging Ordinance* (OECD, 1998) and the *Case Study on the Dutch Packaging Ordinance* (OECD, 1998). Additionally, *the Strategic Waste Prevention Reference Manual* (OECD, 2000) addresses strategic target setting.

[12] Sometimes numerical targets are set under product stewardship programmes for the reduction of a specific waste.

## 2.10 Roles and relationships of national and sub-national environmental goals, programmes and laws

In developing EPR policies, decision-makers should review how they would interact with and support national environmental priorities and objectives. As part of this review, it is necessary to assess environmental policies and laws to evaluate the current situation and to ensure that no conflicts exist with proposed EPR policies and programmes or with other national and sub-national laws (including trade and competition). At this stage, decision-makers may wish to take stock of current industry-based voluntary initiatives and local programmes as they consider whether intervention is necessary or where best to intervene. For those who are considering a mandatory approach, it would be prudent to assess the current legal structure to identify whether appropriate authority exists, whether a new law, regulation or ordinance would have to be created, or if adjustments to current regulations can be made.

## 2.11 Other aspects to consider

### *2.11.1 Consumption and production patterns*

Chapter 4 of UNCED's Agenda 21 addresses the need to move away from unsustainable patterns of production and consumption. It encourages governments to develop national policies and strategies with a view to achieving sustainable production and consumption patterns. Chapter 4 also calls on OECD countries to take the lead in working toward this goal. Bearing this in mind, governments designing an EPR scheme should consider the need to inform consumers about their role and seek ways to foster more sustainable consumption patterns. In the longer term, EPR creating more efficient resource use and reduced resource consumption should instigate the development of sustainable production/consumption systems.

### *2.11.2 Stakeholder consultations*

Consultations with stakeholders should be an inherent part of the policy development process. Stakeholders can include all levels of government, industry, importers, non-governmental organisations, public interest groups, and citizen groups. Consulting with stakeholders builds consensus and support for the programme. Engaging all interested and affected parties can also inspire a commitment to effective implementation of the desired policy instrument or measure.

Experience gained through stakeholder consultations on environmental issues indicates that governments should establish a ***consultative framework*** and lead the process. To ensure consistency and provide structure to the process, it could be useful to establish a co-ordinating body consisting of all stakeholder groups. Experience also shows that it is beneficial to develop a timetable for consultation activities, with a specified deadline for completing tasks.

### *2.11.3 Transparency*

Establishing and implementing EPR policies and programmes should be transparent and objective. Consultations with affected and interested parties are a key aspect of transparency, as is the provision of information on the intent of policies and programmes to all entities falling under the scope of the programme. Transparency during the policy development process can help policy-makers ensure that

key actors and the public are well-informed about the intent of policies and any requirements that need to be met. Greater openness can stimulate public involvement and help the public to determine:

- What are the policy drivers and objectives of the EPR programme?
- What EPR instruments are being considered and why?
- Who is producing the product(s)?
- What are the roles and responsibilities of those subject to the EPR scheme?
- What are the roles of the public and of consumers?
- What actions are producers taking to reduce the amount of waste going to final disposal?
- What types of administrative control procedures have been instituted?
- What kind of information can be provided on the performance of the EPR scheme?
- What are the costs for treatment of the post-consumer product, and what are the fees or levies being paid by the consumer for the treatment or disposal of the product?

### *2.11.4 Distributing information about EPR*

Industry representatives raised issue with the role of the consumer under EPR, stating that governments considering EPR should take into consideration that it is the consumer who has the *absolute power* of choice in selecting a product. One example cited during the EPR workshops concerns green (or environmental) products, which are often not selected by consumers due to their higher price.

A study by the National Consumer Research Centre in Finland (Timonen, 1997) supports the perception that there is currently limited consumer demand for green products. In Finland, the motivation to take environmental issues into account appeared to be a mixture of general public opinion, subtle pressure from authorities and expectations of future customer demands. One issue raised with respect to the supply and demand of environmental information was the lack of structured or systematic procedures to provide environmental information to the customer or to transmit such information between actors in the product chain. This study indicated that improving the supply of information (in a structured and systematic way) and providing it in the appropriate context would be a valuable step to help customers make more informed choices and, in turn, increase the demand for such information. Indeed, consumers have an important role in an EPR programme and should be informed about their responsibilities in a context that is easy for them to understand.

In addition to consumers, all actors in the product chain need to be informed about specific programme goals, objectives, needs and requirements. Training, education and outreach plans should be designed early on. In developing such a plan, a number of factors need to be considered:

- target audiences (the public, customers for a particular product or product group, trade associations, unions, local communities and environmental groups);
- information needs (training manuals, brochures, seminars and other publicity);

- the timeframe for carrying out the plan;

- the resources needed.

Information should be presented in a format that is comprehensible to consumers, retailers, and other actors in the product chain. It should be provided, to the greatest extent possible, in a consistent and systematic manner. If data and reporting requirements are included under the EPR programme, explicit information and examples should be given to those entities falling under its scope. For example, specific take-back measures or other special conditions should be clearly explained and widely disseminated to all affected and interested parties to ensure that there is full comprehension and knowledge of the EPR policy and programme. Wide dissemination of such information can lead to more effective implementation overall.

## 2.12 Summary: checklist of points to consider

1. The ***guiding principles*** for EPR (see Section 2.2) should be taken into account when designing or developing EPR policies or programmes.
2. Policy ***goals and objectives*** should be identified early in the policy design process and in consultation with all stakeholders. They should support and complement existing national environmental priorities.
3. Specific ***terms*** should be clearly defined.
4. The ***scope*** should be established in relation to stated policy goals.
5. ***Products, product groups or waste streams*** should be matched with the most appropriate EPR policy mechanism. Matrices in Box 4 can provide a screening guide to governments faced with this decision.
6. Decisions concerning whether the programme should be ***mandatory*** or ***voluntary*** should be made early on. If a mandatory path is selected, it is important to consider how the requirements will be enforced. For voluntary programmes, decisions on whether the programme will be entirely or party voluntary need to be made**.** A performance assessment of current industry-based programmes could be useful. In the case of voluntary agreements, the question of how the agreement would be monitored should be considered.
7. ***Targets*** and ***quotas*** should be set according to the capacity of the recycling market. Targets could change over time in relation to an evolving market.
8. EPR should be used to support and complement ***national and sub-regional*** priorities, programmes and laws.
9. EPR policy should support and foster ***sustainable consumption and production*** efforts at the national and sub-national level.
10. Consultation of ***stakeholders*** should be considered as an integral step in the policy design process.
11. ***Transparency*** of the policy design process and programme development should be ensured.
12. An ***information dissemination plan*** should be implemented to help distribute necessary information effectively to all affected and interested parties.

# CHAPTER 3:

# INSTRUMENTS AND MEASURES

## 3.1 Introduction

This chapter describes a range of policy instruments for implementing EPR policy. Three basic categories of instruments exist: take-back requirements, economic instruments, and performance standards. Take-back requirements can meet policy objectives by assigning responsibility for the end-of-life management of products e.g. product take-back. Economic instruments can be used to meet the same objectives. These instruments are incentive-based and provide flexibility to the private sector to establish the means to accomplish the programme requirement e.g. deposit/refund, advance disposal fees, material taxes and the upstream combined tax/subsidy. In addition, performance standards like minimum recycled content can be set to specify a particular percentage of recycled materials to be used in the product.

Section 3.9 discusses the environmental effectiveness and economic efficiency of EPR and describes conditions under which EPR would be most efficient and effective. Criteria for selecting a policy instrument or measure are included in section 3.11. These criteria should help guide policy makers to select the most appropriate instrument in view of their particular environmental priorities, goals and objectives.

## 3.2 Policy drivers

National environmental priorities and other drivers need to be taken into account when considering EPR. To date, Member governments have used EPR to stimulate change in three key priority areas: resource efficiency, cleaner products and waste management. EPR can help realise objectives of sustainable development by helping to reduce wastes, reduce the release of potentially toxic chemicals in the environment, reduce use of virgin material inputs and lower energy consumption.

When ***resource efficiency*** is the primary concern, the policy emphasis would be on resources consumed in the production phase. Supporting instruments might include material taxes, take-back, combined upstream tax/subsidy and recycled content requirements. A specific focus would be on a life cycle approach. Measures should be designed to maximise overall environmental gains without limiting action to a particular phase of the life cycle.

In contrast, if improving the design of more environmentally compatible (or cleaner) products drives decision-making**,** the emphasis of EPR will centre on specific products or product categories that pose problems at the post-consumption phase of their life cycle. Increased attention to product design for

better durability and recycling, as well as transparency of environmental impacts to the consumer, may also be expected. Supporting actions could include advance disposal fees, take-back and recycled content standards. Other supportive programmes would include those such as eco-labelling to identify preferable products for the consumer and for green government purchasing.

***Waste management*** driven decisions are more likely to focus on the specific percentages of post-consumer materials to be diverted from final disposal. These activities would further support related research and development or commercialisation activities for materials recovery technologies and capacities. Concerns about the internalisation of costs may be more narrowly focused on internalising costs for waste management. Instruments would include deposit/refund, take-back combined upstream tax/subsidy, and advance disposal fees.

## 3.3 EPR policy instruments and measures

While other environmental policy instruments tend to target a single point in the product chain, EPR seeks to vertically integrate signals related to the environmental characteristics of products and production processes throughout the chain. Several kinds of instruments and measures exist for implementing EPR. The following sections outline some of the options available. The instruments discussed in this chapter are those that act to implement the basic principles of EPR. Therefore, programmes established using any of the instruments listed below would need to include the distribution of physical and economic responsibility (see Chapter 4) under the EPR policy.

### *3.3.1 Take-back requirements*

Policies that require the producer and/or retailer to take back the product or its packaging after use are the clearest example of extending the producer's responsibility into the post-consumer phase of a product's life cycle.

*a) Product take-back*

The most active use of EPR, under both voluntary and mandatory schemes, is in product take-back. EPR is applied to specific products (e.g. automobiles), product categories (e.g. electric and electronic products) or waste streams (e.g. packaging) that are to be taken back or returned. This type of programme is often associated with targets for collection and recycling and/or reuse. [13] In most cases, the producer is given the responsibility (or as under voluntary systems, takes on the responsibility) of meeting the targets for reuse, recycling and collection via a law, ordinance or agreement unless other conditions such as participation in a Producer Responsibility Organisation (PRO) or in the initiation of an individual take-back scheme, have been met. (As will be discussed later in this document, PROs are industry-wide schemes that are set up to implement voluntary and regulatory EPR approaches.)

The take-back concept, pioneered in the 1991 German Packaging Ordinance, is now being applied to a wide range of products including batteries, tyres, cars, computers, used oil, oil filters and containers, refrigerants, white goods and electronic products by many OECD countries, including Australia, Canada, EU Member states, Japan, Korea, Norway and the United States. Policy approaches range

[13] The OECD waste hierarchy is considered as: 1) waste prevention; 2) re-use; 3) recovery, including recycling and energy recovery and 4) disposal.

from legal requirements, to negotiated industry/government agreements, to completely voluntary industry-based programmes. Often take-back is regarded as the *purest* form of EPR.

While voluntary agreements fall under administrative approaches to EPR, it is important to note that there are certain industry-based initiatives that could serve as an option. Firms have taken action to redesign products for easier recycling and/or recovery of particular components deemed to have a positive value at their end-of-life stage. Some firms have redesigned products to reduce the amount of toxic materials or chemicals used - based on voluntary challenge initiatives such as the US EPA's 33/50 programme and the Canadian ARET programme. In other instances, a sector as a whole creates a programme - as was done in Australia through their packaging stewardship programme. (Annex 2 contains a summary of a sector initiative for rechargeable batteries in the United States. This successful initiative was undertaken by the sector as a whole to avoid promulgation of national regulations.)

**Box 5**

**Voluntary Industry-Based Programmes – Western Canada**

Strategic intervention in the market was required to ensure effective collection and processing of used oil containers and filters coming from *do-it-yourself* oil changers – consumers, farmers and small commercial enterprises. This *do-it-yourself* sector generates used oil, filters and containers simultaneously. In the early 1990's, the four Western Canadian Provinces had tried used oil "return to retail" regulations, but no regulation existed on the oil filters and containers that were being sent to landfills.

In 1993, the Used Oil/Containers/Filters Industry Management Programme of Western Canada was initiated to fit this specific situation. This industry-based initiative was designed to have depots parallel to those established for bottle returns – or Eco-Centres. A charge is incorporated into the price of the product to fund the recovery programme. Funds collected under this system are managed by industry and are set for cost recovery only. These funds are also used (at least in part) to pay the return incentive to oil collectors based on the volume they collect. This successful example illustrates an economic solution to an environmental problem by using market forces.

### *3.3.2 Economic instruments*

Whereas take-back requirements use the assignment of responsibility to the producer for the end-of-life management of their products to meet the policy objectives, economic instruments can also be used toward the same objectives. Listed below are economic instruments that can be used to effectuate EPR policy. These instruments provide a direct financial incentive for actors to implement EPR. Examples of economic instruments that can be targeted to meet EPR objectives include deposit-refund schemes, advance disposal fees, and taxes and/or subsidies. (For technical definitions of terms such as *fees, taxes and deposit/refund, subsidies,* refer to Annex 2.)

When using economic instruments for EPR policy implementation, certain conditions should be established to ensure that a significant degree of the physical and/or financial responsibility of the producer is allocated. For instance, if the consumer is required to pay an advance disposal fee to cover the additional costs for treating their product at it's post-consumer phase, then the physical responsibility should be extended to the producer. Another example would be the earmarking of a materials tax. Earmarking the tax would ensure that moneys paid by producers are used for the treatment of the products subject to the EPR programme. Moreover, this tax could be set so that it differentiates between those materials that are difficult to recycle or reuse (e.g. containing toxic chemicals or numerous types of materials) from those that are not.

*a) Deposit/refund schemes*

In a deposit/return system, a payment (the deposit) is made when the product is purchased and is fully or partially refunded when the product is returned to a dealer or specialised treatment facility. Traditionally, deposit/refund schemes have focused mainly on beverage containers. Despite the success rate of these schemes, little activity outside of beverage containers has evolved. (Although they have been used in Member countries to a limited degree for other product categories such as consumer batteries, fluorescent light bulbs, tyres, and shopping bags.) To encourage more environmentally sound choices of materials, charges are applied to specific products and are refunded when the product is returned.

Arrangements are usually made with retailers to accept same brand and type of product, which they sell. Distributors are often responsible for the pick-up of containers (or products) and delivery to a recycling or treatment centre. Deposit/refund schemes can also be organised through a recycling centre or through kerbside collection. However, studies indicate the return ratio is lower under these two methods. The physical responsibility for operating this scheme would be delegated to the producer (and perhaps the distributor).

Principally, the deposit should include the commercial costs of the container (or specific product), plus the environmental costs associated with the disposal or with littering. Refunds should equal the avoided environmental costs plus the scrap value of the container. Higher return rates can be achieved when the fee is set at a higher percentage of the price.[14]

Administrative arrangements between the producers, retailers (and distributors) need to be made at the onset of the programme. To avoid dislocations, some programmes have set maximum numbers of returnables permitted per customer per retail establishment.[15] Under a deposit/refund system, full or partial responsibility should be allocated to the producer.

Deposit/refund schemes are often introduced as a means to encourage reuse and the reduction of material inputs (e.g. beverage containers), and/or to ascertain a reliable flow of materials for recycling and recovery operations. Recent studies indicate that the return percentage for plastic bottles within the OECD is over 60%. Beer and soft drink return percentages range from 90-100%. For wine and liquor containers, return rates are between 40-80%. In terms of percentage price of the deposit, beer and soft drinks are the highest, indicating that the higher percentage of the price for the return, the higher the return rate.[16] For nine US states**,** return success rates range from 72 to 98%**.** (Annex 4 contains charts of performance data for deposit/refund schemes in Germany, Netherlands, Norway, South Australia, UK and for several US States.)

*b) Advance disposal fees*

An advance disposal fee (ADF), in the context of EPR, would be a fee levied on certain products or product groups based on estimated costs of collection and treatment methods. Fees are paid at the point of sale. Fees could be levied through the government or by an industry-based private sector

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[14] OECD, *Applying Economic Instruments to Packaging Waste: Practical Issues for Product Charges and Deposit-Refund Systems*, Environment Monograph No.82, Paris, 1993.

[15] Often the consumer will purchase products from a larger retailer further from their home but will return items to their local retailer where there is not the capacity to accept large volumes.

[16] OECD, Managing the Environment, The Role of Economic Instruments, Paris, 1994.

organisation. Who collects the advance disposal fee (government or a private sector body) is an aspect that needs to be sorted out in the design of the system. The role of the retailer and distributor in this scheme needs to be arranged at the programme design stage.

Some OECD governments with advance disposal fee programmes have set up a system to return a portion of the fee (paid by consumers) that was not used if recycling costs for the product have decreased. Similarly, lower fees or higher refunds could be paid for those products by which the waste management costs are reduced through actions such as redesigning the product for easier disassembly or with more homogeneous material composition. This scheme is similar in some respects to the deposit/refund scheme and is often used for longer-life products such as tyres or refrigerators.

An ADF by itself would not constitute an EPR programme *per se*. The customer pays a fee for the recycling or treatment costs for the product, therefore, some portion of the *physical* organisation and treatment of the product at its post-consumer phase would need to be placed on the producers for the ADF scheme to be considered EPR. For example, producers (and importers) can organise an individual structure with retailers for product returns, or set up their own *return depots*. Another option is for producers and importers to form a private sector body to organise the collection and treatment of the products.

In efforts to enhance the communication about their EPR programme, one country requires that the advance disposal fee is placed on the customers sales receipt (and it is noted as a fee for the waste treatment of the product they are purchasing).

*c) Material taxes*

The aim of material taxes is to reduce the use of virgin materials (or materials that are difficult to recycle, contain toxic properties, etc.) in favour of secondary (recycled) or less toxic materials. Special taxes may be levied on particular materials used or on materials (or chemicals) deemed to cause pollution or create a particular hazard. This instrument can be used when source reduction is the principal goal.

Ideally, the tax should be set at a level where the marginal costs of the tax equal the marginal treatment costs. Taxes set at the optimal level can contribute to material reductions i.e. to a level that would address the externality. Establishing the appropriate tax level, and the administrative costs associated with collection and re-distribution of the revenues, would need to be factored into decision-making. The tax could be set in relation to the damage from production and/or costs of waste management and as a scarcity premium. The tax level also should take into account costs for recycling, reuse and/or recovery of the product to ensure that the appropriate signal are transmitted across the product chain.

The tax should be earmarked and used for the collection, sorting, and treatment of post-consumer products. Under a tax programme, the physical responsibility (full or partial) for post-consumer products should be allocated. A structure closer to the core of EPR would be to delegate physical responsibility to the producer or to establish a shared system of responsibility in which the producer responsible for the extra costs for the treatment of the post-consumer products, and as exemplified under the Japanese and French packaging laws, the municipality could retain responsibility (funded by the materials tax) to collect and sort the wastes.

*d) Upstream combination tax/subsidy*

An upstream combination tax/subsidy (UCTS) model was proposed as an *alternative economic instrument to EPR* at the 1998 Washington, D.C. EPR Workshop. However, the UCTS is consistent with EPR and it could be used as an instrument for EPR since it is a tax paid by producers which is then used to subsidise waste treatment. An upstream combination tax/subsidy instrument signals the producer to alter their material inputs and product design and provides a financing mechanism to support recycling and treatment.

The upstream combination tax/subsidy combines a tax on produced intermediate goods, such as aluminium ingot or rolls of specific grade paper, with a subsidy to collectors of recyclables like used beverage cans and old newspapers sold for reprocessing. The upstream tax is levied by weight rather than per unit of a good because it is focused on materials and seeks to reduce the physical amount of material that ends up going to waste disposal. A subsidy is then provided to waste management firms or local governments to finance waste management.[17] The allocation of producer responsibility would be financial (through the tax). Producers can also be given physical responsibility (full or partial) for treatment of the post-consumer products. For instance, the producer might recycle their products while the local government collects and sorts the waste through the subsidy. Tax schedules could be designed to deter the use of materials that might be difficult to recycle or have an impact on the environment (e.g. high toxicity). Establishing the correct tax and subsidy, as well as identifying who should be taxed and who should manage the system (level of government), are choices decision-makers will need to make.

### *3.3.3 Standards*

*a) Minimum recycled content requirements*

A target of a minimum amount of recycled content (or secondary materials) per product can be set (like a performance standard). While minimum recycled content requirements are a performance standard *per se*, they will also encourage taking back of materials for recycling or re-use of the product. The producers and intermediaries generally take on the physical responsibility (or an agreed combination thereof).

Progressive standards can induce the potential for innovation. As stated by Kemp et al, 1992, the policy mix of a standard (minimum recycled content) and a levy, or tax, can enhance the potential for innovation. Minimum recycled content requirements are often used with paper products, glass containers and plastic beverage containers. Some industry sectors have strong voluntary programmes for paper products, aluminium and plastics. Partnerships with government have also been formed. Examples of minimum recycled content laws in the United States can be found at Annex 5.

### *3.3.4 Other industry-based measures*

There are initiatives that firms may take that would meet similar objectives to EPR. Public policy makers would not be responsible for such policies *per se*, but could help create conditions to stimulate these activities. One measure is leasing where ownership of a product never terminates. Another

[17] Walls, Margaret and Karen Palmer, *Extended Producer Responsibility: An Economic Assessment of Alternative Polices*, Washington, D.C., 1998.

measure is a concept based on the new economy in which there is a transition from selling a product to offering a service.

*a) Leasing*

With leasing, the producer would not terminate ownership.[18] Many companies advocate leasing of their products because this gives producers control over their products' entire life cycle and allows them to repair and reuse components. This option can be impractical, or impossible, however, in the case of products with a very short life.

*b) Servicizing*

The concept of servicizing was discussed at the 1998 Washington, D.C. EPR workshop. Servicizing is the notion that firms firmly rooted in product manufacturing evolve into being service providers (White and Feng, 1998). A servicized firm still makes a physical product, but subordinates such products within a new business strategy that sells their customers function rather than physical input. The firm actually moves beyond extended warranties for longer-life products and leasing to redefine itself as a service provider, relegating its products to "service delivery agents" while rebuilding its cost and profit structure on the basis of function. Examples of this evolution from a product to a service company include firms such as Olin, Castrol, Henkel and Dow, who have established chemical management programmes. A package of services is provided with unit based pricing structures, e.g. per door panel coated or per wafer cleaned. Xerox has moved from a copy machine maker to being a "documents management" company where they now sell a service. Xerox finds this product stewardship programme provides them with better control over the product. Interface Corporation's carpet leasing provides services when carpets for commercial use are leased. The concept of servicizing clearly indicates an important trend for the future.

### 3.4 What is the primary response to an instrument?

The policy goals and specific programme objectives will influence decisions on which instrument(s) is selected and the point of intervention along the product chain. The following chart depicts the EPR policy instrument and its primary response. While all instruments have secondary and indirect effects that could influence behaviour and changes across the product chain, Table 1 highlights the primary responses under EPR to the specific intervention.

[18] In cases of capital leases, the customer can obtain ownership of the product at the end of the lease, which may, or may not, coincide with the end-of-life of the product. However, in the context of this section, leasing refers to those situation where the ownership does not terminate.

Table 1. **Primary Response**

| | Source reduction | Environmentally Compatible Products | Waste Management |
|---|---|---|---|
| **Deposit/refund** | | • | • |
| **Take-back** | • | • | • |
| **Materials tax** | • | • | |
| **Combined Tax/subsidy** | • | | • |
| **Advance disposal fee** | | | • |
| **Recycled content requirements** | • | • | |

### 3.5 Applicability

The goals of the EPR policy will guide policy makers to select the most appropriate instrument. The application of an instrument to a particular product, product group or waste stream should take into account the feasibility of steering producer and consumer behaviour in a particular direction. Some of the policy instruments are more suitable or directly applicable to certain product groups, waste streams and sectors than others: that is, they can be directly aimed at product design and/or material choice stage in the product chain. Other EPR policy instruments target the waste management phase, but will create an indirect effect on the production and design phase of the product.

The allocation of physical and financial responsibility will affect the applicability of the instrument or mix of instruments. Annex 6 provides examples of how instruments are applied to electrical and electronic products.

### 3.6 Implementation components

The following table was developed to illustrate some of the implementation components for the EPR policy instruments listed in this chapter. While all of the instruments can have ancillary effects, Table 2 attempts to illustrate the direct effect or influence that could occur, the scope of the instrument (waste stream or product), and the body that could implement it.

Table 2. **Implementation components of EPR policy instruments**

| | Product or waste stream | Stage in product chain | Direct response to intervention | Implementing body |
|---|---|---|---|---|
| **Deposit/refund** | Specific products (e.g. beverage containers) | Disposal, with signals to design stage | Re-use and design | All levels of governments, industry based- firm level or private sector organisation |
| **Take-back** | Product and waste streams (and sectors) | Disposal with strong signals to resource extraction and design stages | Re-use, recycling some source reduction and design | All levels of governments, industry based -firm level or private sector organisation |
| **Materials tax** | Product (specific inputs) | Resource extraction and design stages | Reduced inputs of targeted materials and design | National and sub-national government |
| **Advance disposal fee** | Product | Disposal stage[1] | Recycling and some reuse and recovery | All levels of governments, private sector organisation |
| **Combined upstream tax/subsidy** | Product | Design and disposal stages | Reduced material input and recycling | National and sub-national government, private sector organisation (waste management) |
| **Recycled content** | Product (e.g. paper and plastics, etc.) | Design, signals to disposal stage | Design, reduced raw material input | All levels of governments, industry based- firm level or private sector organisation |

[1] With signals to design stage when the appropriate responsibility structure is selected.

### 3.7 Other government measures

In addition to producer responsibility under EPR, other measures can be implemented that complement and support the goals and objectives of EPR policy and programmes. These may be economic instruments that could help fund or reduce the cost of EPR, or they may be non-economic (often performance based) in nature. The latter include measures such as landfill bans, environmental labelling, and environmental or green procurement.

The following list of mechanisms have been explored or documented more fully under the OECD Environment Programme. Therefore, they are simply referenced in this Manual. It should be emphasised that the best mix of instruments would help bring about stated goals and objectives. Policy instruments and measures should be co-ordinated and not in conflict with other national or sub-national laws (See 2.10). *(N.B. As noted by some workshop participants, these instruments might be used as alternatives to EPR depending on the goals and objectives set by decision-makers.)*

- unit based pricing (pay as you throw, waste volume charges);
- green government purchasing (especially of products with high recycled content where recycling quotas have been set);
- eco-labelling (energy consumption, environmental characteristics, etc.)

- landfill bans and taxes;
- removal of subsidies on virgin materials;
- disposal bans and restrictions;
- materials bans and restrictions; and
- product bans and restrictions.

### 3.8 Other instruments

Additional economic instruments[19] that are being, or have been, examined within the OECD and could supplement or provide support to an EPR policy include:

- virgin material taxes;
- waste charges (levied on either collection or disposal of the waste after the point of sale);
- marketable permits (there is a potential application to products with respect to a legislation-driven level of recycling);
- recycling credits (payments made to those reusing containers or recycling materials, so that they do not go to final disposal).[20]

### 3.9 Environmental effectiveness and economic efficiency of EPR

When is EPR likely to be more environmentally effective and economically efficient than alternative environmental policy instruments? This question can only be answered by distinguishing between the role of EPR-based instruments and other policy instruments in terms of the product [product-waste] chain. While other policy instruments tend to target a single point in the chain, EPR seeks to integrate vertically signals related to the environmental characteristics of products and production processes throughout the chain. This is best understood if we compare the usual EPR-based instruments which tend to "bracket" the chain (e.g. deposit-refund, product take-back, materials taxes, advance disposal fees, recycled content standards) with a policy instrument that targets either the beginning (e.g. a virgin materials tax), the middle (e.g. a product tax) or the end (e.g. a unit-based waste fee) of the chain.

For the latter type of instrument (those applied to a particular point in the product chain) to be environmentally effective and economically efficient, information related to the environmental characteristics of products must be transmitted up and down the product-waste chain through the market. Taking a unit-based waste fee as an example, such an instrument will be environmentally effective and economically efficient if it is able to transmit signals all the way back through

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[19] More details can be found in *Environmental Taxes in OECD Countries*, OECD, Paris, 1995, and *Economic Instruments for Pollution Control and Natural Resources: A Survey*, OECD, Paris, 1998.

[20] *Applying Economic Instruments to Packaging Waste: Practical Issues for Product Changes and Deposit-Refund Systems*, OECD, Paris, 1993.

consumption patterns, to manufacturing, and ultimately to product design. For instance, a unit-based waste fee should encourage consumers to purchase products that generate less waste and to recycle as much waste as possible. However, it should also encourage producers to manufacture and market products that have these attributes, since the market opportunities for such products will have improved relative to those products which do not. And finally, further upstream, there should be greater incentives to design products with such attributes relative to products that do not.[21]

In some sense the enthusiasm for EPR is based upon a belief that such signals are not transmitted effectively through arms' length market transactions. Thus, there is a belief that a unit-based waste fee will not result in sufficient incentives for *design for environment*. Analogously, it is felt that a virgin materials tax will not sufficiently affect household decisions about the packaging content of the consumers goods they purchase. Thus, *information about the environmental characteristics of products is not being transmitted effectively through the marke*t. Even, if such signals are transmitted, it may be felt that the time-lags from one end of the chain to the other are excessive, slowing down the realisation of the environmental objective. Thus, through EPR, governments have sought to *integrate these incentives vertically* throughout the chain by means of the policy instrument itself.

When would this be necessary? It would most often arise in cases where consumers had imperfect information about the environmental characteristics of products and thus did not base their consumption decisions on such information, even if they had clear preferences for less damaging goods. For instance, this would be the case if consumers did not recognise the relative waste burden of different products. It would also arise if product markets were imperfect at certain stages in the product chain. Illegal disposal is an obvious example of an important market imperfection, but even factors such as market power at particular stages of production can affect the transmission of signals. In such cases, signals concerning the environmental characteristics of products will not be effectively transmitted forward and backward.

It might also arise if there are technical constraints that prevent direct targeting of a given externality at individual points in the product chain. For instance, virgin materials taxes (or even product taxes) are often inefficient and ineffective means of targeting waste-related externalities in cases where there is considerable variation in environmental impacts depending upon the precise nature of downstream use and disposal. However, substituting them for waste fees may also be environmentally ineffective since such fees are usually calculated on the basis of characteristics (e.g. weight, volume, size of bags) which treat environmentally important attributes of waste (e.g. toxicity, leachability, biodegradibility) in an undifferentiated manner due to the high costs of doing otherwise at the point of household generation when wastes are mixed.

However, there is often a trade-off since instruments based upon EPR can incur considerable administration costs (for consumers, firms and governments) due to the complexity of "bracketing" the product chain effectively. This is particularly true for long-lived and widely-dispersed goods produced in sectors which are not vertically-integrated and which are highly tradable. In such cases, there would not be reason to introduce EPR when less administratively costly instruments can achieve the same environmental goals and objectives more efficiently.

Thus, EPR is likely to be most *effective and efficient in cases where other instruments are unable to provide the appropriate signals up and down the chain* (due to imperfect information or other market imperfections), where it is difficult to target externalities precisely at individual points in the

[21] This is analogous to the effects of petrol taxes on vehicle use, vehicle purchasing decisions, and vehicle design.

production chain (due to technical constraints), and where the administration costs of EPR are not excessive relative to alternative policy instruments. However, it is important to remember that in many cases the effectiveness of EPR can not be compared with individual policy instruments, but rather with a mix of instruments targeted at different points in the product chain. In many ways, the rise of EPR as a policy concept is attributable to the lack of co-ordination that often exists in the design and implementation of multiple policies at different points in the product chain.

### 3.10 Selection criteria

Where more than one type of instrument is being considered, the mix of instruments with the best performance should be chosen. The performance criteria, as described in the EPR Phase 2 Framework Report, can be a useful guide for policy-makers for analysing the value and advantages of establishing EPR policy and selecting appropriate instruments. These performance measurements can also be viewed as criteria for use in evaluating the type of EPR programme that would best meet the stated goals and objectives:

- *environmental effectiveness*: the extent to which the instrument could be used to reduce or change environmental impacts in relation to the policy targets set. In the context of EPR, upstream changes in product design and composition (e.g. use of less toxic chemicals) and waste diversion could be two factors.

- *economic efficiency*: the extent to which the instrument saves (and expends) resources, i.e. capital, labour, materials and energy. This would involve an analysis of the costs of implementing the policy and ways to economise on or reduce capital, labour and administrative costs if need be;

- *political acceptability:* the extent to which the instrument is supported politically (at national, international and sub-national levels);

- *administrability*[22]*:* the extent to which the programme is feasible to carry out. The capacity and capabilities of government and producers, as well as other factors such as free-riding, orphan and existing products, and trade and competition issues should be considered here;

- *innovative advancement:* the extent to which the programme can stimulate technological and managerial improvements.

When attempting to decide which instrument or mix of instruments to select, an analysis of costs of items such as production factors, costs of collection, sorting management of final residuals, secondary material prices and the operation of current recycling schemes ought to be examined. Similarly, the environmental benefit of less pollution, less toxic material being treated, increase in landfills and incinerators and other intangibles such as lower risks from toxic waste, public health and well-being should be calculated into the decision.

These criteria could be helpful in determining whether the design of the policy and/or instrument would meet needs and desired outcomes before a programme is developed. Once an EPR programme

[22] Administrability is the term used in the EPR Phase 2 Framework Report. The term chould be regarded as the ease of administration.

has been in operation for a few years, these criteria can be used to evaluate it to ensure that the course and direction of the policy still meet government expectations. Mid-course adjustments could then be made accordingly.

### 3.11 Summary: checklist of points to consider

1. The EPR ***policy framework*** should be viewed in terms of both product and waste management policy. The policy option selected would depend on where in the product chain decision-makers wish to influence: materials extraction, design or disposal.

2 Several EPR ***policy instruments*** and measures are available to governments to help them meet their stated goals and objectives. They are product take-back, deposit/refund, advanced disposal fees, product/material taxes, combined upstream tax and subsidy and minimum recycling requirements. Policy makers should review these different instruments to identify which might best meet their particular needs. The point of intervention for the instrument selected depends on the point where the market fails to internalise the impacts from the disposal of products at their post-consumer stage. The instrument or mix of instruments that would best meet policy goals should be selected.

3. An instrument's ***applicability*** depends on policy goals, or the influence or pressure necessary to reduce environmental impacts of concern.

4. Annex 6 provides ***examples*** of four different national programmes established to address electrical and electronic equipment, including their policy instruments, goals, objectives and the driving force behind the establishment of the programmes. Annex 7 provides a flow chart description of the operation of the Japanese Home Electric Appliance Recycling Law.

5. Several types of ***supportive measures*** can be used to enhance the effectiveness of an EPR policy. Such measures should be selected in light of the policy goals.

6. ***Environmental effectiveness and economic efficiency*** of EPR should be examined. If a less onerous alternative or measure could produce the same effects as the EPR policy instrument, there would be no point to introduce EPR-based policy.

7. ***Selection criteria*** can help policy-makers select an EPR policy instrument that best suits their needs. These criteria are environmental effectiveness; economic efficiency; political acceptability; administrability (ease of administration); and innovative advancement.

# CHAPTER 4:

# ROLES AND RESPONSIBILITIES

## 4.1 Introduction

The objective of this Chapter is to summarise responsibilities under EPR and to define who is the producer. Also addressed are the roles of other actors and their potential interaction under an EPR scheme. Not all actors in the product chain are described in this Chapter since they can differ depending on the product, product group, sector or waste stream addressed. Actors common to most product chains, and involved in the implementation of EPR, are included. The distribution of responsibility and other considerations to factor in when allocating responsibilities are also discussed.

## 4.2 Context

In reviewing the programmes in existence within the OECD, take-back programmes appear to be a commonly used EPR instrument and the one most often selected for regulatory, voluntary or industry-based EPR initiatives. Given the extent of experience and on-going activity with take-back, the remainder of this document will focus primarily on conditions and issues associated with the take-back option. However, a majority of the conditions and issues related to take-back have similar applicability to other EPR policy instruments. Decision-makers will be able to draw on the information presented in this and the following chapters to evaluate the issues and needs when considering the application of take-back and other policy instruments.

## 4.3 The range of responsibilities

The core intent of EPR is to extend the responsibility for products at the post consumer stage away from the taxpayer and municipalities and toward the producer of the product. The beginning of this section will address the range of responsibilities for governments to consider when developing an EPR programme, what is meant by responsibility, and how it is assigned. Section 4.4 will address the identification of the producer and shared responsibility options.

### *4.3.1 What is meant by responsibility?*

The first type of responsibility under EPR is ***physical responsibility***. This refers to direct or indirect responsibility for the physical management of the products at the end of their useful life (post-consumer stage). ***Financial responsibility*** is the second type of responsibility, and it refers to the responsibility of the producer for paying all or part of the cost for managing the waste at the end of the product's useful life. This includes activities such as collection, sorting, and treatment.

Three other types of responsibility for EPR have been characterised by Thomas Lindhqvist (1998). They are informative, liability, and ownership of the product. Under a scheme for *informative* responsibility, a producer is required to provide information on the product and its effects during various stages of its life cycle (for example, eco-labelling, energy information, or noise). *Liability* refers to a specific responsibility for proven environmental or safety damages caused by a product. With *ownership*, the manufacturer retains ownership throughout the life cycle of the product.

Since policy-makers will need to make decisions on identifying producers and characterising their responsibilities, the way the responsibility is allocated will help to explicitly define which responsibilities rest with various actors in the product chain.

## 4.4 Who is the producer and for what is he responsible?

The role and nature of EPR necessitates an allocation of responsibility for implementing the policy instrument. A principal consideration is deciding who is responsible and for what? The responsibility and roles of actors in the product chain often differ depending on the product or category as well as the goals and objectives of the policy. Under EPR, ***leadership of the producer is critical*** to the success of the policy. The producer is in the position to influence a number of stakeholders to accept responsibility for their behaviour, including suppliers, businesses, consumers, educators, media, government and retailers (Fenton and Sinclair, 1997). The producer is also in the position to influence the environmental impact(s) of their products -- or correct the market failure.

### *4.4.1 Who is the producer?*

Studies in Finland and Sweden indicate that the actors in the product chain surprisingly agreed that it is the producer in the product chain who should be responsible for the environmental issues related to products (Timonen, 1997; and Ryden and Lindhqvist, 1998). Both studies also noted that producers have in their hands product-related knowledge not available to others in the product chain. For example, usually the product producer has the greatest access to technological expertise, propriety information and product knowledge. Based on this knowledge and expertise, the product producer is in a better position than others in the product chain to make product changes, and it would be the producer who would accept physical and/or financial responsibility for the treatment of post-consumer disposal of the products they produce.

Producers are, therefore, in the best position to make changes to their products to meet the objectives of the EPR programme and to stimulate product innovation and redesign, promote less wasteful products (i.e. products where less waste enters the waste stream for final disposal), or produce products that are easier to re-use or recycle. As such, an EPR scheme is most effective if the *producer* is designated as the entity with the greatest control over the decisions relating to materials selection and product design.

With longer-life products, the *producer* is considered to be the firm whose brand name appears on the product itself or the importer. However, in the case of packaging, the *filler* of the packaging, rather than the firm that makes the product container or wrapping, would be considered the producer. In instances where the *brand owner* can not be clearly identified, the *manufacturer* would be considered as the *producer*. Annex 8 provides examples of the allocation of responsibility under five different national electrical and electronic equipment take-back regimes as they stood in 1999.

**Box 6**

**Roles and Responsibilities under the Dutch Decree**

From January 1999, a white and brown goods decree came into force with the following elements:

- Local authorities and retailer/suppliers are responsible for the collection (which means local authorities will set up a system for separate collection); retailers and suppliers when they sell a new product are required to take back a similar post consumer product free of charge;
- Producers and importers are responsible for organising and funding the processing of goods and to take back free of charge (including transport costs) the appliances submitted to them by local authorities and retail trade;
- Trade in refrigerators containing CFC is forbidden;
- Incineration and landfill of separately collected white and brown goods are forbidden;
- The decree makes producers and importers individually responsible for taking back discarded products. It is possible to establish a joint waste management system and demand a scrapping levy from the consumer;

*Source: K. Clement, 1998, Extended Producer Responsibility: Conditions for a Successful Policy. Presented at the Washington, DC Workshop, 1-3 December, 1998.*

*a) Ultimate responsibility*

Given the diversity in product chains, actors and markets, there needs to be one actor assigned with the explicit responsibility under the EPR policy. The responsible party in the product chain would be the actor who has *explicit* or ***ultimate responsibility***[23] for meeting policy requirements. In most circumstances, the producer would be designated as the entity to which the *ultimate responsibility is assigned.* Assigning the ultimate responsibility to the producer, however, does not change the need for others to participate to ensure that the programme is carried out. A sharing of responsibility is an inherent part of EPR and is important for the success of the policy. For instance, under the German Packaging Ordinance the producer or fillers of the packaging are considered the ultimate producer and pay the fees for the Green Dot. Retailers are responsible for secondary packaging (per amendments, 1 April, 1993). Municipal governments, waste haulers, recyclers, and consumers and others in the product chain are all involved in the programme and have a role and responsibility for its implementation.

[23] The term ultimate responsibility was used in the Phase 2 Framework Report. However, OECD countries have used the terms final responsibility, explicit responsibility and primary responsibility to mean the same.

*While in practice there will always be shared responsibility, to attain results it is necessary to nominate one actor in the chain who is responsible for taking the initiative to organise the process. Logically this would be the actor with the most influence over the whole process: the producer/importer.*

*(Clements, 1998).*

As often repeated by participants of the EPR workshop series, and as stated in the EPR Phase 2 Framework Report, there needs to be a focal point within the system to identify whether and how EPR obligations are being met.

### *4.4.2 Other responsibility combinations*

*a) Shared responsibilities*

While close co-ordination with all actors in the product chain is an inherent part of EPR, responsibility may also be shared, in a more formal way, between the producer and the government or between one or more actors in the product chain. There are two basic models. The first model is ***shared responsibility between the municipal government and the producer***. Under this model, the ultimate producer could be assessed a fee to pay for the physical management of the product at its post-consumer phase, although the municipality retains physical responsibility for a portion of the waste management. OECD countries have used two options for implementation. One option is for the municipality to have physical responsibility (fully or partially) for the collection and sorting of the post-consumer waste while the producer (fully or partially) finances this activity and then physically takes the sorted waste back for treatment. The other possibility is for the municipality to continue operating as it had before, but with the producer paying for the extra costs associated with the treatment and disposal of their product.

This shared method provides for partial cost internalisation for the financial management of post-consumer products and is exemplified under the French packaging system and under the Japanese Container and Packaging Recycling Law. Under the French packaging decree, producers pay a fee to an organisation (Eco-Emballages) that in turn contracts with local governments (or communes – a grouping of municipalities) for the provision of certain types of sorted waste for treatment. In essence, the Eco-Emballages organisation *buys* the sorted waste from the commune and *treats* it.[24]

Japan's Container and Packaging Recycling Law stipulates that producer's pay a recycling fee to the Japan Container and Packaging Association that in turn contracts with municipalities for post consumption package and containers (glass bottles, PET bottles, paper/plastic containers or packaging). The association takes back the sorted waste collected by municipalities and recycles it. This policy offers a shared system whereby consumers have a responsibility for sorting their waste, municipalities have a physical and financial responsibility for collection, and producers have the physical and financial responsibility for recycling.

[24] Municipalities must still pay for the collection and landfilling of any waste not purchased by the Eco-Emballages organisation or sorted to the specific standard set between the organisation and the commune.

The ***second model of shared responsibility*** consists of an agreement (formal or informal) between the producer and one or more actors in the product chain. The producer would have the ultimate responsibility and the lead under the EPR programme. Specific responsibility combinations would depend on the policy instrument, product, distribution chain and other such factors. Two examples of this model would be the producer entering into an agreement with a recycling firm to collect products or the producer entering into an agreement with a retailer to collect deposits and issue refunds. Sometimes distributors and retailers are enlisted to collect the products and return them to the producer. Another example would be the case of advance disposal fees where the retailer would be responsible for collecting fees and distributing them to a government body or private sector organisation.

**Box 7**

**Nordic Council Programme on the Recovery and Disposal of Discarded Tyres**

**Responsibilities:**

- Consumer is obliged to deliver used tyres.
- Retailer must accept used tyres without charge.
- Producers must organise the recovery and waste management of used tyres.
- Producers are obliged to inform the public about the programme and report yearly to the authority.

**Who is the Producer?**

- Manufacturers and importers of tyres.
- Importers of used tyres.
- Tyre retreaders.
- Manufacturers and importers of vehicles and other machines.

*Source: Who is the Producer? Paper by Hannu Laaksonen, Ottawa, 1997.*

*b) Apportioned responsibility*

Another form of shared responsibility would be to *apportion responsibility* between each actor in the product chain. Under this method, the *role* and *degree* of responsibility of each actor would be determined for the specific product, product group or sector. The distribution of responsibility is based on the role of the actor in the product chain. Often, industry-led initiatives are based on this concept. One advantage of this method is the increase of information about the EPR programme being disseminated to the actors in the product chain.

Determining (and ensuring) a fair and *equitable* distribution of responsibility could be a more challenging process than reaching an agreement among the actors on their specific roles and responsibilities. Under apportioned responsibility, assurance that all parties are equally participating in the programme is critical in order to limit those instances when only one or two of the actors along the product chain fulfil their role and responsibility. The programme might need to be designed with checks and balances to ensure full participation by all actors in the product chain and to limit

free-riding. Incentives or rewards for participation can help improve participation. Or, other deterrents such as sanctions for non-participation may be necessary.

Given these issues and the complexity of some product chains, this method might be best served in situations where the length of the product chain is relatively short (few actors) and there are not a high number of producers involved.

Industry representatives who participated in the EPR Phase 3 workshop series suggested that in the case of apportioned responsibility, the actors involved in the product chain should be given the opportunity to allocate roles and responsibility in the product chain. Under negotiated agreements and mandatory systems, the government could assign responsibility for products at their post consumption phase to the product chain itself. If this mode is selected, it would be very important to set a time schedule and due date for results. For mandatory or negotiated agreements, Governments may wish to incorporate a trigger clause that comes into force if the due dates are passed or other conditions are not met.

### 4.5 Distribution of responsibility

Once a responsibility model is selected, a decision on the ***extent*** of physical and financial responsibility placed on the producer (and others) is needed. There are several choices and combinations of physical and financial responsibility that can be initiated. The French and German systems on packaging exemplify two different approaches. Under the French Packaging Ordinance, and under the Japanese Containers and Packaging Law, the financial and physical responsibility is divided between local governments and the producer. Under the German system, financial and physical responsibility is placed on the producer. Combinations of these approaches to include full or partial responsibility[25] are possible. Policy-makers need to review the range of possibilities in the distribution of responsibility in relation to policy goals and the practicality of its implementation.

Annex 9 contains a table that lists the degrees of producer involvement developed for discussion at the Canadian National Workshop on EPR, March 1997. This information can be a helpful guide to public policy makers when reviewing how responsibilities can be allocated.

### 4.6 Considerations when allocating responsibility

When allocating responsibility for EPR, the following considerations should be taken into account:

- stated policy goals and programme objectives;
- characteristics of the product, product group or category (e.g. use of product, material complexity, length of product life, and so forth);
- market dynamics (e.g. the distribution of product for specific uses and sales volumes);
- specific product chain and all relevant actors;
- resources needed for policy development, implementation, oversight and compliance monitoring.

[25] In instances when partial responsibility is allocated, producers would need to be given a *significant degree* of that responsibility to effectuate EPR policy.

**Box 8**

**Potential Actors in the Product chain**

The following is a list of potential actors in the product chain for EPR policy. All actors in a product chain have a role to play to ensure that the intent of the EPR policy is achieved. For instance, consumers need to sort products and place them in the proper waste bin, retailers may need to charge a fee for each product sold, etc. Annex 10 provides further information and examples of actors in a product chain. Moreover, for many product groups there are sub-actors that are part and parcel to this set of mainstream actors.

- Raw material suppliers
- Producers (include, manufactures of products, construction companies, packaging manufacturers, fillers, and brand owners);
- Importers;

- Suppliers;
- Distributors;
- Retailers;

- Consumers;

- Waste managers;
- Waste haulers
- Waste sorters;
- Recyclers;

- Resellers;
- Producer Responsibility Organisation; and
- Municipal government.

## 4.7 Who pays?

A question often raised with EPR is who pays for, not who physically operates, the waste management system. Municipalities – financed by taxpayers - have traditionally undertaken treatment of municipal solid waste. Over time the sheer volume of per capita municipal waste has increased substantially and its composition has become much more complex. The rationale behind EPR is that the taxpayer burden of paying for that added pressure from increased waste could be reduced by shifting the financing to those who profit from the products. EPR recognises that producers are most able to alter products to prevent waste, minimise waste management costs and reduce environmental pressures of a product at it's post-consumer stage. Therefore, EPR policy should be designed to provide incentives to encourage producers to absorb social costs from the treatment of their products. Any unavoidable costs could therefore be incorporated into the product pricing. The producer and the consumer - in lieu of the taxpayer - would pay for the social costs (externalities).[26]

[26] It worth noting that often the municipality has the appropriate expertise to continue physically operating some of a waste management system (e.g. collection or sorting). In such cases, the principal change under EPR would be who pays for its operation.

### *4.7.1 Funding mechanisms*

As previously noted, an underlying issue with regard to EPR is how to fund the collection and treatment of post-consumer waste. Shifting what has traditionally been the responsibility of municipalities to the producer provides incentives for the producer to find ways to lower the costs they would pay.

The funding mechanism will depend on the particular instrument selected and product, product group or sector. Generally speaking, producers could pay through a tax or fee; consumers could pay through the product pricing or a fee, or through a combination of the above.[27] Annex 11 contains a case study on the use of a financing mechanism for the Swedish automobile take-back programme, in which manufacturers pay a uniform fee for each car sold.

### *4.7.2 Internalisation of costs into the final price of the product*

Related to the method of paying for the EPR scheme is determining the level of cost internalisation. *Internalisation* of social costs, or externalities, is possible when full financial responsibility is shifted from municipalities to producers and consumers - even if the municipalities still perform the same functions as before. The producers would incorporate additional costs for the treatment of the post-consumer product into the price of the product (in a proportion relative to the elasticity of demand). Substantial cost internalisation gives producers incentives to change product design in order to reduce the costs associated with the treatment and/or disposal of post-consumer products.

In the case of *partial-cost internalisation*, the costs of treating post-consumer products are partially paid by the producers. They contribute financially to the operation of the local waste management system, but the municipality still bears some of the costs of collecting, sorting or treating the post-consumer products. This can be done in several ways. One method exemplified under the French Packaging Ordinance is for producers to pay any "extra" costs for recycling or treating the post-consumer product. Activities such as collection and sorting could remain the responsibility (financially and physically) of the municipality. Decisions on cost internalisation should take into consideration issues relating to orphan and existing products and unique characteristics of the product.

## 4.8 National government role

National governments play a key role in establishing (through either law or negotiation) the legal policy framework for EPR and setting parameters for special agreements or voluntary programmes.

National governments can contribute to the effectiveness of EPR programmes by: (i) raising awareness of programme and requirements; (ii) eliminating policies that are inconsistent with EPR objectives (for example subsidy programmes for raw material extraction); (iii) implementing supportive policies and measures such as green government purchasing or unit-based pricing of household waste; (iv) eliminating or removing barriers that are inconsistent with EPR policy; and (v) establishing mechanisms to help prevent free-riding and anti-competitive behaviour. In situations where policy-makers wish to promote industry-based EPR initiatives, obstacles that would affect the initiation of voluntary efforts should be eliminated.

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[27] It is conceivable that under shared responsibility systems, municipalities will retain their role as waste managers.

## 4.9 Local government role

Regardless of which EPR responsibility model is selected, local governments have a crucial role to play. Under some schemes the local authority retains responsibility for the collection and sorting of the waste. For other schemes, local authorities will have a role to ensure that the waste is properly dispatched to a parallel regime. Local government has an important role in stimulating the recycling market, assisting firms to build appropriate recycling capacity, and transferring information about new technologies for recycling, cleaner production processes and cleaner products to the public. They also can be instrumental in communicating information about the EPR programme to the public.

EPR policies generally place new and different responsibilities on local authorities – particularly with respect to the increased need to co-ordinate their activities with industry. For programmes designed to rely on, or contract directly with, the local authorities to continue to carry out specific functions, responsibilities should be clearly defined and agreed. In instances where the EPR instrument results in the creation of a Producer Responsibility Organisation, it is critical that the relationship between the organisation and local authorities is precisely defined.

In countries where the local and regional authorities play a strong political role, they can help fulfil compliance and other oversight functions. Additionally, they can provide feedback to the national government on the effectiveness of the EPR programme at the local level.

## 4.10 Consumers

Consumer choices over which product to buy or how to dispose of it are critical factors to consider when designing an EPR programme. A communication plan, developed together with stakeholders, will help to strategically inform consumers of their roles and responsibilities under the programme. A well-conceived communication plan can help improve consumers' understanding and appreciation of the benefits of EPR and what is expected of them. This can instil a key sense of responsibility and increase environmental awareness. Maintaining active communication with the public by releasing data and information about the programme and its accomplishments, or by informing them of what they can do to contribute to the programme, helps keep the consumer engaged. Effective public communication can provide subsidiary benefits deriving from peer pressure to comply with the programme (e.g. returning products or placing them in the proper bin). Lack of a consistent or systematic communication plan can jeopardise the operation of the EPR programme.

## 4.11 Role of retailers

Roles and functions of retailers need to be clearly defined because their strategic position in the product chain can influence the operation of EPR programmes. The retailer can be the one who takes back the product (*new for old* or *like* product returns), collects the charges or fees, provides the refund, or selects and stocks the products on the shelves. The retailer can be a vital component in an information dissemination strategy as they can furnish consumers with information about the EPR programme, products, and their role.

## 4.12 Producer responsibility organisations

Under take-back programmes, it could be impractical and not particularly economically feasible for each producer to take back its own products. Therefore, third party organisations are often formed

allowing producers to collectively manage the take-back (and most often arrange for the treatment) of products. These organisations are often referred to as *Producer Responsibility Organisations* (PRO) and can be an effective structure for managing and collecting post-consumer products. The need to create a PRO depends on the policy instrument selected and other factors such as the product group, number of producers and importers, and secondary materials to be collected. The advantages of a PRO as a means to implement the EPR programme should be examined in the design stage.

Most PROs in operation to date collect a fee directly from the producers based on a specific fee structure. Often a trademark is established for that organisation and the producer pays a fee to carry the trademark on the product. Ideally, fee structures should be designed by the organisation so as to reward those producers who move to achieve EPR policy goals and objectives. When a PRO's rates vary according to the cost of disposal, the resulting 'competitive disadvantage' to firms whose products are more difficult to dispose of is *not* a problem under competition law or policy. For example, in a packaging take-back system a standard fee per package would not provide any incentive to reduce packaging weight or to use more recyclable materials because the producer would not benefit financially from doing so. When the fees are based on weight and type of material, a producer can benefit from design changes that reduce waste and facilitate recycling.

The PRO itself needs to be structured according to the policy goals, objectives and demands of the EPR programme. A commonly known PRO for packaging is the German Duales System Deutschland (DSD). The 1991 packaging ordinance provided 18 months for the programme to be put into action. Admittedly, some errors were made. Annex 12 contains a list of *Lessons learned* in the structure and management of the DSD. Start-up costs of establishing contracts were a key issue when the DSD was established. One of their primary cost issues related to contracting with waste management firms. A sample of a DSD contract form, which provides insight into the type of items that may need to be covered when entering into a contract with a PRO, can be found in Annex 13.

PROs can support both voluntary and mandatory take-back schemes, deposit/refund systems, and advance disposal fee programmes. PROs can also have various functions extending beyond the management of take-back, such as for education and training of producers and consumers, collection of fees and other responsibilities as delegated under the EPR programme. Further information on PROs can be found in Chapter 5 on Trade and Competition.

### 4.13 Summary: checklist of points to consider

1. There are two responsibilities under EPR, ***physical and financial***. These can be applied fully or partially (shared).

2. The ***producer*** is defined as the one with greatest control over the selection of materials and the design of the product. It can be the manufacturer, brand owner, or importer and in some cases the filler of the packaging.

3. Governments need to select the ***responsibility model*** and assign precise responsibilities: ultimate, shared or apportioned.

4. ***Communication and co-ordination*** with all actors in the product chain is vitally important to the success of the EPR policy and programme.

5. The level or degree of ***producer responsibility*** (full or partial for physical and/or financial activities) for the EPR programme is a crucial decisional point in EPR policy design.

6. Decisions on the ***allocation of responsibility*** should be made in view of the policy goals, product characteristics, market dynamics, actors in the product chain and resources needed to implement the policy.

7. National government can set the ***framework for the policy*** and can contribute to the effectiveness of EPR by eliminating conflicting policies and by implementing policies to augment EPR.

8. ***Local authorities*** play a crucial role under EPR. This includes their role and relationship to the producer, the producer responsibility organisation (if one is to be formed) and in the co-ordination of their participatory role. Roles and responsibilities for local government under the EPR programme should be precisely defined.

9. The ***consumer*** plays a dynamic role in most EPR programmes. For take-back programmes, it is imperative to inform the consumer on their role and help them understand the importance of their participation. The same is true under the deposit/refund, advance disposal fee and recycled content programmes. ***Consumer convenience*** can be an important determinant of a programme's success. Measures such as placement of return receptacles in easy to access locations, Internet sites listing the location of product return depots, and active information campaigns will help to ensure public participation.

10. The role of the ***retailer*** within the context of the EPR programme should be established. The retailer can be a key conduit of information to the consumer and bridge the information gap between producers and consumers.

11. For take-back programmes, a ***producer responsibility organisation*** (PRO) could be a useful option for managing and collecting products in lieu of each producer establishing its own separate system. A PRO could also be created to manage a deposit/refund programme or an advance disposal fee scheme.

12. If a PRO is established, the ***role of local government and the PRO*** needs to be well defined. More information on PROs can be found under Chapter 5, Trade and Competition.

# CHAPTER 5:

# TRADE AND COMPETITION

## 5.1 Introduction

The purpose of this chapter is to examine in some detail two key policy areas that can give rise to challenges when considering, designing and implementing an extended producer responsibility (EPR) policy. There are two components: (1) the impact of EPR programmes on product and recyclable materials *markets*, and thus on the efficiency of economies and the welfare of consumers and (2) the implications of trade and competition *laws* for EPR programmes. The impacts on markets and on laws can occur with respect to both products and the collected post-consumer materials. For example, an EPR programme will probably change the commercial environment in which the relevant *product* is sold, even if it is only a requirement for new information to be included on the label. EPR will also change the dynamics of the industry dealing with the secondary *collected materials*, be it used electronic appliances or plastics. This can give rise to competition issues, and to the extent that there is cross-border trade in these products and collected materials, some trade effects can be expected to arise from EPR policies.

Where possible, this chapter draws on existing experience to date, as well as attempting to guide policy makers through the relevant conceptual issues. Sections 5.2 and 5.3 examines the trade effects first from a market perspective – both product markets and then secondary materials markets – and secondly from the perspective of the rules of the multilateral trading system. Section 5.4 examines the competition policy aspects concerning both the product markets and the secondary materials markets.

When take-back programmes first appeared, much concern was expressed about the distortionary effects on trade which would arise from exporters having to arrange collection of their used products and ship them back to the producing country. This has not been the way that take-back programmes have worked in practice. Rather, producers have responded to the new responsibility by co-operating to form industry-wide associations to fulfil their individual responsibilities in a collective form. However, it is still important for policy makers to scrutinise the effects that an EPR programme could have on international trade. Different types of policy instruments – take-back requirements, economic instruments, and regulations – will have different trade effects. Some effects will be intentional, for example trade patterns could be expected to change in favour of those products better able to meet the requirements of the EPR policy. Unintended negative trade effects, however, will add unnecessary economic costs to EPR programmes and give rise to opposition from affected business interests. In extreme cases, negative trade effects could give rise to complaints under the World Trade Organisation (WTO). In general, however, EPR policies that are transparent, non-discriminatory and do not cause unnecessary obstacles to international trade would be consistent with the WTO.

Similarly, EPR programmes can have an impact on competition and efficiency in product markets and secondary materials markets. Competition policy seeks to ensure that a government's regulatory and other actions do not unnecessarily harm the efficiency of its economy or the welfare of its consumers. Since some form of government action is necessary to deal with externalised environmental costs, competition policy calls for a continuing search for the best approaches, taking into account the costs and benefits of all EPR-related regulatory measures and considering both alternative EPR systems and alternatives to EPR.

Competition law seeks to prevent firms from abusing dominant positions or engaging in price fixing or other anti-competitive agreements. In addition to creating artificial shortages and high prices, such conduct deters innovation while creating waste and inefficiency. Since the effects of certain business activities in an EPR context are still uncertain, it is not surprising that competition and environmental officials have sometimes disagreed about the advantages and disadvantages of some such activities. In principle, however, there is no reason to believe that competition law enforcement against anti-competitive conduct would interfere with efficient EPR activities, and such enforcement should help ensure that EPR programmes are not subverted for private purposes that may harm both the environment and consumers.

## 5.2 Trade issues

EPR policies can be seen as product policies because they impact at the level of specific products (e.g. packaging, cars, or electronics). In a world of globalised product markets, product policies will probably have international trade repercussions as well as domestic effects because they will most likely cover both imported and exported products. Therefore, an important part of policy design and implementation will be to understand the impact on trade and the implications of trade on EPR policy. Issues concerning the rules of the multilateral trading system are equally important and will be discussed in some detail in Section 5.3 below.

From the policy-maker's perspective it is important for an EPR policy not to unduly restrict trade flows for several reasons. One reason is that trade provides greater consumer choice and greater economic growth. A reduction in either factor caused by EPR-related barriers to imports could constitute an unwelcome decrease in economic welfare, making the EPR policy more costly in overall economic terms. Another reason is that if an EPR policy can be accused of being protectionist, there will be resistance to its adoption from domestic importers and trade policy bodies, and perhaps from other countries as well.

The approach taken here will be to identify different policy instruments that can constitute an EPR policy approach and to look at the potential trade effects arising from each category of policy instrument. This generic analysis does not mean to imply that significant negative trade impacts have occurred under existing EPR programmes. Few specific examples of actual trade effects from EPR programmes have in fact been identified so far, and no examples of actual trade disputes concerning take-back *per se* have arisen. However, trade effects from associated economic instruments and in secondary materials markets have given rise to trade disputes. This chapter discusses take-back programmes, as well as associated regulations and other policy instruments.

### *5.2.1 Actual and potential trade effects of EPR and related policy instruments*

This section takes a brief look at the kinds of trade effects which can arise in product markets from three categories of policy instruments that can constitute, or be associated with, EPR

policies: take-back requirements, economic instruments and regulatory measures. The following section examines potential trade effects from EPR in product markets for materials.

*a) Trade effects in product markets*

i) Take-back requirements

Policies that require the producer and/or the retailer to take back the product or its packaging after use are the clearest example of extending the producer's responsibility into the post-consumer phase of a product's lifecycle. When the take-back concept was first developed, exporters and importers were initially somewhat alarmed at the thought of physically taking back used products. The logistical arrangements and costs for collection and back-hauling used products appeared daunting, especially for relatively small exporting firms and for developing country exporters. But this scenario of individual collection and return transport of used products never really eventuated, as more economically and environmentally sensible co-operative solutions emerged, including through Producer Responsibility Organisations (PROs). PROs relieve individual companies from individual responsibilities. They are purpose-specific entities that arrange for the collection, recycling or recovery of the products concerned. To a large degree, therefore, the impact on exporters depends on their access to, and treatment by, the PRO and its costs.

Three types of effects can be of concern to importers in their dealings with take-back programmes and the PRO: information costs, relatively high compliance costs, and problems with low volume and/or non-standard packaging or products.

ii) Information costs

Simply finding out and understanding what the regulatory and labelling requirements are for various national schemes and the procedures for joining the PRO can be more difficult for foreign than for local producers, especially SMEs and especially those in developing countries. This issue of information costs is of course not limited to environment related product requirements and is part of doing business internationally. Nevertheless, notification, consultation processes, and discussion with industry associations and/or other bodies representing importers is a very important means of minimising this potential concern.

The WTO in fact requires notification and consultation in certain circumstances, as set out in Section 5.3.1. Regardless of whether there is a legal obligation to do so, use of the WTO notification procedures could be a useful part of any transparency or consultation effort. Adequate phase-in periods with advance notice will also facilitate importers' access to new information about EPR programmes which, in turn, facilitate compliance and minimise disruptions to trade.

iii) Relatively high compliance and reporting costs

In practice, importers may face relatively high costs of complying with take-back programmes for several reasons: if greater volumes or more robust types of transport packaging are required for long-distance trade; if the PRO requires on-site inspections or certification for any reason; or if importers tend to sell products that the PRO decides are relatively more expensive for it to deal with. These kinds of concerns reflect an intrinsic home country advantage that domestic producers could enjoy, especially when importers incur higher transport and administration costs. In fact, the point of

EPR would be to impose higher costs in situations when a higher amount or a less 'recyclable' (given the importing market's costs and infrastructure) type of post-consumer product/material is generated. If imported products pose a greater collection and recovery cost in the importing country, then they should be subject to higher charges.

However, if the PRO were to unfairly impose relatively higher costs on importers (i.e. in a way unrelated to the costs of collection and recovery) this could pose a trade law problem of discrimination or a competition law problem of price fixing.

There may also be a greater relative burden for importers in meeting reporting obligations of EPR programmes. For an importer, a foreign market is likely to be a relatively smaller proportion of overall sales than for a domestic producer, and thus reporting may be a greater burden relative to overall production costs.

iv) Low volume/non-standard packaging or products

For environmental and commercial reasons, countries create the infrastructure for recycling and recovery of those products/wastes that occur domestically in large volumes and are locally recoverable in an environmentally effective and economically efficient way. Thus non-standard materials or materials which occur only in low volumes can sometimes be penalised by the recycling system. This can occur either through not being accepted as recyclable or through being subjected to very high charges by the PRO because the recycling technologies or facilities do not exist to the same degree.

An often-discussed example of this problem arose for a few exporters in the early days of the German packaging PRO (Duales System Deutchland, or DSD) experience with imported packaging. Jute bags used for exporting coffee from Colombia and metal straps used on wool bales from Australia were initially deemed by DSD to be non-recyclable. This would have required the Colombian and Australian exporters to physically take-back these jute and metal items of packaging or replace them with alternative materials which DSD considered to be recyclable, such as plastics. These two problems were eventually overcome by DSD accepting these materials as recyclable, and apparently no other imported products have since been rejected.

Regarding emerging take-back programmes for complex products like cars and electronics, the potential exists for PROs to subtly discriminate against imports through fee structures, especially for low volume or non-standard products. This potential problem may require monitoring attention from authorities. However, no take-back programme or PRO activity has been identified as explicitly or implicitly discriminating against imported products in this way.

*b) Economic instruments*

In principle, economic instruments are relatively less trade-distorting than regulatory policy tools such as banning certain materials or products. Disposal fees or taxes for example act as a uniform tax regardless of the origin of the targeted product. WTO rules allow for taxes and charges to be levied on imports at the same rate as they are levied on local products.

In practice, deposit-refund systems and eco-taxes have been the subject of occasional complaints in the market place. Controversy has centred on situations where a measure is *de jure* equally applicable to imports and local products, but by virtue of commercial practices or administrative regulations associated with the taxes or deposit refunds systems, a relatively higher burden falls *de facto* on

imported products. For example, a uniform tax on non-refillable bottles may in practice only fall on importers if domestic suppliers already only use refillable containers. Or deposit-refund systems may be rendered more expensive for importers by regulations and/or commercial arrangements that restrict the use of distribution systems for imported products – see Box 9 below.

Regional and multilateral trade rules operate to limit the allowable degree of differential burden, which falls on imports compared to local products. In the WTO, the "limits" are determined by application of the principles of non-discrimination in conjunction with the relevant exceptions. The overall message is that an EPR programme that in practice confers an undue competitive advantage on local producers could be vulnerable to challenge.

*c) Regulatory instruments and materials requirement*

EPR programmes sometimes utilise regulations such as product standards and/or labelling requirements as part of the *overall package of policy tools*. For example, particular substances or materials may be banned by regulations. Labels specifying recyclability or laws requiring information for recycling purposes may be required. Product regulations and labelling requirements are not, strictly speaking, EPR policies but they are often associated with EPR as part of an integrated product management policy.

From the traders point of view, the more diverse the range of requirements and regulations imposed nationally, the more fragmented is the world market - leading sometimes to shorter less cost-effective production runs as they must be tailored to meet individual national requirements. There is also a risk that standards can tend to act as economic protection for local products.

The risk that national product regulations that diverge from international regulations can be technical barriers to trade is an ongoing concern for trade policy - an issue not limited to environment-related regulations. The WTO has general rules and procedures to deal with this issue (see Section 5.3 below). Nevertheless, policy-makers should factor in these potential business and trade effects into any decision concerning whether to use EPR or alternative policies.

Probably the most contentious trade issue that could be associated with EPR policies is the use of product standards or regulations to impose recycled content requirements. Increasingly, provincial and national governments are introducing regulations requiring percentages of recycled content in products such as glass bottles or newsprint. They may be tied to government procurement or applied to the market as a whole as a product standard. They may be considered as an EPR programme and at the same time be *complementary* to EPR programmes because they can act to increase the demand for recyclable materials, thereby helping to match the supply of these materials generated by the EPR programme.

Specifying recycled content can also be an *alternative* to placing a direct financial responsibility on producers. If a producer is forced to use a given percentage of secondary sources of raw materials, then it is likely that collecting the used products generated domestically will be a way of obtaining the required recyclable material. So while it is a less direct mechanism, a product standard setting a minimum recycled content level could also encourage producers to arrange collection and re-use of their products in certain cases. Recycled content requirements, however, are not considered as EPR policies *per se* in this manual.

The issue for importers with recycled content requirements is that the requirements may be quite inappropriate to the environmental circumstances in their country of production. For example, a

country with extensive land and forest resources and a small sparse population may not have the same imperative or capacity to recycle paper as a high population density country with a shortage of landfill space. Some paper producers who have access to sustainably managed forest resources argue that it does not make economic or environmental sense for them to buy waste paper from third countries to meet recycled content levels imposed by paper importing countries. They argue that recycled content rules are meant to address the environmental issues of exploitation of forests and landfill use in the country setting these rules and should not be extended to other paper-producing countries by making recycled content a condition of market access for their products.

From an environmental point of view, how and where something is produced is extremely important. The processes or production method (PPM) used will have a large bearing on the environmental impact of a product or material. The question of how far the multilateral trading system allows policy measures to differentiate between different PPMs is controversial and remains open[28].

### *5.2.2 Trade effects in recyclable/secondary materials markets*

In addition to considering the trade effects in markets for products covered by EPR policies, it is important to consider the effects in "secondary" markets for collected and recyclable materials. EPR programmes can have a significant impact on markets for recyclable materials as they create additional supply, especially if they are subsidised. Generation of excess supply of recyclable plastics and paper can be a very tangible problem in EPR programmes for packaging. In the early days of EPR programmes, for example, the industrial capacity for recycling collected materials such as plastics was well short of the volume actually collected, partly due to unexpected levels of enthusiasm for recycling from households. Consequently, surpluses were "dumped" on international markets at very low prices.

Complaints have been made that dumping national surpluses of materials on international markets by exporting at very low or even negative prices disrupts markets and undercuts recycling efforts in other countries. In response to this problem, the relevant EU Directive, for example, now sets maximum rates of recovery for various materials and only allows this level to be exceeded where actual capacity to recycle can be shown.

Generally speaking, markets for recyclable materials have become much deeper over the last decade. Recycling capacity has increased significantly as new technologies have been developed and more investment made. For example, in Germany in 1990 there was capacity to recycle 20 000 tonnes of plastic packaging: this figure increased to over 500 000 tonnes by 1997.[29] The range of uses for the recycled material has also been expanding. Some EPR schemes, such as the Nordic Tyre Recycling Companies, actively promote research and development to foster new uses and demand for recyclable materials. Nevertheless, policy makers should consider the impact of new EPR schemes on the secondary markets for the collected materials.

WTO rules on export subsidies could come into play if the EPR programme is subsidised by government. Government subsidies which are "contingent, in law or in fact, whether solely or as one

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[28] For a discussion of processes and production methods including recycled content see *Trade and Environment: Processes and Production Methods*, OECD, Paris, 1994.

[29] Dr Ulf Jaeckel, "EPR in Germany" Paper presented to the OECD Workshop "Extended Producer Responsibility: Who is the Producer", December 1997, Ottawa.

of several other conditions, upon export performance…"[30] are prohibited under the Agreement on Subsidies and Countervailing Measures (ASCM). As such, a subsidy aimed at the export of excess collected material would appear to be of the type prohibited by the ASCM. At least at present, authorities are actively working to ensure that the excess supply situation does not occur in the first place, rather than using export subsidies to dispose of stockpiles. Furthermore, these kinds of stockpile problems were experienced when markets for recyclable materials were relatively underdeveloped. As markets for recyclable materials deepen, they should become more like any other market and these problems become less serious - provided that subsidies from a PRO or government do not create ongoing distortions.

Additionally, if a government receives an allegation of injury from its domestic industry arising from allegedly subsidised imports, it can initiate an investigation. If a determination is made that a subsidy exists and the subsidised imports have caused injury to the domestic industry, then the government may impose a countervailing duty to offset the amount of the subsidy until the subsidy is withdrawn. The ASCM contains very detailed provisions on subsidies and countervailing duties which are not further explored here.

A second issue that has come to light concerning trade in the collected material or product is the relationship with regional and international agreements governing the transboundary movements of hazardous wastes. If collected materials fall under the definitions of hazardous wastes, they will be subject to special requirements in terms of transport, storage, manifests, notifications and/or consent of all countries involved, and in some cases, trade bans. For example, if used electronics are defined as hazardous waste (and new electronic products are not) on the basis that they contain substances such as heavy metals that may be hazardous if treated in environmentally unsound ways, then this will add costs to the recycling of these products. If these measures are environmentally unnecessary, then they will work against the objective of the EPR policy by making it unnecessarily more expensive to carry out. Policy makers need to avoid inconsistencies from these two areas of environmental policy.

## 5.3 EPR policies and the multilateral trading system

As has been shown above, EPR and related policy instruments may have extenuating trade effects. To some extent, these trade effects reflect the inherent advantage that domestic suppliers enjoy relative to foreign suppliers and can be likened to the reality of higher administration or transport costs for imports. This Section outlines the primary requirements of the multilateral trading system in relation to the avoidance of unnecessary restrictiveness in international trade. It does not seek to interpret or apply WTO rules to specific current or proposed EPR policies, that being the preserve of the WTO dispute settlement system. Nor does it seek to analyse regional trade law systems such as the EU or NAFTA. It *does* attempt to highlight the relevant aspects of the WTO system in order to facilitate the consideration of trade issues in EPR policy design and implementation. The issues covered are transparency, non-discrimination and technical barriers to trade. Finally, the question of which EPR and related policy instruments appear to be covered by WTO rules is addressed.

### *5.3.1 Transparency, consultation and technical assistance*

As with conventional product regulations, the potential for trade friction caused by packaging and recycling regulations will be eased if there exists: early consultation with trading partners through

[30] Article 3.1(a) of the WTO Agreement on Subsidies and Countervailing Measures.

accessible, adequate and timely information given to all parties; reasonable time to adapt to them; and, as needed, technical assistance made available for adaptation by developing countries.

The WTO agreement addresses these issues in several different places. Firstly, GATT Article X requires prompt publication of regulations affecting imports. Secondly, the Understanding Regarding Notification, Consultation, Dispute Settlement and Surveillance[31] requires WTO Members to notify to the WTO, to the maximum extent possible, their trade measures affecting the operation of GATT 1994 (without prejudice to views on the WTO consistency of these measures). This includes quantitative restrictions and, more importantly for EPR and related policies, measures covered by the Agreement on Technical Barriers to Trade (TBT).[32]

The TBT Agreement covers technical regulations (mandatory) and standards (voluntary), and explicitly includes "packaging, marking and labelling requirements".

For the purposes of the TBT Agreement, a "technical regulation" is a "[d]ocument which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method." (Paragraph 1, Annex 1 of the TBT Agreement)

A "standard" is a "[d]ocument approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method." (Paragraph 2, Annex 1 of the TBT Agreement)

Article 2.9 of the TBT Agreement sets out notification and consultation requirements for product regulations and standards. It reads:

> *"2.9* ***Whenever a relevant international standard does not exist or the technical content of a proposed technical regulation is not in accordance with the technical content of relevant international standards, and if the technical regulation may have a significant effect on trade of other Members, Members shall:***
>
> > *2.9.1* ***publish a notice in a publication at an early appropriate stage****, in such a manner as to enable interested parties in other Members to become acquainted with it, that they propose to introduce a particular technical regulation;*
> >
> > *2.9.2* ***notify other Members through the Secretariat*** *of the products to be covered by the proposed technical regulation, together with a brief indication of its objective and rationale. Such notifications shall take place at an early appropriate stage, when amendments can still be introduced and comments taken into account;*

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[31] BISD 26s/210.

[32] The TBT Agreement was revised during the Uruguay Round and is now one of the Multilateral Trade Agreements that form part of the WTO Agreement.

*2.9.3* ***upon request, provide to other Members particulars or copies of the proposed technical regulation*** *and, whenever possible, identify the parts which in substance deviate from relevant international standards;*

*2.9.4 without discrimination****, allow reasonable time for other Members to make comments in writing, discuss these comments upon request, and take these written comments and the results of these discussions into account****.*" *(*Emphasis added*)*

The Final Act embodying the Results of the Uruguay Round also included a Decision on Notification Procedures, which affirmed Members' above-mentioned commitments under various WTO provisions regarding publication and notification. It also established a Central Registry of Notifications, which contains a cross-referenced database of all notifications made under various obligations.

The WTO's Committee on Trade and Environment has been examining the transparency of trade measures used for environmental purposes. A recent report on this issue[33] provided an overview of environment-related measures that were notified or reviewed in 1997. It found that over 2 300 notifications were made by WTO Members under the various Agreements and notification obligations in 1997 - of which 181 were either directly environment-related or had some environmental provisions in them. Around half of the environment-related notifications occurred under the TBT Agreement. These included a measure to discourage single-use drink packaging; a deposit system to encourage refillable packaging and recycling; packaging requirements; a measure on waste management of batteries; a recycling measure for white goods; and a measure on packaging for pesticides. Under the Subsidies and Countervailing Measures Agreement, one country notified grants for waste reduction and recycling. Notifications are made without prejudice to the question of WTO conformity.

The WTO therefore can provide a useful procedure for informing trading partners of proposed policies, inviting comment, and helping to avoid unnecessary trade disruptions arising from sudden changes in regulations.

Concerning obligations to provide technical assistance, under Articles 11 and 12 of the TBT Agreement, WTO Members are required, if requested, to provide advice and grant technical assistance on mutually agreed terms, to other Members especially developing country Members, on *inter alia*:

- the preparation of technical regulations and the establishment of national standardising bodies;
- methods by which importing country technical regulations can best be met;
- steps that should be taken by exporters if they wish to have access to systems for conformity assessment operated by public or private bodies within the importing country;
- how to set up their own conformity assessment systems, etc.

[33] Note by the WTO Secretariat "Item 4: Provisions of the Multilateral Trading System with Respect to the Transparency of Trade Measures Used for Environmental Purposes and Environmental Measures which have Significant Trade Effects", 9 March 1998, WT/CTE/W/77 (available on-line at the WTO Document Dissemination Facility at www.wto.org/wto/ddf/ep/public.html).

Members are required to take account of the special development, financial and trade needs of developing country Members (TBT Article 12.3); and shall "provide technical assistance to developing country Members to ensure that the preparation and application of technical regulations, standards and conformity assessment procedures do not create unnecessary obstacles to the expansion and diversification of exports from developing country Members" (Article 12.7).

### *5.3.2 Non-discrimination and other WTO issues*

*a) Non-discrimination*

The most fundamental WTO obligation is non-discrimination. WTO members have undertaken to treat the products of other Members no less favourably than:

1. 'like' domestic products [GATT Article III, National Treatment (NT)] and
2. 'like' products from other countries [GATT Article I, Most Favored Nation principle (MFN)].

Of particular relevance to EPR and related policies are GATT Articles III:2 and III:4 - the National Treatment principle:

> "1. *The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1"* (i.e. so as to afford protection to domestic production)."
>
> "2. *The products of the territory of any contracting party imported into the territory of any other contracting party shall be* ***accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use****. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product."* (emphasis added).

This means that imported 'like' products must not be singled out for discriminatory treatment based on their source of origin. WTO dispute settlement panels have consistently considered that the "no less favourable treatment" obligation in Article III:4 called for *effective equality of opportunities* for imported products in respect of the application of laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution, or use of products" (emphasis added)[34]. Similarly, paragraph 4 of Article III is designed to maintain fair competitive conditions between imported and domestic 'like' products.

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[34] Panel Report on *United States - Section 337 of the Tariff Act of 1930*, adopted on 7 November 1989, BISD 36S/345, para 5.11. This interpretation has been upheld in subsequent panel reports involving Article III:4.

In focusing on the competitive position of imported vis-à-vis domestic products, panels have demonstrated that the WTO disciplines go beyond *de jure*, explicit discrimination, and look at actual effects on the market. Formal or *de facto* discrimination may not necessarily breach Article III if equal conditions of competition apply to domestic and imported products. Conversely, formally identical treatment can violate the national treatment requirement if, as a result, imported products turn out to be disadvantaged[35].

With respect to EPR policies, it is important to note that there are specified circumstances where what might otherwise be an infringement of Article III National Treatment is permitted by the WTO by virtue of the Article XX exceptions - see b) below.

No WTO dispute panels have actually interpreted MFN and National Treatment requirements with respect to take-back policies, although one dispute (which was decided on other grounds) has concerned environmental levies and deposit/return systems on beverage containers - see Box below.

**Box 9**

**The Beer Can Dispute**

The only WTO dispute concerning a packaging policy has been that between the US and Canada over "environmental taxes" on alcoholic drinks in non-refillable containers.[36] The environmental tax was a minor part of a long-running dispute over the restrictive trading practices of Canadian provincial governments concerning beer trade. The provinces of Manitoba and Ontario levied a charge on all alcoholic beverage containers that were not part of a deposit/return system; and in Nova Scotia a charge was levied on non-refillable containers, domestic and imported, shipped to the provincial liquor board. The US argued that because domestic producers, but not importers were allowed to use private delivery systems to distribute their product, it was much easier and cheaper for locals to establish container collection schemes, and so importers were not accorded national treatment.

The panel found that the practice of prohibiting the private delivery of imported beer to points of sale while allowing local brewers that right was inconsistent with national treatment in Article III:4. Since the US argument against the environmental tax was based on the fact of different delivery systems, the panel did not address the environmental tax *per se*. So the tax was not found to be GATT inconsistent in relation to its environmental purpose: but rather to be discriminatory because it applied in a situation of different delivery systems, which were found to be contrary to the national treatment principle.

*b) Exceptions*

If a policy measure falls within the scope of Article I or III, and if it discriminates between 'like products' from different sources, then Article XX of the GATT may be relevant. Article XX is a General Exception Article, which allows for a circumscribed departure from the GATT disciplines for specified policy purposes. It reads in part:

> *"Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary and unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on*

[35] Panel Report on *Canada-Import, Distribution and Sale of Certain Alcoholic Drinks by Provincial Marketing Agencies*, adopted on February 18, 1992, BISD 39S/27.

[36] Ibid.

*international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:*

*(b) necessary to protect human, animal or plant life or health; ...*

*(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production of consumption; ..."*

There is a growing body of GATT/WTO dispute settlement experience concerning application of Article XX in cases involving trade measures taken for environmental purposes. Firstly, it should be noted that for a measure not in conformity with GATT disciplines to be 'saved' by Article XX, it would need to satisfy both (i) the requirements of the chapeau to Article XX, i.e. not be arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on trade; *and* (ii) fall within the scope of one of the sub-paragraphs of Article XX. The measure requiring justification under Article XX is not the policy goal (protection of the environment), but the measure affecting trade itself.

As concerns Article XX (b), the examination of whether or not a measure is "necessary" has proved to be a crucial step in panel practice.[37] It is commonly referred to as the "necessity test". Pursuant to this test, several panels have interpreted the text to mean that a measure can be considered 'necessary' only if there is no alternative measure consistent with the General Agreement on Tariffs and Trade, or less inconsistent with it, which a WTO Member can reasonably be expected to employ to achieve its policy objectives. The burden of proof is on the party invoking Article XX. So far, no panel called to apply that paragraph has accepted the necessity of a measure otherwise inconsistent with other provisions of the GATT.

With respect to Article XX (g), in interpreting the 'relating to' requirement, recent WTO cases have looked for a substantial relationship between the policy objective and the general structure and design of the policy measure chosen to pursue it.[38] There has to be a "close and genuine relationship of ends and means".[39] "Exhaustible natural resources" has been interpreted to include both living and non-living resources; and the phrase "if such measures are made effective in conjunction with restrictions on domestic production or consumption" "is a requirement of *even-handedness* in the imposition of restrictions, in the name of conservation, upon the production or consumption of exhaustible natural resources".[40]

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[37] The remainder of this Section draws partly on a paper presented at the OECD EPR Workshop, May , 1998, Helsinki, by Mireille Cossy, from the WTO Secretariat, *Extended Producer Responsibility and WTO Rules: An Introduction.* This paper should not be attributed to WTO Members, and like this manual, does not purport to interpret WTO Agreements.

[38] Appellate Body Report on *United States - Standards for Reformulated and Conventional Gasoline*, adopted on 20 May 1996, WT/DS2/9.

[39] Appellate Body Report on *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, 12 October 1998.

[40] Ibid.

### *5.3.3 Technical barriers to trade agreement*

Originally concluded by some GATT Contracting Parties on a pluri-lateral basis in 1979, the revised Technical Barriers to Trade (TBT) Agreement was accepted by all WTO Members as part of the Uruguay Round outcome. It commits WTO members to ensuring that (voluntary) technical standards, (mandatory) technical regulations (e.g. health, safety, and environmental regulations), and any related testing and certification procedures, do not create unnecessary obstacles to trade, and are non-discriminatory.

The definitions of technical regulations and standards explicitly include terminology, symbols, packaging, marking or labelling requirements, as they apply to a product, process or production method. There has been no experience to determine whether broader policies such as product take-back requirements would be construed as product standards or regulations for TBT purposes.

> Article 2.1 of the TBT Agreement states that, with respect to central government Bodies,
>
> "[WTO] *Members shall ensure that in respect of technical regulations, products imported from the territory of any Member shall be accorded treatment no less favourable than that accorded to like products of national origin and to like products originating in any other country*."
>
> Further, Article 2.2 states that:
>
> *"Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose,* ***technical regulations shall not be more trade-restrictive than necessary*** *to fulfil a legitimate objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, inter alia: national security requirements; the prevention of deceptive practices; protection* ***of human health or safety, animal or plant life or health, or the environment****. In assessing such risks, relevant elements of consideration are, inter alia: available scientific and technical information, related processing technology or intended end-uses of products."* (emphasis added)

In support of the requirement that regulations be no more trade restrictive than necessary to meet the policy objective, the TBT Agreement promotes the adoption of international standards. There is a rebuttable presumption that a technical regulation, which is in accordance with an international standard, does *not* create an unnecessary obstacle to international trade (Article 2.5). The TBT Agreement also requires Members to participate in international standardising bodies (within their resource limits) with a view to harmonising technical regulations as widely as possible.

Voluntary standards as defined in the TBT Agreement are important in the context of EPR programmes, because they may include 'standards' (i.e. regulations defining which types of products the PRO will accept) set by Producer Responsibility Organisations. Pursuant to Article 4 of the TBT Agreement, preparation, adoption and application of standards are subject to disciplines contained in the 'Code of Good Practice for the Preparation, Adoption and Application of Standards' (Annex 3 to the TBT Agreement.). The Code is aimed at *requiring* that governments ensure that central government "standardising bodies" accept and comply with the Code; and *take all reasonable measures* to ensure that local government and non-government "standardising bodies" accept and

comply with the Code. "Standardising Bodies" are not explicitly defined in the TBT, but International Organisation for Standardisation (ISO) definitions are incorporated.

The content of the disciplines contained in the Code is basically the same as those of the TBT Agreement, i.e. avoiding unnecessary obstacles to international trade; non-discrimination; transparency (including notification to the ISO); and basing national standards on existing international standards as far as possible.

So if a PRO were considered to be a non-government standardising body, governments would have a responsibility to take all reasonable measures to ensure that the PRO:

- does not impose unnecessary burdens on trade;
- does not discriminate between products on the basis of country of origin;
- makes its fees and requirements transparent and notifies them to the ISO;
- provides technical assistance where appropriate; and
- bases its specifications on international standards where possible.

### *5.3.4 Coverage of WTO rules*

*a) What are 'like' products?*

The issue arises as to how 'like products' are defined in the WTO, because it is 'like' products that must be treated in a non-discriminatory manner. For example, for the purpose of an environmental policy on beer bottles, is beer in cans 'like' beer in bottles? Or is it the package itself that constitutes the product when we are considering policies on packaging (i.e. is the 'like product' domestic and imported beer bottles)? Determinations of whether an imported product is 'like' a domestic product are made on a case-by-case basis when a dispute arises.

The multilateral trading system has traditionally focussed on the final product and its physical characteristics. For example, a recent Panel[41] report has applied criteria of physical characteristics, end-uses, tariff classification, and substitutability from a consumer's point of view to determine whether products are 'like'. This would seem to imply that beer in cans and beer in bottles could be seen as like products, within the context of market access opportunities for the beer industry. If a dispute were to arise within the packaging industry itself (e.g. if the trade flows affected by an EPR-related policy concerned unfilled containers such as cans), then the issue would be less clear. Cans have different physical characteristics than bottles, but similar end-uses.

A more complex question is whether packaging made of *recycled* materials are 'like' those made from primary materials. For example, is a bottle made from recycled glass 'like' a bottle made from raw materials for the purposes of trade policy? From one perspective, the two bottles are not the same and may warrant differential treatment in environmental policies. But from another perspective, the bottle has the same environmental impact when it is disposed of regardless of its recycled content, and

[41] Appellate Body Report on *United States - Standards for Reformulated and Conventional Gasoline*, adopted on 20 May 1996, WT/DS2/9, para 6.9.

differential treatment according to recycled content, such as an extra materials tax, may seem unfair. There is no clear consensus on how to deal with this issue of recycled content in international trade.[42]

*b) Which policy instruments are covered by the WTO?*

The question arises as to whether all the kinds of policy instruments that are being discussed here would be covered by these WTO disciplines. Taxes, internal charges, and "laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use..." are clearly covered. The GATT language (drafted in 1947) does not explicitly contemplate policy instruments that regulate products beyond their 'use' phase. They may however fall within the definition of "…requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use...".

For example, are requirements for manufacturers or retailers to take back used products and packaging "…requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use..."? Legislative instruments setting out EPR policies do not tend to include provisions which prevent products from being offered for sale or distributed etc. unless they comply with the extended producer responsibility. In other words, assumption of extended producer responsibility is not defined as a precondition for market access. Whether a take-back requirement could nevertheless be described as a requirement 'affecting' the offering for sale, distribution or use etc would depend on individual factual circumstances. Furthermore, negotiated EPR agreements are likely to be of the nature of a contract and may not fall within the WTO definitions of government measures or regulations.

Sometimes retailers make accreditation to a packaging recycling system a prerequisite for obtaining shelf space - which would seem to affect the 'offering for sale' or distribution of the product. However, the WTO disciplines apply to measures taken by governments, not the private sector, in this context. The WTO would only apply to policy measures taken by governments or by private, standard-setting bodies covered by the Technical Barriers to Trade Agreement, but not private actions of retailers.

As can be seen from the text of the National Treatment Article above, the GATT/WTO envisages that taxes and charges are applied to products, and it allows for them to be applied equally to imports and domestic like products. So an advance disposal fee could be applied equally to local and imported items, and exports could be exempted from the fee. The so-called Superfund Panel report[43] demonstrated that the *purpose* for applying a tax is irrelevant to the WTO system; its only concern is that the tax not be discriminatory.

Product bans and quotas are also clearly covered by the WTO. Article XI of the GATT calls for the general elimination of quantitative restrictions. It says that no prohibitions or restrictions, other than duties, taxes or other charges (such as quotas or import licences) shall apply to imports or exports. This demonstrates the preference in the trading system for price-based mechanisms rather than quantity-based policy measures. It does not of course mean that products can not be subject to bans or quotas for health, safety or environmental purposes. Such product bans or quotas would, however,

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[42] For a discussion of processes and production methods including recycled content see *Trade and Environment: Processes and Production Methods*, OECD, Paris, 1994.

[43] Panel Report on *United States – Taxes on Petroleum and Certain Imported Substances*", adopted on 17 June 1987, BISD 34S/136.

need to meet the conditions of the GATT Article XX general exception (see below), and be framed as technical regulations in accordance with the Technical Barriers to Trade Agreement (also see below).

Furthermore, any prohibition or imposed quantitative restriction would need to be applied in a non-discriminatory fashion with respect to imports from all countries, under Article XIII of the GATT.

## 5.4 Competition issues

Ensuring that competitive pressures are at work in markets is necessary for achieving economically efficient outcomes. Inadequate levels of competition due, for example, to entry barriers or collusive behaviour will result in higher prices and lower quantities of the products or services in question, relative to the situation in a more competitive environment. Generally speaking, more competitive markets for the collection, recovery, and the use of products will yield lower prices and higher production of these various services.

This does not mean, however, that EPR policies which lead to price rises therefore pose competition policy problems or violate competition laws. On the contrary, if a product's price rises because part or all of the cost of disposing of it after use has been internalised, this actually represents an improvement in economic efficiency. A competition policy approach would then weigh this improvement against any harm to economic efficiency that may have been brought about by any associated regulations or other policy instruments. If the benefits exceed the costs, the next step in a competition policy analysis would be to assess whether there is any way to increase economic efficiency even more by improving the regulations or other instruments. Thus competition policy supports the goal of internalising environmental costs and seeks to ensure that the means used to pursue this goal do not impose excessive or unnecessary costs.

Nevertheless, EPR policies can generate some potential competition issues, primarily in two areas. The first arises within the product markets covered by the EPR policy, given the opportunities for collusion open to PROs. The second concerns the markets for secondary materials in light of the market relationships between PROs and the broader waste management industry.

### *5.4.1 Competition effects in product markets*

While EPR policies tend to place responsibility for product take-back on individual producers, manufacturers or retailers, there also tends to be provision for these individual responsibilities to be delegated to a body which collectively assumes these individual responsibilities. Called PROs in this manual, collective bodies make a great deal of sense when there are many individual producers and when individual collection of post consumer products would be logistically and financially impractical. Through co-operation, individual producers can fulfil their extended producer responsibility much more cost- effectively. In fact, given that smaller companies will have relatively more difficulty organising their own take-back systems than larger firms, the existence of an industry-wide PRO will remove what would otherwise be a tendency for EPR policies to impose relatively high burdens on smaller firms. To the extent that the existence of a PRO enables small firms to stay in business, the PRO may actually increase the level of competition in a market subject to an EPR programme.

Moreover, it should be stressed that when a PRO's rates vary according to the cost of disposal, the resulting 'competitive disadvantage' to firms whose products are more difficult to dispose of is *not* a problem under competition law or policy.

Competition issues arise, however, because participation in a PRO may be required in order to compete in the market place, but its practices may potentially be harmful to competition. Allowing co-operation among producers for one purpose also provides opportunities for existing market players to engage in illegal collusion that either eliminates competition among themselves or disadvantages their competitors. For example, there may be the temptation to agree to increase the price of their products beyond the cost of the EPR policies in a kind of price-fixing agreement that would be against competition laws. Competition authorities are therefore likely to want to monitor pricing activities of the PRO to ensure that the PRO is not being used by its members to collectively pass on a general price rise designed to generate above normal profits – resulting in costs greater than the legitimate cost of the EPR programme.

Similarly, coming together for one purpose may allow established producers to raise barriers to entry for aspiring new competitors by disallowing access to the PRO or by charging discriminatory fees unrelated to the cost of product collection/recovery. Importers might be vulnerable to this form of uncompetitive behaviour because they may be willing to pay higher PRO fees than local producers in order to avoid the relatively more expensive option of making individual arrangements. In other words, an importer's extra willingness may enable the PRO to extract discriminatory charges.

Such competition concerns could be reduced if the PRO practises completely fair, open and transparent operations, allowing all producers equal access to its services and publishing fee lists where charges are clearly related to the actual cost of processing different products/ materials.

Given the competition risks involved, it is important to ensure that there are no artificial barriers to entry for PROs so that the market for PRO services is contestable. That way, if a particular PRO is not meeting the needs of particular producers, they are free to set up their own systems. The UK, Japanese and Korean EPR legislative frameworks explicitly allow for more than one PRO, and the UK requires proposed PROs to be reviewed by its competition authorities before they begin operations. Economies of scale are likely to put a natural limit on the number of PROs in operation, but it is important that governments do not artificially constrain the contestability of the market for PRO services by over-specifying the PRO in legislation; by unduly limiting the means by which producers or groups of producers may obtain exemptions from individual responsibility; or by giving official status to one particular PRO. That way, even if there is not competition between a number of PROs operating simultaneously in the market, there can be "systems competition" where different systems, including individually operated systems, compete for the market over time. The competition and efficiency implications of permitting PROs to operate across product and geographic markets should also be considered.

If PROs are or become 'essential facilities' despite attempts to ensure the possibility of new entry, competition law provides a means of preventing unwarranted and anti-competitive denials of access or discriminatory access.

A PRO is of course not a necessary feature of EPR programmes. Apart from the competition issues associated with PROs, other aspects of EPR can give rise to competition concerns. For example, locally-preferred materials mandates can limit competition by reducing access to markets for products using other materials. There is also a dynamic effect whereby specification of particular materials tends to impede innovation in product characteristics, and thereby stifles entry of new products into the market. There can also be significant practical problems for authorities attempting to physically inspect and differentiate products on the basis of their material use, causing extra barriers to entry for new products.

### *5.4.2 Competition effects in recyclable/secondary materials markets*

The establishment of an EPR programme will have an impact on the size and structure of the industry that is involved in the collection, recovery and disposal of the products in question. Some products and materials already have market-driven recovery operations before EPR is instituted (e.g. glass recycling or car scrappers). Other products and materials would have been primarily the responsibility of municipal authorities prior to any EPR system. The industrial structure of these businesses will change when an EPR programme is introduced, and policy makers need to be aware of some potential competition issues that may arise as a consequence.

*a) Product/material collection services*

Concerning the collection of used products, it has been said that PROs tend to contract out the collection of products/materials to large collectors, driving small companies out of business. A change in the company size and structure of the collection industry is not *per se* a competition problem. As the industry grows in size, partly driven by EPR and recycling policies, it is not surprising that more investment would be attracted to this sector and larger companies would emerge to reap economies of scale. The important point from a competition point of view is that producers and consumers would get better value for their EPR money if the process for awarding the collection contracts were open, competitive and fair. If the large collectors start charging excessively high prices, then smaller companies should have the opportunity to undercut them. The longer the contract term, the less opportunity there is for exposing the collection part of the chain to competitive forces. Once again, competition *for* the market rather than *in* the market should still generate competitive outcomes.

There have been examples reported of municipal authorities and/or existing contractors having received preferential treatment or being shielded from competitive tendering pressures - largely in the context of PROs having to set up EPR systems in very short time frames to meet regulatory deadlines. This meant they were in a weak bargaining situation *vis-a-vis* existing municipal or private product/material collecting businesses. EPR policy makers should therefore consider that providing adequate time frames for phasing in EPR requirements will allow for more competitive, cost effective arrangements to be made by PROs with their product/material collection contractors.

*b) Concentration of recyclable/secondary materials markets*

Perhaps the most important competition concern is the issue of concentrated market power in the hands of a PRO buying and selling collected materials. If an EPR programme specifies that all packaging must be collected by the PRO, then the PRO would be a monopsonist buyer of these materials and could, in turn be a monopolistic seller for the same materials. It could pay less than the competitive market price for materials from collectors and could charge more than competitive prices for on-selling these materials to recyclers or other users of secondary materials. Alternatively, the monopsonist buyer could pass on its low priced materials to certain domestic industries, in effect subsidising them through use/abuse of its market power.

Competition law would generally intervene in such cases to prevent abuse of market power. EPR policy makers need to be careful not to create monopoly or monopsony powers through regulatory barriers to entry in post-consumer materials markets. Allowing for competition between PROs and individually organised arrangements is critical.

If the PRO finds itself with excess supply of the collected materials, it may be tempted to dispose of the excess on world markets. Trade in recyclable materials is not harmful *per se* and is part of the way to maximise the benefits of recycling globally. But trade which occurs at "below market values" can be seen trade by affected parties in the importing country as either dumping or unfairly subsidised. A local waste-paper processor could well see very low or negatively priced imported waste paper as unfair international competition undermining its business. Domestic anti-dumping laws may come into play if the local company asserts that the imports are being dumped.

### 5.5 Trade and competition issues - checklist of points to consider

*Trade*

1. Have ***importers*** had an opportunity to participate in consultation mechanisms and/or information sessions about proposed EPR policies?
2. Has information about the proposed EPR policies been disseminated to ***trade associations*** and notified to the ***WTO***?
3. Will there be ***adequate time*** for producers, especially importers including developing country importers, to adapt smoothly to new systems? (see also Section 7.8).
4. Is there a need to provide ***technical assistance*** to developing country importers?
5. Can significant ***disruptions to secondary material markets*** be anticipated – and are there likely to be problems for trading partners that could perhaps be avoided through pro-active actions? Export subsidies to dispose of stockpiles of collected materials could be illegal under the WTO.
6. How will an EPR programme mesh with ***existing legislative requirements***, such as those governing movements of secondary materials classified as wastes by international or regional agreement?
7. Is the legislation establishing an EPR system non-discriminatory as concerns the country of origin of the products? This fundamental WTO requirement of ***non-discrimination*** includes national treatment and most-favoured nation treatment. Both *de jure* and *de facto* discrimination against imported products could be challenged under the WTO.
8. Can the operation of an EPR programme be said to create unnecessary ***barriers to trade***? Is a measure more trade-restrictive than necessary to achieve its purpose? If so, it may be vulnerable to challenge under the WTO from adversely affected parties.
9. Do EPR programmes specify ***recycled content or process or production methods*** which products must meet in order to be imported or offered for sale? This is a sensitive trade/environment policy question that needs to be addressed.

*Competition*

1. In general, more ***competitive markets*** for collection, recovery and re-use of products will yield lower costs and higher production of these services. It is important to avoid creating monopoly or monopsony power through regulatory barriers to entry in post-consumer materials markets.
2. EPR policies create a powerful incentive for firms to co-operate to jointly meet the individual responsibilities. Policy makers should seek to eliminate artificial regulatory

barriers to efficient ***co-operation***, including regulatory provisions that seek to dictate particular forms of co-operation.

3. Where possible, ***competition authorities*** should be included in the EPR policy-making process to provide advice on the likely impact on competition and consumers of alternative EPR approaches – as well as alternatives to EPR*. Competition authorities should carefully examine the extent to which co-operation is necessary for EPR purposes and should focus their analysis on how EPR goals can be reached without the policy instruments or the subsequent private conduct creating unnecessary harm to consumers. Competition authorities may also be useful sources of analysis of free-rider problems.

4. Fair and transparent ***pricing*** by the PRO is critical. Competition law enforcement can play an important role in ensuring that EPR systems are not used as a vehicle for anti-competitive conduct that 'unfairly' increases prices (i.e. beyond that justified by the costs of EPR) for disposal services or in product markets.

5. Competition in the market of the ***PRO services*** is critical - either through allowing more than one PRO or through allowing individual collection systems. Even if there is only one actor in the market at any given time, competitive outcomes could still be achieved if there are no barriers to entry for new competitors.

6. Similarly, the ***PRO*** should ***contract*** out collection and recycling services on a competitive basis. Contracts should not be unduly long term; bidding should be open, competitive and fair.

7. PROs should not abuse any market power they may have through ***monopoly pricing or other anti-competitive practices***.

8. International ***"dumping"*** of collected materials can cause unfair competition, undermine recycling efforts of the importing country, and may constitute a case for anti-dumping action.

* The communiqué following the May 1997 meeting of the OECD Council at Ministerial level reflected OECD Ministers' agreement to work towards the goal of providing competition authorities with the legal authority and the capacity to advocate regulatory reform based on competition policy. [C/MIN(97)10].

# CHAPTER 6:

# FREE RIDERS, ORPHAN AND EXISTING PRODUCTS

## 6.1 Introduction

Three main issues that need to be addressed by any EPR programme are 'free-riders', 'orphan' and 'existing' products. Free-riders are the actors in an EPR system who do not pay for the benefits they receive. Orphan products are those which are subject to an EPR policy, but whose producer is non-existent due to bankruptcy or other reasons. 'Existing' (pre-existing) products are those already on the market at the time the EPR policy is introduced. The ability to deal efficiently with these issues is an important consideration when different EPR programmes and alternatives to EPR are analysed.

## 6.2 Free riders

Free riders benefit from the EPR system without contributing an appropriate share of the costs. There is scope for all kinds of participants (consumers, producers, importers, retailers, collectors and recyclers) to free ride one way or another. While there are various ways to reduce free riding, there is usually a trade-off between effectiveness and administrative cost. Achieving zero free riding, even if possible, would probably not be worth the cost.

The extent of the free rider problem depends on the design of the EPR system (policy instrument or mix of instruments selected) and the type of product involved. Take-back systems for products with thousands of producers/importers, for example, have a higher potential for free rider problems than those in more concentrated markets. The scope for free riding is greater and more complicated to deal with when a large number of producers (packaging material manufacturers, brand owners, wholesalers, retailers, etc.) are part of a long production chain.

In other product areas such as electronics or motor oils, where the industry is more concentrated and/or vertically integrated, the number of producers affected by an EPR programme may be considerably smaller. Thus, there will be fewer free riders and the issue can be easier to deal with.

In some cases, the scale of free riding does not threaten the financial viability of an EPR system but does raise equity concerns, as the free riders obtain a competitive advantage. In others, however, even a small amount of free riding can compromise the entire system.

The following are examples of free riding in the context of take-back and recycling schemes:

- Producers/importers/fillers may under-declare the amount of products they put on the market that should be covered by the EPR scheme, or they may not be registered in the system at all.

- Producers/importers may free ride by paying EPR fees in a low-cost jurisdiction and selling their products in a higher-cost one.

- Collectors may mix products for which payments have been made within the EPR system with those for which payments have not been made.

- Consumers may use a designated collection receptacle provided by the EPR programme to dispose of materials not covered by the programme. The higher the charge for general waste disposal services, the greater the incentive to do so.

- Recyclers may illegally dispose of materials they are paid to recycle.

Existing EPR schemes have addressed free-rider problems in various ways. For example, the problem of consumer misuse of designated receptacles has been addressed by the German DSD through changing the incentive structure that applies to waste collectors, and by encouraging peer group pressure. While collectors were previously paid according to the weight of the materials collected, they are now paid only for the portion of these materials that *should* have been collected (i.e. which DSD can recycle). This gives collectors an incentive to reject inappropriate materials that have been put out for collection. The problem of producers under-reporting the amount of packaging they place on the market has been addressed through agreements between DSD and German retailers to deduct Green Dot (i.e. EPR) fees from payments to suppliers that do not submit audited Green Dot accounts.[44] Additionally, within the French Eco-Emballages system, a *premium* is paid to the commune when "higher quality" sorted waste is provided.

Peer group pressure can be expected to play an important role in reducing free-riding by producers. There is an economic incentive to report competitors who cheat the system, to the extent that they can be identified. Reporting and monitoring systems are therefore very important. In theory, government enforcement against free-riders would improve compliance, and should be possible both in mandatory EPR programmes and (perhaps to a lesser degree) when requested by participants in voluntary industry-based programmes. As it is impractical to physically monitor the amount of a product that ends up in an EPR collection system, random audits of the quantities placed on the market are an alternative compliance mechanism. In legislated schemes, authorities are likely to require reporting by producers that claim to be meeting their EPR obligations without resorting to a system such as a PRO.

Producers and their PROs are able to deal with free-riding members by peer pressure, monitoring, self-reporting requirements, sanctions, and even expulsion from the PRO. But such methods are ineffectual against free riders who lurk outside of the EPR regime that applies to them. This has been a problem particularly in the German Green Dot program that has seen large revenue shortfalls and increased costs because of free riding.

When the PRO has done what it can to minimise free-riding, there might be instances where government help may be needed to obtain compliance by PRO non-members and other free riders. In

[44] Scarlett, Lynn, *Manufacturers' Responsibility from Concept to Practice: The German Green Dot System*, Packaging, Recycling and Solid Waste, Reason Public Policy Institute, p. 83, 1998.

addition to addressing free-riding producers, government (at the municipal level) could consider establishing compliance requirements for consumers whose participation is essential to EPR success. Wide dissemination of programme information to consumers could help improve their understanding and increase compliance.

Public disclosure of producers who have been found to cheat the system may be an additional tool to encourage compliance. In addition, the lower the costs of being in the EPR system lowers the incentive to cheat. Finally, for mandatory programmes the role of enforcement should help to minimise free riding.

### 6.3 Orphan and existing products

'Orphan' and 'existing' products present challenges for EPR. Orphaned products are those subject to EPR requirements whose producer has disappeared due to bankruptcy or for other reasons. Existing products are those designed and/or introduced on the market before EPR requirements were established.

Existing products were not typically designed with the objectives of EPR in mind and, therefore, they may be more expensive to manage at end-of-life. With orphaned products, there is usually conflict related to who should bear the cost of end-of-life management. These problems, in turn, create concerns about the fairness of the allocation of costs.

The magnitude of these problems depends on the number of pre-existing products, the cost of end-of-life management, the life span of the product, costs to treat orphan and existing products relative to their sales price, and the number of actors involved.

While the issue of existing products is not likely to be significant in the case of fast-moving consumer goods, it is likely to exist to some degree in the case of EPR systems for longer-life durables.

Decisions concerning how to deal with existing products depend on programme objectives. If the objective of an EPR scheme is primarily to encourage future design improvements with respect to end-of-life management, then it may unnecessary to attempt to deal with products already on the market. EPR could apply only to products put on the market after the introduction of the policy. If the over-riding objective is to deal as soon as possible with problems arising from disposal of the products, a decision will need to be made on whom is responsible for products already in the hands of consumers. Allocating responsibility for orphaned products is somewhat less complicated; it is essentially a political decision about who will bear the costs and responsibilities.

Product type and characteristics will affect the way orphan and existing products are addressed. Short life products like packaging and beverage containers would be dealt with differently than longer life products such as electronics or white goods.

Different funding mechanisms can create different incentive structures and raise different issues with respect to orphan and existing products. The remainder of this section looks at the different funding mechanisms and their implications. These mechanisms are notably similar to those that can be used to fund EPR programmes for new products.

### *6.3.1 Financing options for addressing orphan and existing products*

*a) Advance disposal fees*

Under this method, a fee levied on a new product at the point of sale goes towards funding end-of-life management of similar products already at the post-consumer stage. In other words, current receipts finance current expenditures.

This method can be used to address both orphan and existing products if producers ignore the origin of products, which have already reached the post-consumer stage. Regardless of the brand, or the current status of the original producer, the sale of the new product provides funding for managing treatment of the used products.

One drawback is that it may be complicated to establish a direct link between the fee levied on the new product and the cost of dealing with that particular product when it is discarded. The pricing mechanism will therefore not send a signal to the market about the relative costs of end-of-life management for different brands of the same product, and cost internalisation will be approximate. This is because the amount of the fee will be determined by current needs related to managing the stock of existing products, not that of future ones.

If authorities set a standard fee, different producers will not be able to compete on the basis of offering cheaper end-of-life management. Individual producers will not be able to offer lower prices on the basis of their lower end-of-life management costs. Economic incentives to improve the product's environmental design and recyclability will therefore be limited. The same situation would exist where a fee at the time of purchase system operated through a PRO that handled recycling and re-use collectively.

Whether this kind of system is administered by a PRO or individual producers, there are likely to be situations in which there is a mismatch between the generation of funding and the pattern of expenditure. Sometimes sales of new products may be relatively high, and the return of used products relatively low, generating a surplus. In other cases the reverse could occur, resulting in a deficit. There is a need to average out and adjust revenues and expenditures over time.

It will also be much easier to gain consumer acceptance of levying a fee on a new product to pay the costs of end-of-life management of existing products where there is a widespread agreement on the need to address the issue of disposing of these products (Box 10).

**Box 10**

**New Product Fee Systems in Action**

Refrigerant Reclaim Australia (RRA) spreads the cost of reclaiming and safely destroying surplus ozone depleting refrigerants across industries using new refrigerants. RRA is funded by an industry-wide levy of AUD 1 per kilo of refrigerants produced or imported. The revenue is held in a trust fund that pays for collecting and reprocessing reclaimed ozone depleting substances. It is mandatory for wholesalers to accept back the material either for reprocessing or for safe destruction. RRA was formed by the industries concerned to share the cost of this extended producer responsibility across the whole industry. It has received a ten-year authorisation to operate from the Australian Competition and Consumer Competition. Ten wholesalers and all eight importing companies participate. A nation-wide network of collection points has been established.

*b) Fees paid at the time of purchase*

From an economic point of view, it is worth emphasising that a fee paid at the time of purchase effectively uses the narrow tax base of new sales of a product to fund end-of-life management of products sold earlier. It is also open to governments to use a larger tax base (i.e. to use revenue from general taxation) to fund the same objective. However, where letting products such as new refrigerators and cars bear the cost distorts and depresses sales, the introduction of environmentally preferable technologies or more environmentally compatible products would likely be delayed.

A fee levied up front for a product's eventual disposal could work in the case of products such as cars, where a system already exists to keep track of transfer and eventual disposal. Where producers take individual responsibility for end-of-life management, including keeping the proceeds of EPR fees to fund future end-of-life management, they will leave orphan products behind if they go out of business. Both the physical and financial responsibility for dealing with the orphan products would need to be assigned the remaining producers or in some cases, the local authorities.

An EPR system needs to allow some tracing of "disappearing" companies, so that a simple name change, for example, is not sufficient to evade paying for end-of-life product management. That is, passing costs onto others too easily should not encourage the creation of orphan products.

**Box 11**

**Japan's Home Electric Appliances Recycling Law**

In 1998, the Japanese Parliament passed a law on recycling of specified household appliances. This law sets up a system of payments at the time of disposal. In the system envisaged, when consumers make a replacement purchase of one of the covered products they can ask the retailer to take back the used equivalent product at the time of delivery. A special recycling charge would be payable by the consumer. The retailer is obliged to accede to the consumer's request to take the used product back, even if it is not the same brand as that currently on sale. In turn, the retailer must return the used products to the manufacturers or importers, who must receive and recycle them. Small and medium-sized manufacturers and importers can, if they wish, commission 'authorised entities' to recycle end-of-life appliances for them. The entities are also obliged to recycle those goods for which no responsible party exists (i.e. orphan products). One feature of this system is that manufacturers/importers are allowed to charge for the actual cost of recycling at the time of collection. All manufacturers/importers will be required to release their price lists for recycling charges and they will not be able to release prices higher than the cost for recycling. However, at time of purchase, the consumer is only provided with an estimation of what they might be charged at the end of the products useful life.

Where fees are pooled at the industry level through a PRO, trust fund or government body, advance deposits are not lost when a company goes bankrupt or otherwise disappears. Nevertheless, the problem of averaging out the timing of receipts and expenditures remains, as does that of funding an eventual deficit.

*c) The last owner pays*

Rather than paying at the time of purchase, an EPR programme could mandate take-back and levy the fee for end-of-life management on the consumer when a product was returned to the retailer/manufacturer (see Box 10). *(N.B. This could avoid the potential loss or misuse of advance disposal fees).* This financing mechanism can address orphan products if remaining producers or a PRO agree to take back brands that no longer have a parent company. Additionally, affixed fee

schedules at the time of purchase would inform the consumer of the actual fee they would pay at the end of life disposal at the point of sale. For example, when a consumer purchases a refrigerator, they would be informed of the actual fee that must be paid and their responsibility at the post-consumer stage.

It should be noted that having to pay a fee might deter consumers from returning products, which would increase illegal dumping or use of landfills. The likelihood of this happening depends on consumers' sense of responsibility, the level of fines (and level of regulation against placing waste in normal trash receptacles) for illegal dumping or landfill use, and the ease and cost of returning the used products. Regulatory action might be warranted to avoid illegal disposal of products and deter free-riding of consumers by leaving products by the side of the road or illegally placing products in the municipal waste system. Moreover, consumer convenience will be an important determinant of the programme if the fee naturally prompts proper action by the last owner.

*d) Insurance*

One way to deal with the orphan product problem could be to take out insurance against the possibility of an underfunded end-of-life management liability. This could be envisaged where a PRO has collective industry-wide responsibility and is funded by payments from producers at the time their products are purchased. The PRO or a government authority could perhaps insure against the risk of having to pay for orphan products where a parent company had not contributed to the costs of EPR.

Alternatively, producers could be required to post a bond covering the cost of end-of-life management of products still on the market. The complicating factor here is that the consumer, rather than the producer, decides when products are at the end of their useful life. It would therefore be difficult to manage the terms of the bond and the pay out stream.

*e) Phase-in*

If there are serious concerns about the fairness of levying fees on new products to pay for end-of-life management of existing products, and advance disposal fees are not considered viable, another option is to phase in EPR and associated costs to consumers gradually. For example the proportion of existing products assigned to manufacturer end-of-life financing would increase over time.

Another option would be to announce a date when the EPR programme would become effective. This approach would be more suitable when the policy objective was concerned with influencing new product design rather than with disposal of existing products. Giving significant lead-time to the implementation of an EPR programme allows time for existing products to be handled in the traditional 'pre-EPR' way, thus avoiding a situation in which new sales include the costs of handling existing products. Using such an approach, the amount of notice given would be significantly influenced by the probable lifetime of the product in question.

## 6.4 Summary: checklist of points to consider

***Free riders***

1. It is plausible that complete enforcement of free-rider behaviour may not generate sufficient environmental ***benefits to justify the administrative costs*** to minimise free-riders.

2. An EPR programme's ***ability to deal with free riders*** is an important factor in considering alternative EPR systems and alternatives to EPR.

3. ***Peer group pressure and disclosure*** of free riders can help increase discourage free-riding.

4. ***Reducing the costs*** of an EPR programme will encourage participation.

5. Policy-makers and PROs need to ***analyse the incentives*** they create for the various actors operating in an EPR system through different pricing structures and legal liabilities, to ensure (as far as possible) that these are consistent with the ultimate goals and objectives of the EPR programme and with overall economic efficiency.

6. Under mandatory EPR programmes, government ***enforcement*** against free-riders may be needed to assure fairness to producers that carry out their EPR responsibilities.

***Orphan and existing products***

1. The issue of how to ***treat products that already exist*** when an EPR programme is introduced and products that ***do not have a parent company*** by the time they reach the end of their useful life is especially important in the case of long-life consumer durables.

2. Whether to include ***products already on the market*** in an EPR programme is a political decision that depends on the objectives of the EPR policy.

3. One problem related to ***orphan products*** occurs when the funding mechanism allows companies to keep the fees paid by consumers at the point of sale, which are intended to cover the costs of products' end-of-life management.

4. ***New product fees*** paid at the point of purchase can be used to address the problem of existing products, but this means the financial burden of end-of-life management of used products is imposed on producers and consumers of new products.

5. ***Last owner pays*** after the point of purchase is a funding option for existing and orphan products. It might be possible to insure against certain orphan product problems.

6. It might be appropriate to ***phase-in obligations*** over time, in order to increase acceptance and equity.

# CHAPTER 7:

# FROM DESIGN TO IMPLEMENTATION

## 7.1 Introduction

Drawing on experience and input from Member countries, this Chapter addresses different aspects of EPR policy design and implementation that could help policy-makers identify practical issues associated with product design and implementation of EPR programmes. Section 7.2 sets out basic aspects of a policy framework. Sections 7.3 and 7.4 review the continuum of EPR programmes, from mandatory to fully voluntary industry-based.

The Chapter also addresses key points that need to be examined to help shape the EPR policy and programmes. Special considerations for small and medium-sized enterprises, phasing in programmes, monitoring, and evaluating programmes are discussed. The Chapter concludes with lessons learned and recommendations from Member countries operating EPR systems.

## 7.2 Policy framework

A policy framework for EPR should be viewed in terms of product policy (design for environment) and waste management policy. Product policy focuses on the composition of the product itself; waste management comprises a range of instruments for preventing, minimising and treating waste. EPR can function as an integrating mechanism or link to both of these policy areas.

The aims of waste management policy are two-fold: waste generation should be prevented in the first place; and final residuals should be treated in an efficient manner. The basic premise of product policy is that environmental impacts should be minimised over the product's life cycle. Impacts that cannot be eliminated by design changes should be treated in such a way as to reduce negative environmental impacts to the greatest extent possible. The policy framework for EPR therefore concerns the reduction of environmental impacts that cannot be eliminated through design (or redesign) and encourages the reuse of products, materials recycling, reduced virgin material extraction and lowered energy consumption. (NB As the concept of integrated product policy (IPP) is further developed, the policy framework for EPR should be examined in relation to IPP.)

The following points should be viewed as an intrinsic part of the EPR policy framework:

- flexibility for meeting goals and targets;
- options to obtain funding to pay for capital and operating costs of a programme;
- incentives to encourage and nurture the operating relationship between actors in the product chain to inform customers about the EPR programme and their obligations;
- avoidance of monopolist behaviour or other potentially distorting trade effects;
- minimisation of free riding;
- clear and consistent communication with all affected and interested parties;
- consideration of special needs of small and medium-sized enterprises.

### 7.3 Mandatory requirements

Many OECD governments have decided to implement mandatory regulations, ordinances, directives or legislation for implementing EPR. Governments might consider mandatory requirements when other actions are unlikely to bring about a reduction in environmental impacts and in cases the benefits of legislation outweigh the costs. As cited in the EPR Phase 2 Framework Report, governments have often undertaken mandatory programmes when voluntary programmes have failed. An additional advantage of mandating requirements is to reduce the likelihood of free-riding.

Although some producers have voluntarily accepted a greater responsibility for the products they produce, many OECD governments have opted to mandate an EPR programme to address a specific waste management issue. Whether it be for the take back of packaging, electronics, deposit-refund of beverage containers, or for establishing targets, Member countries have often pursued mandatory policy and EPR programme requirements.

### 7.4 Voluntary approaches

There are three types of voluntary approaches that can be used to implement EPR policy. The first type is government-based. Governments create a framework and leave the choice to participate to the individual firm. The second type is negotiated agreements in which government, individual firms, or an industry sector negotiate an agreement. Frequently these are signed agreements with monitoring provisions and often contain "trigger clauses" which "trigger" regulations if certain activities are not undertaken. The third type is an industry-based voluntary initiative.

An evaluation of current voluntary industry-based efforts can offer insight into the status of such initiatives and indicate under which conditions and for which products industry-led efforts are likely to be initiated. The following are examples of the wide range of voluntary approaches:

- The Dutch packaging covenant is a well-known example of a negotiated agreement. Recently, Australia entered into a covenant with its packaging sector.

- Industry-based voluntary agreements for the take-back of products are growing. Examples include, product take-back programmes such as those implemented by Dell computer, Nike and Xerox. Dell is implementing a variety of methods to reduce its environmental impact through PC reuse and recycling. They help organise recycling and take back in several countries and in efforts to extend the life of the frame for a computer for their OptiPlex line. The OptiPlex line is 100% recyclable. Dell has developed new parts that simply snap together so there is a minimal use of screws and no glue at all.

  The Reuse-A-Shoe programme is an effort by Nike's Environmental Action Team (NEAT) to close the loop on the manufacturing process of athletic shoes. Nike retailers across the country in major cities provide collection receptacles where customers can voluntarily recycle their old athletic shoes, not just those made by Nike but of all major brands. Shoes are then recycled and used to make sports surfaces like high-performance running tracks, courts, gym floors, soccer fields, and playgrounds.

  Xerox initiated a take-back programme in the late 1980's. Copy machines are leased and cartridges and other parts taken-back. Parts are either repaired or re-used for their original purpose or recycled to create the same product or another product in their product line. The commercial advantages are extended product life for equipment and parts at a lower cost. Manufacturing costs and material inputs are reduced.

- Product Stewardship, which is broader than EPR but has similar core components like product responsibility, is becoming more integrated into many sectors of the economy. The Responsible Care programme of the chemical industry is a prime example.

Voluntary approaches under the rubric of EPR can play a very important role for certain products or product groups. The 1999 OECD assessment of voluntary approaches found that they should be used: (1) in a policy mix (such as with regulations, economic instruments, etc.) and (2) to explore new policy areas (areas not currently addressed by regulations). The following guides for devising a voluntary approach are also recommended in the report: 1) clearly defined targets, 2) credible regulatory threats, 3) credible and reliable monitoring, 4) third party participation, 5) provisions for individual sanctions for non-complying firms to reduce free-riding, information oriented provisions to maximise the soft effects (for example technical workshops and publishing best practices), and 6) provisions for reducing the risk for competition distortion.

> *Over the past few years, there is a growing debate between all stakeholders about the potential contribution of voluntary approaches to the efficiency and effectiveness of environmental policy. Voluntary approaches seem to provide little incentive to innovate and can be weakened by the lack of credibility, especially vis-a-vis public opinion. Their ability to reduce administrative and transactions remains an open question, and they are vulnerable to non-compliance through free-riding. On the other hand, voluntary programmes are likely to generate significant "soft effects" in terms of dissemination of information and awareness-raising.*[45]

[45] OECD, *Voluntary Approaches for Environmental Policy: An Assessment*. Paris. 1999.

## 7.5 Small and medium-sized enterprises (SME)

The majority of businesses in OECD and other countries are SMEs (nearly 70% of German firms are so classified). SMEs can often respond to changing conditions more rapidly and flexibly than large companies. However, as shown by a case study of Danish firms (prepared for the OECD Technology and Environment Programme, 1991), SMEs can be at a disadvantage with regard to obtaining information on new environmental programmes and requirements - as well as basic know-how or access to products and materials that might help them redesign their products.

Governments might wish to consider using industry associations and other conduits for providing information on instituting an EPR programme. As appropriate, information about alternative materials and what firms need to do to met EPR requirements (e.g. how to contact a PRO) could be provided.

Applying EPR to small and medium-sized enterprises raises a number of issues. For example:

- to ensure that SME concerns and limitations are taken into account, governments should seek advice and input from these firms;

- a majority of recycling firms are SMEs. Therefore, governments wishing to implement targets and quotas may need to identify what actions are needed to help SMEs expand capacity in order to meet increased demand;

- since a large proportion of waste management firms are SMEs, fair and equitable competition in this sector should be encouraged;

- the costs of reporting can place SMEs at a disadvantage. Special consideration should therefore be given to the type of reporting requirements they would be required to meet; and

- the development of new technologies (e.g. for dismantling and recycling) should be encouraged.

Most OECD Member countries have set up special programmes and organisations to assist SMEs. Other examples of assistance could include:

- elaborating on current information efforts, using already developed SME information channels;

- developing mechanisms for easy access to information on EPR programmes and responsibilities;

- creating an electronic discussion site so that questions can be submitted and responses given;

- supporting or utilising any electronic networks developed by an industry association or group for a sector;

- setting specific phase-in dates for SMEs; and

- providing training and assistance.

## 7.6 Transaction costs

Transaction costs are those costs that arise through an exchange – and in this case they are the costs of implementing and administering the EPR programme. The potential transaction costs (for government, industry and the public) should be reviewed in relation to the cost of the externality and minimised to the greatest extent possible. When the net value of the externalities in question are greater than the transaction costs, it would be worth incurring the costs.

In addition to costs associated with the operation of the programme, the *extent of the responsibility placed on the producer* could be an indicator of the type of transaction costs that might be encountered (see Section 4.5 on responsibility). Under the German Packaging Ordinance, for example, a PRO was established to haul, sort and treat packaging waste. Identifying waste haulers and contracting for their services represented *transaction costs for the private sector*. Another example of a transaction cost for a PRO might be co-ordinating with local governments.

Under the French packaging law, the PRO contracts directly with municipalities to continue collecting and to sort packaging. The municipality is then paid on a per unit basis for the sorted waste. If the sorted waste is of high quality, the municipality receives a premium. Some transaction costs are therefore tied to establishing contracts and to paying for sorted waste.

Potential transaction costs to governments considering using a mandatory approach versus a negotiated approach (or a combination of the two) should be included in the decision-making process. For example, a mandatory programme might have high transaction costs associated with enforcing compliance. A voluntary programme might have high transaction costs associated with creating incentives for participation. These relative costs must be considered with respect to each other and with respect to the perceived programme benefits.

**Box 12**

**Data that Producers Can Readily Provide**

**For the product:**

- Sales by country by month
- Declared weight and/or volume of the product
- Product to package ratio

**For the packaging:**

1. Data by packaging component
3. Packaging category
3. Primary, secondary, transport, insert, etc.

4. Material type (standard definitions must be established)
   - Plastic by resin type (1-7 only)
   - Paper
   - Corrugated
   - Paperboard
   - Flexible paper
   - Glass
   - Clear
     - Brown
     - Green
     - Other
5. Metals
   - Aluminium
   - Steel
   - Other metals
   - Wood
   - Textiles
   - Ceramic/pottery
   - Laminates and composites

6. Other
   - Number of uses
   - Reusable or refillable
   - Recycled content
     - Pre-consumer
     - Post-consumer

Source: Victor Bell, 1999

## 7.7 Monitoring and reporting

Reporting obligations should consider what type of information is needed in order to monitor an EPR programme's performance. In the case of packaging programmes, for example, producers should provide information on the packaging that they place on the market, including the weight and material type(s). Box 12 presents a list of data that packaging producers could readily provide.

Monitoring plays an important part in ensuring compliance with an EPR programme and in verifying that free-riding is minimal. When reporting regimes are developed, policy-makers should consider what type of information is needed annually and what type can be collected periodically through special audits or reporting programmes (depending on the goals of the EPR programme and the changes desired as a result of it).

The information needed to effectively monitor the programme should be reviewed in terms of the value of the information in relation to the burden to provide such data and information. For instance, one country requires that the *empty space ratio* for packaging be reported. While this information could be useful for monitoring changes in packaging and for motivating producers to lower the empty space ratio, calculating such ratios can be complicated. For those cases in which a complex calculation of data is necessary, the provision of a "how-to guide" and examples of calculations could be useful and could increase the accuracy of the data and information received.

To help reduce the burden on government and industry, electronic reporting should be used when possible. This can save time and resources and eliminate many of the errors that occur in transferring data from a paper reporting form to an electronic database. An increasing number of OECD governments are converting to more Internet-based reporting systems. While the Internet has not yet spread to all sectors of all economies, it is becoming the preferred reporting mechanism.

Finally, a key recommendation from the Washington, D.C. (1998) and Paris (1999) EPR workshops was that the terms and reporting requirements should be co-ordinated, if not harmonised, regionally or internationally. One option is to develop a basic set of EPR reporting requirements. A subordinate set of more specific requirements for particular product groups or waste streams could be established. Firms operating in more than one country would benefit from an agreed upon list of reporting requirements which minimises resources spent meeting a wide-variety of requirements.

## 7.8 Phasing-in

One of the findings under EPR Phases 1 and 2 was that phasing-in an EPR programme over a few years can help maximise success. As with any new programme, it takes time for entities to learn about their responsibilities, set up programmes and systems, communicate information to the public, and adjust to new arrangements. Whether the programme is voluntary or mandatory, phasing-in can be critical to success. For example, short-term timetables (e.g. 18 months) for implementation of an EPR take-back programme can cause costs to increase **(**see Annex 12 – Lessons Learned by the German DSD). Respective approaches should be provided ample time to implement necessary mechanisms for a programme's operation and phasing-in a programme could help to reduce implementation costs. On the other hand, if too much time is provided (for instance 10 years), momentum can be lost. Experience indicates that action tends to waiver, or even stalls, when too much time is given.

## 7.9 Getting started

Pilot project studies can be an effective way to test an EPR approach on a small scale. They can provide key information for the evaluation, identify key issues concerning the approach selected, help disseminate information about EPR, and build consensus among the actors in the product chain.

Pilot project studies can help identify areas where the design of an EPR scheme, targets and quotas, scope, data collection and in some cases PRO management need to be refined. Such studies can be part of the phasing-in process.

## 7.10 Evaluations

After more than two years of operation, an evaluation can indicate whether the EPR programme is meeting its objectives. If not, this might be a good time to make mid-course adjustments. Evaluations can be carried out by assessing the programme's performance against the criteria set out in Chapter 1: environmental effectiveness, economic efficiency, political acceptability, administrability and innovative advancement. While these criteria are used to help policy makers determine whether to implement EPR and the best way to do so, EPR workshop participants have agreed that they are multi-purposed and can be useful at different stages of the decision and evaluation process. EPR programmes, whether they are voluntary or mandatory, should be designed to allow for changes and adaptations over time to ascertain whether or not the programme still meets national goals and programme specific objectives.

*Environmental effectiveness:* This is a prime objective of EPR. It has been achieved if the programme fulfils the purpose, goals and objectives established for it. Implementation should primarily be judged on the basis of performance (e.g. the amount of waste diverted), reduction in the amount of waste sent to final disposal, or new product design. Has the programme achieved the objectives of the EPR system - such as reducing the amount of waste going to final disposal or the redesign of more products to eliminate toxic materials or reduce raw material use?

*Economic efficiency:* What are the costs of implementing the system (set-up, running costs, administrative costs, etc.)? What are the costs of compliance for producers, and how are they passed on? A review of transaction and transition costs at this point could provide a better indication of long-term costs.

*Innovative advancement:* Has the system stimulated upstream product design changes? Have there been technological or managerial advances?

*Political acceptability:* What is the degree of public participation in developing and implementing the system? What is the degree of social acceptability? Was the process of developing the system transparent and objective? Is the system's operation transparent?

*Administrability:* What are the costs of executing and enforcing the programme? Has its implementation and integration been smooth (efficient)? Were producers adequately informed about their responsibilities? What were the costs of informing and training producers and the public about the programme? Is there concordance with institutional frameworks at the local or national level?

## 7.11 The international dimension

In an international context, governments that establish EPR programmes should consider the following:

- When an instrument is chosen and/or a programme is designed, examining other countries' programmes, goals and objectives can provide insights to help avoid any pitfalls.
- Co-operation with neighbouring countries is needed with regard to secondary material markets and recycling capacity.
- A programme's progress and lessons learned should be shared.
- Communication among stakeholders and actors in the product chain, nationally and internationally, should be encouraged.
- Potential distortionary effects on trade and competition should be carefully reviewed.

## 7.12 Measuring progress and success

Environmental programmes can be measured qualitatively and quantitatively. Quantitative measurements are made if there are measurable changes in environmental quality following the implementation of an EPR programme. Changes such as reductions in the amount of packaging can be measured quantitatively. Qualitative changes are less tangible and more difficult to measure, than quantitative changes due to their subjective nature. Reduced health risks and improvement of the state of the environment are examples of qualitative changes.

Monitoring should be an inherent part of the EPR programme as it can provide a continuous feedback mechanism. Information can be provided on achievements and on policy performance (e.g. Should a policy be more rigorous? Do some requirements need to be modified or removed?). The following is a list of examples of the types of success measures governments could incorporate into an EPR programme. Benchmark data might be needed for most of them. Data sources such as Pollutant Release and Transfer Registers (PRTRs) can be used in developing benchmarks.

### *7.12.1 Quantitative*

*a) Resources*

- Has the amount of toxic materials been reduced in products?
- Are materials that are easier to recycle being used in the manufacture of products?
- What is the input of raw materials per unit of product? What is the percentage of reduction in the use of raw materials in products per unit of production?
- What is the percentage of recycled (secondary) materials used in products per unit of production?

- What is the total energy used per unit of production?
- What proportion of the feedstock comes from sustainable sources?

*b) Waste reduction/prevention*

- Is less waste going to final disposal? What is the total waste per unit of production?
- What is the total solid waste per unit of production?
- What is the total hazardous waste per unit of production?
- What is the reduction of hazardous waste per unit of product?

Pollutant releases

- What is the volume of pollutant releases per unit of production?

### *7.12.2 Qualitative*

*a) Product redesign*

- How many products have been redesigned to be more environmentally compatible (easier disassembly, increased recycled materials content, smaller amount of toxic materials used in product, etc.)?
- What types of changes have been made to products to make them easier to recover, reuse or recycle?
- What is the volume of toxic materials (according to national policies and laws) used per unit or product?

*b) Waste*

- Has there been an improvement in the quality of waste selected and sorted for recovery and recycling?
- Has the risk of toxic waste going to final disposal been reduced?
- Are less landfills and incinerators needed?

## 7.13 Recommendations and lessons learned

This section contains a list of key recommendations for policy-makers to consider when an EPR approach has been selected. While these recommendations are applicable to all government interventions, they are based on experience with the design and implementation of mandatory and

voluntary EPR policy approaches in Germany and the Netherlands. (For further information on the different EPR approaches in Germany, please refer to Annex 14.) Box 13 sets out the main conditions for applying EPR from the Dutch perspective.

1. **Clear targets**. The targets established need to be transparent and acceptable to all stakeholders (industry, consumers, environmental citizens' organisations, consumers, public interest groups and others.)

2. **No single "right" approach**. There is a continuum of EPR approaches from voluntary (industry-based initiatives) to mandatory. The approach used depends on differences in products, market structure, targets, prices of secondary materials and other factors.

3. **Financial incentives.** Internalisation of waste management costs provides clear incentives to change product design. The producer can have the largest influence on product design.

4. **Neutrality to competition**. The framework of the EPR programme should be designed to have as neutral effect as possible on competition.

5. **Different solutions for different product groups**. The most obvious distinctions are between short-life and long-life products, and between waste from industrial production and that from private households. There are different influences and aspects within each product group that need to be factored into the decision–making process.

6. **Differentiation between materials**. In designing an EPR programme, incentives should be given to change the product design and materials used (secondary in lieu of raw materials). This should be done in concert with policy goals and programme objectives.

7. **Encouraging competition in the waste management sector**. Competition is necessary to control waste treatment costs. Lack of competition can lead to high costs for collection, sorting and treatment. This becomes a problem when a firm must negotiate removal, sorting and treatment of its collected products. Without appropriate competition, there is the potential for a producer to be placed at an unfair advantage with respect to the costs it is required to pay for the removal, sorting and treatment of post-consumer wastes.

8. **Consumer participation**. EPR programmes for household wastes (e.g. packaging, bottles and batteries) strongly depend on consumer participation. Environmental awareness and information dissemination are vital components of any EPR programme. **Consumer convenience,** in terms of easy access to collection and recycling centres, is an imperative (e.g. through well-placed receptacles, kerbside collection, etc.). Barriers to consumer participation should be minimised.

9. **Use of life cycle analysis**. Life cycle analysis can help increase the acceptance of a programme and lead to products' environmental optimisation.

10. **Monitoring**. Exerting pressure to meet targets through compliance monitoring is necessary in order to realise the desired benefits. The experience in Germany is that there are limited results when no monitoring mechanism exists. This was demonstrated in cases of purely voluntary programmes.

To increase the effectiveness of an EPR programme, other recommendations include the following:

11. **Optimisation of recycling costs (including costs of dismantling).** Full consideration of the characteristics of products and other issues such as orphan and existing products should be made in the programme design stage. A feedback system, in which essential data on the recycling and dismantling operation costs are provided, could be established to provide necessary information for identifying areas for improvement.

12. **Taking the operational waste management system into account**. This is of basic importance when designing an EPR programme. Often the municipality has a system that could continue operating and carrying out the additional functions (funded through the EPR programme). Similarly, the EPR programme should not hinder the operation of efficient recycling programmes.

**Box 13**

**The Main Conditions for Applying EPR: The Netherlands Perspective**

1. There should be a ***clear policy framework*** with stated environmental objectives and targets.
2. The ***target and means*** of achievement should be clear.
3. ***Responsibilities*** should be clearly defined. There should be one party with final responsibility.
4. ***Incentives and enforcement*** should be defined.
5. ***Competition*** should be encouraged.
6. The system should be made "waterproof"

    - Assign and clarify ***individual obligations***
    - Provide adequate ***monitoring*** of the programme
    - Monitor ***compliance***

*Source: Kees Clement, Ministry of Environment, The Netherlands, Paper presented at the Joint EPR and Waste Minimisation Workshop, "Towards Sustainability", 4-7 May 1999, Paris.*

### 7.14 Summary: checklist of points to consider

1. Will the EPR programme be ***mandatory or voluntary*** in nature? Or will efforts be initiated to reduce any barriers that might restrict the proliferation of industry-based voluntary programmes? If mandated, how will its requirements be enforced? If it is voluntary, how will it be monitored? How will the programme be implemented administratively (e.g. through issuing guidance, enforcement, data collection, monitoring, etc.) and by whom?

2. What are the ***voluntary industry-based EPR programmes*** in place? What percentage of market for these products is addressed through voluntary industry-based efforts?

3. When choosing an EPR policy option, policy makers should factor in potential ***transaction costs*** associated with implementation and operation.

4. What kind of ***data*** must be reported, and in what format? To whom will the data be reported?

5. A mechanism needs to be in place for ***monitoring*** an EPR programme and evaluating it with reference to its goals and objectives, as well as the overall goals of sustainable development.

6. ***Phasing in*** an EPR programme can help ensure that sufficient capacity is established and that interested parties understand their roles.

7. ***Flexibility*** needs to be built into the programme so that it can respond to changing conditions and needs (e.g. those related to new technologies, developments in recycling and materials markets, etc.).

8. ***Programme evaluation*** can help determine how the programme is working. It can also indicate where mid-course corrections might be made. The evaluation should relate directly to national environmental goals and programme-specific objectives.

9. ***Recommendations and lessons learned*** indicate the following: (i) clear targets should be set; (ii) there is no single "right" EPR approach for all products, product groups or waste streams; (iii) financial incentives are needed; (iv) the EPR programme should have a minimum neutral effect on competition; (v) there are different solutions for different product groups; (vi) incentives for the differentiation between materials should be provided; (vii) competition should be encouraged within the waste management sector; (viii) consumer participation should actively pursued; (ix) life-cycle analysis should be employed; (x) monitoring is necessary; (xi) optimisation and internalisation of recycling costs should be sought; and (xii) the operational waste management system needs to be taken into account.

# CHAPTER 8:

# FUTURE STEPS

## 8.1 Future Steps

The principle of EPR is increasingly manifested in a new generation of pollution prevention policies that focus on the product instead of on production facilities. The development of EPR is still in its infancy. As governments search for new ways to address problems related to increased waste and pollution, EPR will be an important policy tool to consider. This Guidance Manual provides a starting point and reference guide for governments on implementing EPR. However, other issues and aspects of EPR could be further explored and examined to provide policy makers with additional information as EPR is considered for other products, product groups and waste streams. The following list contains activities that can be carried out by Member countries individually, or at the OECD level.[46]

1. ***Applicability of EPR policy instruments to different products, product groups, sectors or waste streams.*** Is EPR more effective with particular types of products, product groups or waste streams? If so, which products and waste streams are most appropriately addressed? Which instruments tend to be more applicable to reducing stated environmental pressures in relation to another instrument, and why? Participants in the EPR Phase 3 workshops often raised these questions. A study that examines these points in more detail could provide OECD countries with additional guidance on which instruments are more applicable to certain products or waste streams than others. The study could take into account, or apply, the decision-making matrices found in Box 4, *vis a vis* developing and operating EPR programmes.

2. ***Orphan and existing products.*** While the issue of orphan and existing products is addressed in the Guidance Manual (Chapter 6), many aspects of this complex issue still have not been fully examined. As governments select different instruments to implement EPR, the problem of funding the treatment of orphan and existing products arises, as do issues related to different products' market dynamics and design. For example, the EU, under a proposal on electrical and electronic products, suggested that the costs of treating orphan and existing products should be internalised into the price of the product. Japan's recycling law for electrical and electronic products, however, requires the last owner to pay a fee at the end of the product's useful life (See Box 10).

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[46] It is important to point out that additional research is not being suggested in this Manual to obfuscate the role and importance of EPR. Rather, it is to identify more precisely under what circumstances and for which products and product groups EPR functions best to meet environmental priorities and goals.

A study would provide more detailed guidance on this particular aspect and identify (and compare) whether and how operating EPR programmes address existing and orphan products. More detail on plausible options in relation to the different product groups (long and short life products) and their inherent characteristics could be developed.

Examples of the type of issues to be examined could include specific variables such as market dynamics, product durability, whether special funds have been established, and whether a particular body should be established to address products from companies that are no longer operating.

3. ***Integrated Product Policy.*** Integrated Product Policy is a new umbrella concept being applied to the range of product polices that have emerged over the past decade. The development of this concept raises the question of how EPR would operate in relation to the domain of IPP. As the concept becomes more firmly defined and more fully accepted OECD-wide, this relationship should be reviewed and defined.

4. ***Funding methods. A case study on recent implementation of EPR including voluntary (industry-based initiatives) and mandatory programmes*** could provide important insights on how EPR programmes are, and can be, funded. What types of funding mechanisms are used and whether or not cost internalisation is realised through the programme are two key points to be examined. Identification of methods used and their structure could provide new and important information to OECD countries.

5. ***Industry-based voluntary programmes and their operation***. Case studies on voluntary industry-based EPR programmes could provide useful insights into their operation and effects. Some questions to be addressed include: what types of voluntary industry-based programmes have been initiated and for which products? What are the effects and results of these programmes? What are the drivers for industry-based initiatives? How does the intra-firm structure effect the implementation of an EPR programme? What are the lessons learned? What can governments do to augment the implementation of successful programmes? What are the barriers? A range of these programmes for different products, product groups and waste streams could be examined.

6. ***Potential effects of electronic commerce.*** The rapid growth of electronic commerce around the world has had an impact on the dynamics of the market and on trade in certain products. The impacts of increased electronic commerce on environmental policies such as EPR could be an important issue with particular implications on programme design. Research could be carried out on particular questions such as effects on the distribution of responsibility, product movement (e.g. packaging, electronic products) and the structure of producer responsibility organisations.

7. ***Measuring programme performance.*** Ways to measure programme performance are addressed in Chapter 7. Further research could be undertaken to examine the applicability of measurement methods to different EPR approaches.

8. ***Definition of terms and reporting requirements.*** Additional work to identify a list of generally agreed terms, and to develop a basic list of reporting requirements could help governments implement EPR. This effort might also benefit multinational firms that report different EPR programme data and information for different countries.

Other recommended research projects at the OECD level include:

- Conduct a ***survey on EPR implementation*** in OECD countries. It has been five years since the last comprehensive EPR study was completed and it might be timely to update this study to identify which countries are implementing EPR and what instruments (or mix of instruments) are being used and for which products, product groups, sectors or waste streams. Trends could also be scrutinised. Annex 15 contains a matrix developed by Inform, USA, which could serve as a basis or starting point for this activity.

- Carry out a project to define ***basic terms and core reporting requirements*** for specific products, product groups and waste streams subject to EPR.

- Conduct an analysis of the ***cost of waste treatment alternatives*** for certain priority wastes or waste streams in OECD countries in relation to different EPR programmes and their associated targets.

- Survey and compile **methods used for disseminating information** EPR programme information to the public and providing public access to programme performance data. A guide of current practices could be a practical tool for government decision-makers.

- Examine the potential for ***joint strategies*** to address significant approaches with regard to secondary material supplies across the OECD.

- Conduct a study on ***alternative polices to EPR*** and how they might compare to EPR taking into account competition policy and section 3.9 of this Manual on environmental effectiveness and economic efficiency.

## 8.2 Conclusion

EPR provides governments with a policy approach for addressing environmental pressures created by post-consumer products. It has an important role to play in increasing resource efficiency by harnessing materials that would have gone to landfill or been incinerated, while at the same time influencing designers to select materials that can be more easily reused and recycled. EPR can provide signals to the producer to reduce the use of virgin materials by using more recycled content or to re-use the same product (refilling a beverage container). As such, it can help Member countries in their efforts to advance environmental protection and sustainable development goals.

The trend of EPR within the OECD is towards expanding the application of EPR to additional products, product groups and waste streams. Member countries have applied EPR to numerous products and waste streams, including automobiles, tyres, beverage containers (including plastic, PET) construction waste, disposable cameras, disposable razors, shopping bags, mineral oils, used motor oil, ozone depleting refrigerants, disposable tableware, batteries (HgOx, NiCd and Pb), furniture, and textiles. With the advancement of computer, portable phones and other technologies, the tendency is toward the extension of EPR to new products, product groups and waste streams such as electronics and electrical appliances.

There is a continuum of approaches for EPR from completely voluntary to mandatory. The approaches used by Member countries to date have been mixed. In addition to governmental activities, there is a trend within industry to undertake voluntary EPR initiatives for certain products or product groups. To date, most EPR programmes have centred on the take-back of a product with targets set for recycling or reuse. As EPR expands to other product groups and/or waste streams, the use of other instruments that effectuate EPR, or a mix of instruments, should be introduced.

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## ANNEX 1: MUNICIPAL WASTE GENERATION IN OECD

Figure 1. **Municipal waste generation by OECD regions**

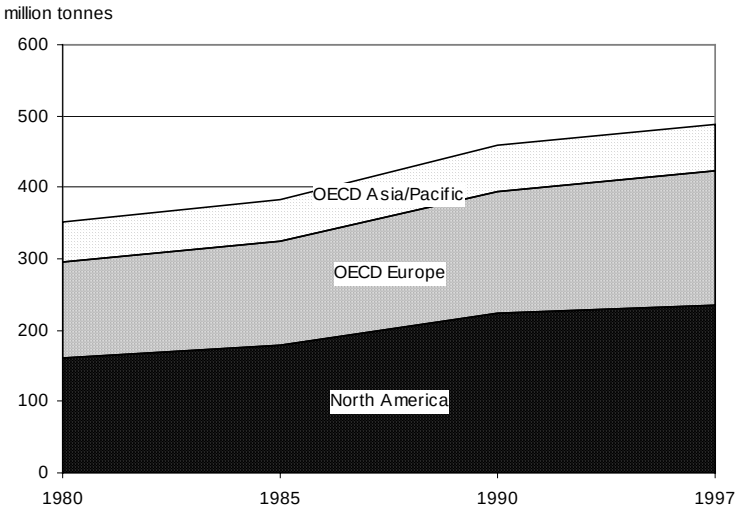
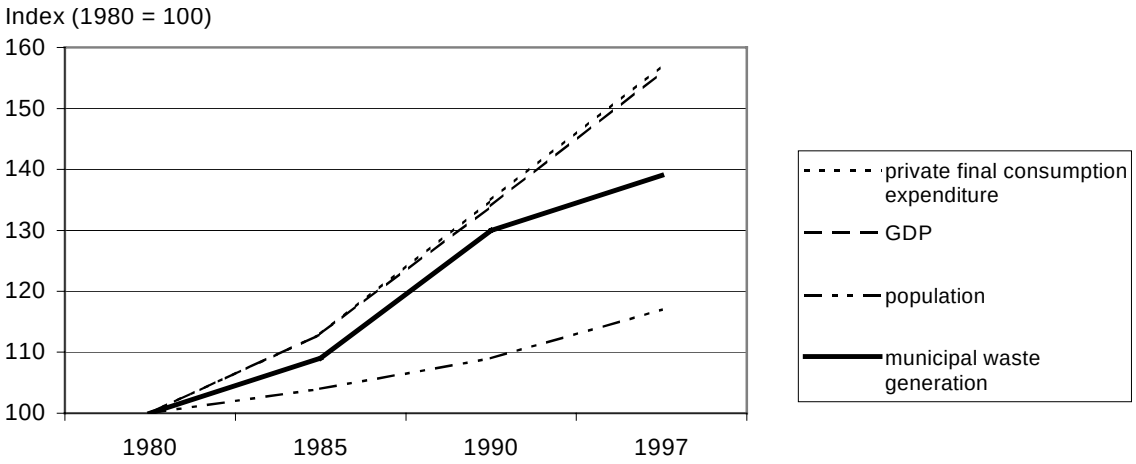
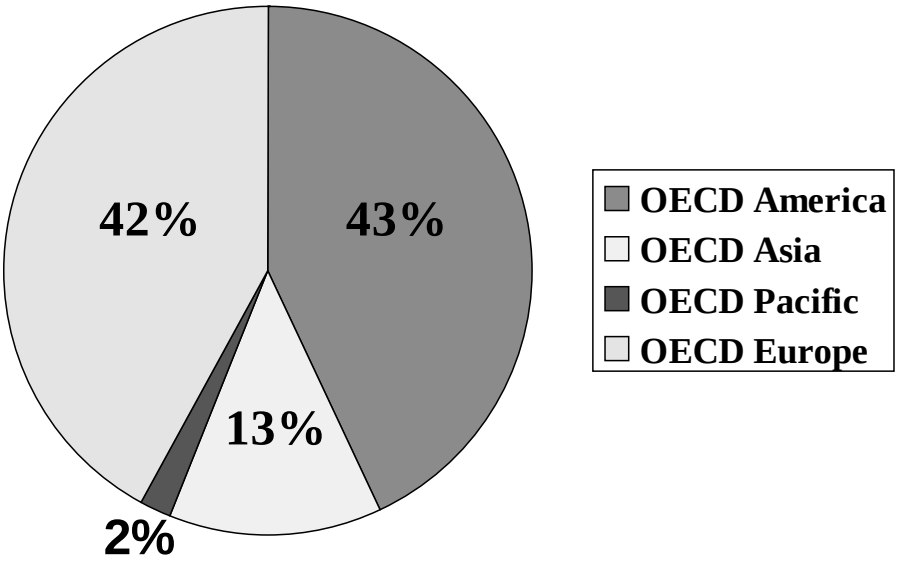


Figure 2. **Compared trends in OECD countries**




*Source*: OECD, 2000.

Figure 3. **Municipal Waste Generation in 1997, (541 million tonnes)**




*Source*: OECD, 2000.

## ANNEX 2: DEFINITONS OF ENVIRONMENTALLY -RELATED TAXES AND CHARGES

The following definitions are from the OECD document, Economic Instruments for Pollution Control and Natural Resources Management in OECD Countries: A Survey, 1999 [ENV/EPOC/GEEI(98)REV1/Final].

### Taxes

The OECD classification, (as used in the annual OECD publication, *Revenue Statistics*) defines taxes as "compulsory, unrequited payments to general government. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments."

The term "general government" is defined as "supra-national authorities, the central administration and the agencies whose operations are under its effective control, state and local governments and their administrations, social security schemes and autonomous governmental entities, excluding public enterprises".

Note that a tax, (unrequited) *can* be earmarked if it is decided that a certain percentage of the revenue will be affected to a specific purpose, (e.g. when part of a gasoline tax is earmarked for road building).

### Charges/fees

The OECD classification also uses the terms "fees" and "user charges", (as opposed to "taxes") and "levies" without giving a precise definition of these terms. In practice, the terms charges and fees are often used interchangeably. Therefore, charges and fees will be defined as compulsory requited payments to either general government or to bodies outside general government, such as for instance an environmental fund or a water management board.

The general term "levy" could be construed as covering all types of compulsory payments.

Note that, according to the OECD classification there are "borderline-cases" where a levy could be considered as "unrequited", i.e. as a "tax", (if the payment is made to "general government" as opposed to a charge or fee):

a) where the levy greatly exceeds the cost of providing the service;
b) where the payer of the levy is not the receiver of the benefit, (e.g. a fee collected from slaughterhouses to finance a service which is provided to farmers);
c) where government is not providing a specific service in return for the levy which it receives even though a license may be issued to the payer, (e.g. where the government grants a hunting, fishing or shooting license which is not accompanied by the right to use a specific area of government land);

d) where the benefits are only received by those paying the levy but the benefits received by each individual are not necessarily in proportion to his payments, (e.g. a milk marketing levy paid by dairy farmers and used to promote the consumption of milk).

- **Emission charges**: direct payments based on the measurement or estimation of the quantity and quality of a pollutant. Emission *taxes* are addressed separately in the summary of environmental taxes for pollution control presented in Chapter 4.

- **User charges**: payments for the cost of collective services. They are primarily used as a financing device by local authorities e.g. for the collection and treatment of solid waste and sewage water. In the case of natural resource management, **user fees** are payments for the use of a natural resource, (e.g. park, fishing, or hunting facility).

- **Product charges**: applied to products that create pollution either through their manufacture, consumption, or disposal, (e.g. fertilisers, pesticides, or batteries). Product charges are intended to modify the relative prices of the products and/or to finance collection and treatment systems.

- **Taxes** for natural resource management are unrequited payments for the use of natural resources. Information on these taxes was collected for the survey, but data on natural resource royalties were not.

- **Marketable, (tradable, transferable) permits, rights, or quotas**, (also referred to as "emissions trading") are based on the principle that any increase in emission or in the use of natural resources must be offset by a decrease of an equivalent, or sometimes greater, quantity. Two broad types of tradable permit systems are in operation: those based on emission reduction credits, (ERCs), and those based on *ex ante* allocations, ("cap-and-trade").

  - The former approach takes a "business as usual" scenario as the starting point, and compares this baseline with actual performance. If an emitter/user performs better than the anticipated baseline, a "credit" is earned. This credit can then either be used by the emitter/user himself, either at the current location or elsewhere, or sold to some other emitter whose emissions are higher than the accepted baseline, (and presumably at a lower price than what it would cost the latter to abate on his own).
  - The "cap-and-trade" approach sets an overall emission/use limit, (i.e. the "cap") and requires all emitters to acquire a share in this total before they can emit. Emitters may be allocated their shares free-of-charge by a relevant environmental authority, or the shares may be auctioned. Regardless of how the initial allocation of shares is determined, their owners can then either utilise them as emission permits in current production, save them for future use, (if "banking" is allowed), or trade them with other emitters.

- **Deposit-refund systems**: payments made when purchasing a product, (e.g. a beverage container). The payment, (deposit) is fully or partially reimbursed when the product is returned to the dealer or a specialised treatment facility.

- **Non-compliance fees**[47]: imposed under civil law on polluters who do not comply with environmental or natural resource management requirements and regulations. They can be

[47] Neither non-compliance fees nor liability payments can be construed as fines, which are lump sum legal sanctions.

proportional to selected variables such as damage due to non-compliance, profits linked to reduced, (non-) compliance costs, etc.

- **Performance bonds:** used to guarantee compliance with environmental or natural resources requirements, polluters or users may be required to pay a deposit in the form of a "bond". The bond is refunded when compliance is achieved.

- **Liability payments**[2]: payments made under civil law to compensate for the damage caused by a polluting activity. Such payments can be made to "victims", (e.g. in cases of chronic or accidental pollution) or to the government. They can operate in the context of specific liability rules and compensation schemes, or compensation funds financed by contributions from potential polluters, (e.g. funds for oil spills).

- **Subsidies**: all forms of explicit financial assistance to polluters or users of natural resources, e.g. grants, soft loans, tax breaks, accelerated depreciation, etc. for environmental protection. *The survey only addresses financial assistance aimed at direct pollution control or natural resource management. Economic subsidies which do not directly lead to pollution control or natural resource management, (e.g. subsidies for energy conservation) were not included.*

## ANNEX 3: RECYCLING AMERICA'S RECHARGEABLE BATTERIES

by C. Norman England, (President, CEO)
Portable Rechargeable Battery Association, United States

***This paper was presented at the OECD Workshop on The Effective Collection and Recycling of Nickel-Cadmium Batteries Workshop, Lyon, 1997. This is an example of a voluntary industry-based initiative that provides new and interesting communication techniques.***

The rechargeable power industry has gone through dramatic change in the last ten years. The beginning of this period is marked by the US Environmental Protection Agency changing the test that defines a waste as hazardous or non-hazardous. Suddenly used, small, sealed dry cell Ni-Cd batteries went from a non-hazardous to a hazardous classification. The end of this ten-year period was marked by the enactment last year [1996] of the **Mercury-Containing and Rechargeable Battery Management Act**, most commonly referred to as the Battery Recycling Act. This bill, among, other things, changed the classification of the batteries to a Universal Waste.

Previously, rechargeable batteries and rechargeable consumer products were regulated under a complex system of state, federal and international laws. These laws were designed to promote safety and the environmentally sound recycling or proper disposal of rechargeable batteries and battery-powered products.

The enactment of the Mercury-Containing and Rechargeable Battery Management Act initiates a new federal approach to the recycling of a ubiquitous consumer product - Ni-Cd batteries. The act does not impose a collection obligation on industry or establish rates and dates that must be met. Instead, it facilitates a largely private-sector collection programme, supported by a substantial industry-funded public awareness campaign to encourage consumers to recycle.

The programme is administered by the Rechargeable Battery Recycling Corporation, (RBRC), a non-profit organisation whose sole mission is to promote and implement the separate collection of Ni-Cd batteries, removing these heavy-metal products from the municipal waste stream.

The recycling programme proposed by the Ni-Cd battery industry as early as 1993 and which today is being implemented by RBRC, with the assistance of Portable Rechargeable Battery Association, (PRBA), is known as the **Charge Up to Recycle!** programme and contains several key elements which are specified in the US EPA regulation, various United States state laws governing Ni-Cd battery recycling, and the Mercury-Containing and Rechargeable Battery Management Act.

These include the following provisions:

- uniform battery labelling requirements;
- removability of batteries from products;
- national network of collection systems;
- regulatory relief to facilitate Ni-Cd battery collection for recycling;
- widespread publicity to encourage public participation;
- development of a funding mechanism for the programme.

The Charge Up to Recycle! programme offers various Ni-Cd battery recycling plans for retailers, communities, businesses and public agencies. These include the Retail Recycling Plan, (20,000 plus participants), the Community Recycling Plan, (300 enlisted), and the Business and Public Agency Recycling Plan, (1000 enrolled). These activities ensure that the maximum return of the small consumer Ni-Cd batteries will be accomplished.

RBRC utilises third party vendors who can orchestrate the logistics involved in operating the collection programmes. The contractors inventory and distribute collection kits and instruction manuals, receive returns, make sure that batteries collected are properly sorted, and then arrange for shipments. RBRC has contracted with independent operators to provide geographically appropriate consolidation points to receive used batteries.

In the Charge Up to Recycle! programme in the United States, Kinsbursky Brothers in Anaheim, California, and the International Metals Reclamation Company, (INMETCO) in Ellwood City, Pennsylvania, are the two consolidation points used for Ni-Cd batteries. INMETCO is also the Ni-Cd battery recycler.

RBRC is conducting public education programmes to inform consumers, retailers and manufacturers about battery recycling efforts under the Charge Up to Recycle! programme. Educating Ni-Cd battery users on the importance of battery recycling and the existence of a collection system is critical to the success of the programme. It is also important that those who operate the battery collection infrastructure, such as retailers and county and municipal co-ordinators, have a thorough understanding of how the programme works.

The cornerstone of the public education campaign is RBRC's information system, which includes an interactive web site, (www.rbrc.org), a fax-back system, and a toll-free helpline, 1-800-8-BATTERY.

The web site and helpline refer consumers to the Ni-Cd collection point nearest them and provide additional information on RBRC activities. For example, callers with household batteries will be asked to enter their zip code or surrounding zip code areas. The system will then refer the caller to an RBRC designated battery collection site, such as a municipal household hazardous waste programme or retail store.

Retailers or public agencies interested in joining the programme can utilise the web site or the fax-back system to obtain information on specific RBRC activities. To access the fax-back system, they call from the handset of their fax machine and choose from a menu of information. Retailers, for example, can register to participate in the Retail Recycling Plan or request additional collection

containers. Businesses or municipalities can also have pertinent information sent via fax, including applicable regulations, pilot programme approvals in their state, and RBRC's insurance policies.

The programme provides for the establishment of various recycling plans for collecting used Ni-Cd batteries from many sources, including consumers, retailers, distributors, generators, county recycling facilities, county household hazardous waste collection sites, consolidation points and manufacturer-designated battery collection facilities.

The plans under the programme are briefly described below:

- **Retail Recycling Plan:** In conjunction with the United Parcel Service, (UPS), RBRC has developed a simple, convenient recycling plan for retailers who sell Ni-Cd batteries and battery-powered products. Participation is free of charge. RBRC provides containers for retailers to collect and ship used Ni-Cd batteries, as well as pre-addressed, pre-paid shipping labels for the containers, shipping instructions, safety instructions, point-of-sale notices, and information about the programme. RBRC pays the cost of recycling the batteries; all the retailer must do is sign up.

- **Community Recycling Plan:** RBRC provides counties and municipalities with information on how to set up and operate a household battery collection programme. RBRC pays the cost of shipping the Ni-Cd batteries under the terms of the programme and the cost of recycling them. Counties will be asked to consolidate batteries at one consolidation point and ensure that they are properly segregated.

- **Business & Public Agency Recycling Plan:** RBRC provides business and government agencies with information on how to set up and operate a battery collection programme. It offers a streamlined and blanket rate for Ni-Cd batteries shipped to its recycling facility under the terms of the programme. Shippers pay only transportation costs. RBRC pays the recycling costs.

The Ni-Cd batteries collected under the Charge Up to Recycle! programme are recycled at the International Metals Reclamation Company, (INMETCO) in western Pennsylvania. A subsidiary of INCO, one of the world's largest mining and metals companies, INMETCO is a leading recycling facility of metal-bearing wastes in North America.

INMETCO uses a state-of-the-art, high-temperature metal recovery process to recover the nickel, iron and cadmium content of the batteries. The process is recognised by the US EPA to be the "best demonstrated available technology" for recycling Ni-Cd batteries. As Mr. James Matthews, Deputy Assistant of the US EPA, stated, "None of the by-products of this facility are sent to landfills."

The recycled nickel and iron are returned to the steel industry to make stainless steel. The recovered cadmium is used in new Ni-Cd batteries. The plastic cases, which are removed from the cells prior to processing, are used as fuel in a submerged electric arc furnace.

The rechargeable power industry funds the Charge Up to Recycle! programme through the licensing of RBRC's battery recycling seal. License fees paid by rechargeable battery and battery-powered product manufacturers allow them to place the seal on their rechargeable products. Presently, the most world-renowned companies in the industry have entered into a License Agreement with RBRC, committing themselves to display the RBRC seal on the Ni-Cd batteries and packaging they market in the United States. Consumers can support these pro-environment companies by shopping for RBRC's battery recycling seal.

The display of the RBRC seal clearly distinguishes those manufacturers which are participating in the programme and those which are not. For batteries exported from the United States, rebates will be issued. The programme also provides an incentive for Ni-Cd battery users, (licensees) to utilise their own distribution infrastructure to collect batteries and recycle them in a manner similar to that of commercial/institutional generators. Licensees can receive a rebate of up to 75% of their original licensing fee, based on the weight of batteries collected for recycling.

To get the word out about the Charge Up to Recycle! programme, RBRC is conducting a public education campaign which includes the promotion of Charge Up to Recycle! international spokesperson Richard Karn, who plays power tool expert "Al" on TV's *Home Improvement*. Mr. Karn promotes RBRC's Ni-Cd battery recycling programme through a variety of media events, including three filmed public service announcements, (PSAs), recruitment messages for RBRC target audiences, and an educational video for RBRC's school curriculum plan, which is in development for the 1998 school year.

RBRC's Charge Up to Recycle! PSAs - distributed in May through October 1996 - ranked among the most successful PSA campaigns ever monitored by A.C. Neilson, Inc., with 100 stations across the country airing the PSAs a total of 6300 times. RBRC distributed a holiday PSA encouraging consumers to Shop for the Seal during the holidays, which was broadcast nearly 2000 times in a one-month period.

National media such as *Entertainment Tonight* and *Live with Regis & Kathie Lee* featured Richard Karn promoting the programme. RBRC also ran two full-page advertisements in *USA Today* to educate consumers about Ni-Cd battery recycling and to recognise the RBRC Licensee companies for supporting the environment through their funding of the Charge Up to Recycle! programme.

As RBRC continues to push for national awareness of Ni-Cd battery recycling through the Charge Up to Recycle! programme, Richard Karn will be a key factor in helping RBRC get its message to the public.

RBRC marketing activities include the distribution of RBRC's *Charge Up to Recycle!* quarterly newsletter. The newsletter proves a useful vehicle to disseminate information to participants in the programme. With features including Spotlight on a Licensee, Message from the President, the Latest from Canada and a Public Relations Update, newsletter recipients are kept-to-date with RBRC news.

The RBRC national Ni-Cd battery recycling programme - Charge Up to Recycle! - represents a comprehensive, cost-effective approach to recycling used Ni-Cd batteries and preventing them from entering the solid waste stream. RBRC is serving the nation's communities by recycling used Ni-Cd batteries from consumers, retailers, municipalities, businesses and public agencies.

Successful operation of the Charge Up to Recycle! programme will help conserve valuable resources by diverting batteries from the waste stream to the recycle stream, where the materials are reclaimed and returned to commerce.

## ANNEX 4: TABLES

Annex Table 4.1 **Return rates of selected deposit-refund systems for beverage containers**

| | | *Deposit Size* | | *Return* |
|---|---|---|---|---|
| ***Country/State*** | ***Container Type*** | ***Local Currency*** | ***USD$*** | ***Rate*** |
| Germany | PET | DM 0.50 | 0.28 | 96% |
| Netherlands | Glass | NLG 0.25-0.50 | 0.13-0.27 | 97-98% |
| | PET | NLG 0.10-1.00 | 0.05-0.53 | 50-90% |
| Norway | Glass | NOK 1.00-2.00 | 0.17-0.34 | 98% |
| S. Australia | Aluminium | AUD 0.05-0.10 | 0.03-0.07 | 85% |
| | Glass, | AUD 0.05 | 0.03 | 82% |
| | (beer-375ml) | AUD 0.05 | 0.03 | 93% |
| | Glass, | AUD 0.20 | 0.13 | 95% |
| | (beer-750ml) | | | |
| | Glass, (other) | | | |
| UK | Glass, (soft drinks) | GBP 0.05-0.12 | 0.08-0.20 | 90% |

*Source*: Environmental Resources Limited, (1991) - deposit sizes in USD recalculated from GBP with the exchange rate used in the same report: GBP 1.00 = USD 1.67.

Annex Table 4.2 **Return rates in US states with deposit-refund legislation**

| *State* | *Year* | *Return rate* | *Return rate* | *Return rate* |
|---|---|---|---|---|
| California | 1991 | 79% Overall<br>- 82% Aluminium<br>- 81% Glass<br>- 62% Plastic | 69% | 76% Overall<br>- 80% Aluminium<br>- 67% Glass<br>- 58% Plastic |
| Columbia, Missouri | | | | 85% |
| Connecticut | | | | 88% Cans<br>70-90% Plastic |
| Iowa | 1990 | 95% Aluminium<br>85% Glass | | 74% Cans, (soda)<br>80% PET, (soda)<br>100% Glass, (refill.)<br>85-95% Beer<br>56% Wine/liquor |
| Maine | 1991 | 92% Beer/soft drinks<br>80% Liquor<br>80% Wine<br>75% Fruit juice | | 96% Overall<br>- 96% Beer/soft drinks<br>- 97% Non-carbon.<br>- 87% Spirits<br>- 83% Wine |
| Massachusetts | 1990 | 85% | | 81% |
| Michigan | 1988 | 92% | 93% | 98% |
| New York | 1990 | 72% Overall<br>- 80% Beer<br>- 63% Soft drinks | 79% Beer<br>66% Soft drinks | 76% |
| Oregon | 1990 | 93% | 93% | 90% |
| Vermont | 1988 | 85% | | 97% Beer<br>90% Soft drinks<br>72% Liquor |

*Source*: Lindhgvist, (2000).

Annex Table 4.3 **Market shares of refillable bottles for soft drinks and beer before and soon after the enactment of deposit-refund laws in four US states**

| | *Maine* | | *Michigan* | | *Oregon* | | *Vermont* | |
|---|---|---|---|---|---|---|---|---|
| | *Before* | *After* | *Before* | *After* | *Before* | *After* | *Before* | *After* |
| Soft drinks | 0% | 64% | 22% | 66% | 53% | 91% | 73% | 85% |
| Beer | 4% | 8% | 16% | 32% | 36% | 95% | 7% | 23% |

*Source*: Lindhqvist, 2000.

## ANNEX 5: MINIMUM RECYCLED CONTENT LAWS IN THE U.S.

| State | Material or Product | Date of Enactment |
|---|---|---|
| Arizona | Newsprint | 1990 |
| California | Newsprint | 1990 |
| | Glass Containers* | 1990 |
| | Plastic Containers* | 1990 |
| | Plastic Trash Bags | 1990 |
| | Fiberglass | 1991 |
| Connecticut | Newsprint | 1990 |
| | Telephone Directories | 1990 |
| District of Columbia | Newsprint & other paper products | 1990 |
| Florida | Newsprint** | 1988 |
| Illinois | Newsprint | 1990 |
| Maryland | Newsprint | 1990 |
| | Telephone Directories | 1991 |
| Missouri | Newsprint | 1989 |
| North Carolina | Newsprint | 1991 |
| Oregon | Newsprint | 1991 |
| | Glass Containers* | 1991 |
| | Plastic Containers* | 1991 |
| | Telephone Books | 1991 |
| Rhode Island | Newsprint | 1991 |
| Texas | Newsprint | 1991 |
| West Virginia | Newsprint | 1991 |
| Wisconsin | Newsprint | 1989 |
| | Rigid Plastic Containers | 1989 |

*Source*: Lifset, 1995.

* Legislation in California and Oregon is structured as rates-and-dates requirements, (see discussion above), but in plausible scenarios may result in *de facto* content mandates.

** Florida's newsprint requirements are structured as an advance disposal fee: if content mandates are not met, a per ton fee goes into effect.

## ANNEX 6: CHARACTERISTICS OF EPR PROGRAMMES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT, (EEE) IN JAPAN, THE NETHERLANDS, SWEDEN AND EU

This Annex contains a chart that compares key features of four different national electrical and electronic equipment take-back programmes.

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| Status | Enacted on June 5, 1998 | Enacted on April 21, 1998 and partly enforced[48] | Draft proposal sent to the EU in 1998 for the review of EU members and passed one year without rejection | Third draft under discussion |
| Date of full enforcement | April 1, 2001 | January 1st, 1999 and January 1st, 2000 | January 1st, 2000 | January 1st , 2004 for the recovery of some products[49] |
| Driving force for the development of the program | - **Scarcity of final disposal site**<br>- Urgent necessity for **waste minimisation**<br>- Necessity of increasing **resource efficiency** | - Individual items of brown and white goods have been included in **priority waste streams** in the Dutch NEPP[50]<br>- **High heavy metal content** in the sludge from **incineration plant due to small EEE**<br>- Principle of **producer responsibility** | - Necessity to treat **hazardous substances** that contains in the WEEE in a proper manner<br>- Improvement of **resource efficiency** by recovering useful material that has been dumped to the waste stream | - EEE being a **rapid growing** waste stream containing **hazardous substances** and **recoverable resources**<br>- Necessity of **coherent approaches** between member states in order to avoid market distortion |

[48] The chart reflects the status of the Draft EU Directive as of 1999.

Dates of enforcement differ depending on the product categories. Products whose take back and disposal are already enforced include large appliances and IT equipment (refrigerating and freezing equipment, washing and drying equipment, equipment for preparing food by heat, image receive equipment, computers, paper printing equipment, and telecommunications equipment.) Other products (heating equipment, hot-water equipment, sound equipment, electric and electronic charging equipment, electric and electronic kitchen appliances, electric and electronic tools and other electric and electronic domestic appliances) must be taken back and disposed in accordance with the Decree from January 1st, 2000.

[49] Recycling rate targets for the following product groups should be attained by January 1st, 2004: large household appliances, small household appliances, radio, televisions, electroacoustic, musical instruments, toys, electrical and electronic tools, gas discharge lamps, EEE containing a cathode ray tubes.

**Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU* (Cont.)**

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| Objectives and their priorities<br>(A)promotion of reuse /recycling /recovery of waste<br>(B)waste prevention /minimization<br>(C)promotion of DFE<br>(D)risk minimization from hazardous substances | 1 (A) and, (B)<br><br>2 (C) | 1 (A) (C) and, (D) | 1 (C) and, (D)<br><br>2 (A) and, (B) | 1 (B)<br><br>2 (A)<br><br>3 (D)<br>+Harmonisation of national schemes |
| Type of the program<br>-voluntary<br>-agreement<br>-mandatory | Mandatory | Mandatory | Mandatory | Mandatory for member states |
| Scope | Four electrical household appliances: , (televisions, air conditioners, washing machines and refrigerators) | White and brown goods:<br>(assortment of electrical and electronic domestic appliances and office equipment, varying from coffee makers and irons to computers and dishwashers.)[51] | All EEE[52] except for<br>- refrigerators and freezers[53];<br>- equipment installed in the buildings;<br>- motor vehicle components; and<br>- batteries covered by another regulation. | All EEE[54] |

[50] The National Environmental Policy Plan. Among the items included in the priority waste streams are refrigerators and freezers with CFCs and HCFCs, and large electrical home appliances.

[51] Under the Dutch Decree, categories of products covered include: 1)refrigerating and freezing equipment; 2) heating equipment; 3 )hot-water equipment; 4) washing and drying equipment; 5) equipment for preparing food by heat; 6) sound equipment; 7) image receiving equipment; 8) computers; 9) paper printing equipment; 10) telecommunications equipment; 11) electric and electronic charging equipment; 12) electric and electronic kitchen appliances; 13) electric and electronic tools; and 14) other electric and electronic domestic appliances. Concrete products will be further defined in a ministerial decision.

[52] Under the draft Swedish regulation, categories of products covered include 1) goods for domestic use or comparable use, and also small hand-held tools and garden implements; 2) IT equipment and office equipment; 3) telecommunication equipment; 4) TV, audio and video equipment; 5) cameras and photographic equipment; 6) clocks; 7) games and toys; 8) light sources and fittings for light sources; 9) medical equipment and 10) laboratory equipment.

## Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU, (Cont.)

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| Targets and other mandates | | | | |
| - What are the targets? | - Differentiated **recovery requirements** for each product, (**50-60%**)by **weight**<br>- Recovery = reuse of components + material recovery + energy recovery<br>- Material recovered must be processed to be ready for subsequent use | - Guidance provides **minimum reuse standard** for respective products ranging from **45% to 75%** by **weight**, which will be a criteria to be compared when manufacturers and importers submit their notification related to the implementation of their duty to the Minister.<br>- Reuse = material reuse + component reuse + material recycling + **thermal recycling** | - **Not specified** | - **Collection target of 4kg** per person per year, (non-binding, but proposal has been made to set compulsory target by the year 2006).<br>- Differentiated **reuse an recycling rate targets** are set for some of the products[55] ranging from **70% to 90%** by **weight**.<br>- Reuse and recycling rate target =, (the weight of the materials from the respective group of EEE NOT sent to a disposal or incineration operation) divided by, (the weight of the respective group of EEE sent to the recycler).<br>- Target should be re-examined by the year 2006. |

Accessory for or a consumable used in EEE will also be covered if they have electrical or electronic function. Concrete products are also illustrated in the draft.

[53] At present, local governments have sufficient treatment plants for refrigerators and freezers. Therefore, responsibility of the end-of-life management of the two equipment will not be transferred from local governments to producers.

[54] Categories of products covered under the draft proposal of EU Directive include: 1) large household appliances; 2) small household appliances; 3) IT equipment; 4) telecommunication; 5) radio, television, electroacoustic, musical instruments; 6) lightning equipment; 7) medical equipment systems; 8) monitoring and control instruments; 9) toys; 10) electrical and electronic tools, and 11) automatic dispensers. Examples of products are also given in the draft.

[55] Product groups that have specific numerical targets include large and small household appliances, radio, television, electroacoustic, musical instruments, toys, electrical and electronic tools, EEE containing a cathode ray tubes, and gas discharge lamps.

## Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU, (Cont.)

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| - Other mandates related to the product? | - Mandatory recovery for recycling or destruction of **CFCs, HCFCs and HFCs** used as refrigerant in the products covered by the law. | - Prohibition of having **discarded refrigerators and freezers in stock for commercial purposes**.<br>- Proper treatment of **batteries** which are not covered under the Battery Disposal Decree and are taken back together with EEE as its component. | - Collected material should be **pre-treated by certified treatment facilities** before going to landfills or incineration | - **Material ban** on lead, mercury, cadmium, hexavalent chromium, PBB and PBDEs with some exemption based on the technological limitation for replacement.<br>- Requirement for **marking of plastics components** weighing more than 50g.<br>- Putting **symbols** on the new products specified by the EU. |
| Infrastructure for collection, take back and recycling / treatment prior to the enactment of the regulations[56] | - Collection: responsibility of **local governments** under the Waste Management Law, but it has been shifting towards **retailers,** and **80%** of the discarded products have been collected by retailers.<br>- Take back: none related to the four items covered under the law.<br>- Recovery /treatment: **recovery of iron**, **copper and aluminium** has been done by some local governments and waste dealers. A few treatment plants conduct further treatment and recovery.<br>- Unknown number of the products covered under the Law has been **exported**. | -Collection: responsibility of **local governments**, but **retailers** have been taken back large household appliances as **service**.<br>-Many WEEE have ended up with **repair companies**.<br>-Take back and recovery: some office equipment has been taken care of with the hands of **manufacturers**.<br>-Substantial number of the refrigerators and freezers with **CFCs** and **HCFCs** have been treated by **local governments**, while the rest are largely **exported**. | -Collection: many **local governments** have started **separate collection** of EEE, and have contracted with recyclers, establish their own recycling plants or started recycling projects for dismantling and treatment of discarded products. Swedish IT-Companies Organisation organised its own **collection service**, where recycling cost is **paid by customers**. Several large IT companies provide their own | - Status of the development of legislation, existing infrastructure for collection, reuse, recycling and recovery **vary** among the member states. |

[56] The infrastructure existed prior to the enactment of the law was examined as it may be useful to learn how the preconditions of the take-back infrastructure reflect to the planning of take back system under respective regulations.

**Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU, (Cont.)**

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| **Financial mechanism**<br>- Who<br>- When<br>- How | - **Consumers** may be asked to pay for collection, take back and recovery **at the time of disposal**.<br>- **Manufacturers, importers** and designated legal entities must **announce the cost** for collection, take back and recovery **in advance**.<br>- Schemes have been considered to ensure smooth transfer of recycling fee. Such a scheme includes the utilisation of **stickers issued by manufacturers and importers.**[57] | - When consumers request, **retailers** are required to take back products free of charge when they sell similar new products., (**old for new**)<br>- **Manufacturers and importers** must notify their financial scheme in advance, which is subject to Minister's approval.<br>- In practice, costs are **internalised** in the price of a product in the case of **IT goods**, while **identical, visible fees** are put on the top of the price of a product in the case of **consumer EEE**. | collection and recycling services. Some large **end-users also contract directly with recyclers** for environmental profile purposes.<br>- Recycling: conducted by large and small recyclers, which conduct **dismantling manually**. **Rare-metal recovery** from printed-circuit boards, copper, aluminium and lead recovery from cable granulation, iron recovery from shredding plants has been done.<br>- **Refrigerators and freezers** are treated separately by **local governments**.<br>- **Manufacturers, importers and retailers** must take back end-of-life products from end users **free of charge** when they sell similar new products. **(old for new)**<br>-Mechanism has **not been established**. | - A mechanism should be set up so that **private households** can bring their old products **free of charge**.<br>- **Manufacturers and importers should bear costs** for collection, treatment, recovery and environmentally sound disposal of EEE from private households. |

[57] Under this scheme, manufacturers and importers will issue a sticker which consumers can purchase at retailers' shops or places designated by the manufacturers and importers. The sticker will be sold with the cost for recycling of that brand. End-users will then either take the discarded product with the sticker to local governments or to retailers or pay for the collection fee. Manufacturers and importers will receive funds directly from the payment of the sticker, which should reduce the complication of money transfer through retailers or local governments.

## Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU, (Cont.)

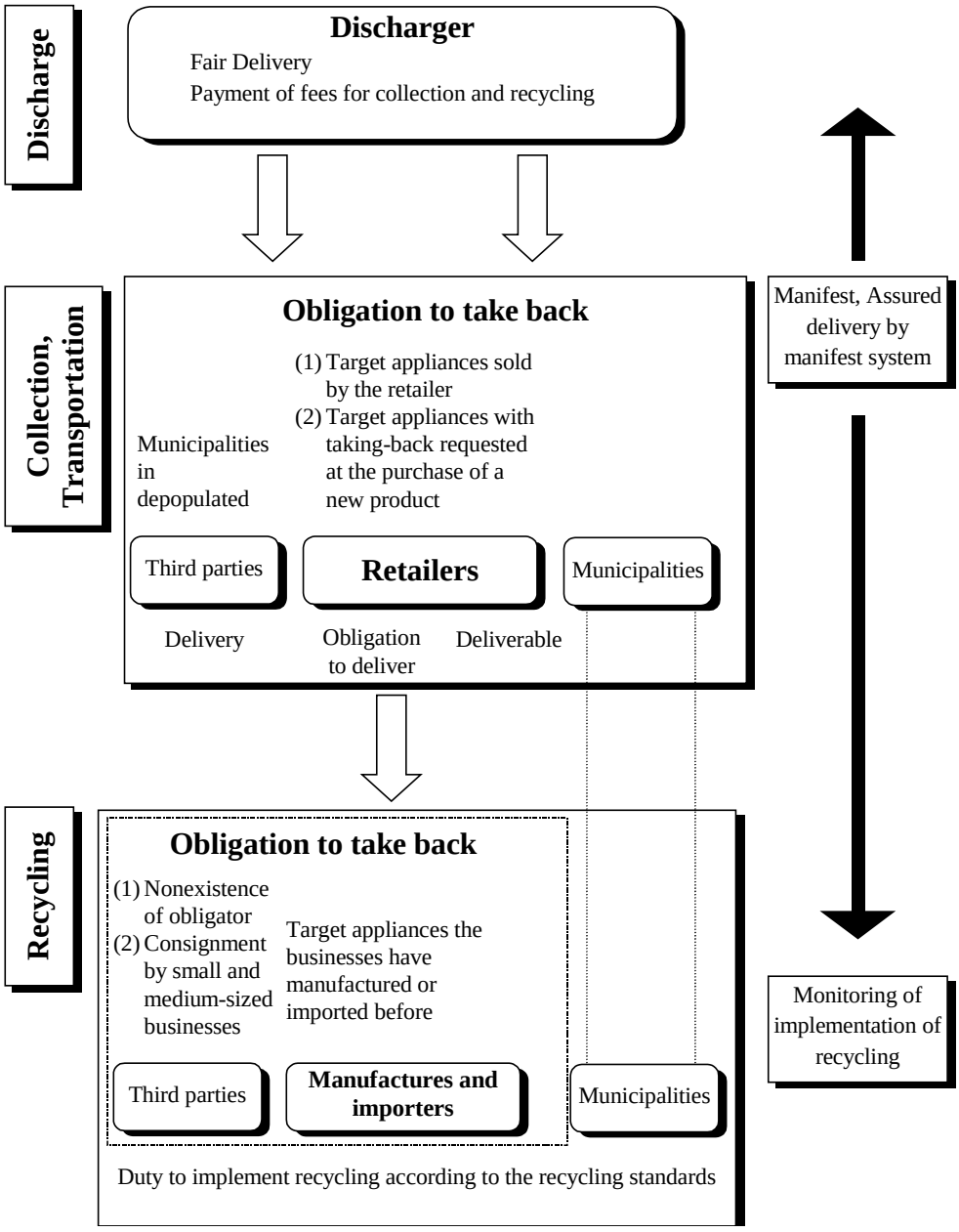
| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| Historical and orphaned products<br>- coverage under the program<br>- methods provided under the program | - **Covered**<br>- **Manufacturers and importers** are responsible for take-back of and material / energy recovery from all the products they **produced or imported in the past**., (**brand**)<br>- **Designated legal entities** are responsible for **orphaned products**. | - **Covered**<br>- **Until 2005, manufacturers and importers** have to take back a product **regardless of brands** when they sell a similar new product to retailers, (**old for new**)<br>- They are responsible for their own products when products are collected from **local governments or repair companies, (brand**).<br>- Manufacturers and importers become responsible for their own products **after 2005, (brand)**<br>- Manufacturers and importers that **cease their operation** from now on in the Netherlands must **secure means** for their collection and disposal, and notify the method to the Minister. | - **Covered**<br>- **Manufacturers, importers and retailers** should take back the products similar to the new products they sell, (**old for new**).<br>- In case of selling a **second hand product**, manufacturers, importers and retailers become responsible for take back only when the product **has not previously been sold in Sweden.** | **Not specified**[58] |
| Means of monitoring | - **Manifest system**, (special receipt should be provided to end users from retailers, and end users can trace afterwards how the collected products are treated.)<br>- Related ministers **may require** | - **Notification** as to **how manufacturers and importers fulfil their duties, (take back, recovery and funding mechanism)** are required to be submitted **in advance.**<br>- Manufacturers and importers must **monitor** the implementation of their duties, and report it in the form of **annual reports**. | **Manufacturers, importers and retailers** must provide the National Environmental Protection Agency with information on the **fulfilment of their obligation.** | Reporting obligation of **member states** regarding the **application of the Directive**, starting from the period 2002-2004. |

[58] The second draft proposal of the EU WEEE Directive explicitly state the inclusion of historical products by saying "This Directive shall cover the categories of electrical and electronic equipment falling under the categories set out in Annex I A, regardless of the date when this equipment was put on the market"(Article 3 Section 1, underlined was done by the author). In the third draft, the underlined phrase is not found.

## Characteristics of EPR Programmes for Electrical and Electronic Equipment, (EEE) in Japan, the Netherlands, Sweden and EU, (Cont.)

| | Japan | Netherlands | Sweden | EU |
|---|---|---|---|---|
| Means of monitoring (continued) | **manufacturers, importers and retailers to report on the state of implementation required by the Law.** | | | |
| Enforcement | **Fine** up to 500,000JPY, (4,200USD) | **Fine** up to 25,000NLG, (13,750USD) for an individual, to 100,000NLG, (55,000USD) for a legal person, and up to **2 year imprisonment** for failure to perform the duties incorporated in the Decree | **Fine** | Not specified |
| Potential weaknesses | - **Illegal dumping**<br>- **Export of WEEE** as waste to other countries<br>- Shortage of market for **secondary materials** | - Coverage of **historical and orphaned products after 2005**.<br>- **Higher standards** set under the EU Directive<br>- **Opposition** to the continual setting of **visible fee system from the retailers**<br>- fixed fee may hinder **competition** | - Old for new rule may not provide manufacturers and importers incentives to promote **DFE**. | - Rather **difficult mandate** for industries to achieve<br>- **Coverage of wide product range** may result in inefficient implementation of take-back system. |
| Miscellaneous | **Treatment** of hazardous substances and residues will be covered by the existing **Waste Management Law**. | Decree that **bans the disposal of waste at landfill sites and bans incineration of white and brown goods** simultaneously come into force. | Regulation that **prohibits landfill, incineration and shredding of end-of-life EEE** that have not been handled by **certified treatment facilities** will simultaneously come into force | |

## ANNEX 7: FLOW CHART OF RECYCLING AND CONSUMER ELECTRIC GOODS – JAPAN




*Source*: Shoji, 1998, OECD EPR workshop, Finland, 1998.

## ANNEX 8: ALLOCATION OF RESPONSIBILITY FOR ELECTRICAL AND ELECTRONIC EQUIPMENT, (EEE) IN JAPAN AND THE NETHERLANDS - CHART A AND B

| Type of responsibility and entities responsible for various stages of end-of-life treatment of the products | Physical responsibility | Financial responsibility | Reporting responsibility towards authorities on the status of the implementation of their duty | Informational responsibility to parties other than authorities | Other responsibility |
|---|---|---|---|---|---|
| **Japan** | Collection<br>**-retailers** when:<br>(1) **old for new** rule[59] applies; and<br>(2) asked to collect the products **they themselves had sold before**<br>**-local governments**: products not covered by retailers<br>**-designated legal entities**: products covered neither by retailers nor by local governments<br><br>Establishment of take back sites, take back, reuse and recovery<br>**-manufacturers and importers** for their own products, (brand)<br>**-designated legal entities** for **orphaned products**<br>- Local governments and other actors may conduct recycling, but should achieve the same recycling rate and treatment requirements as those for producers | Collection, take back and recycling<br>**end users** | Collection<br>**retailers** and **designated legal entities**<br>Take back / recycling / establishment of take back sites<br>**manufactures, importers** and **designated legal entities** | Announcement of fees<br>**retailers, manufacturers, importers,** and **designated legal entities**<br>Information dissemination, education of the public<br>**National government**<br>Announcement of collection point location<br>by **manufacturers, importers and designated legal entities.** | Collection of information related to the products covered by the law and support of research and development<br>**national government** |
| **Netherlands** | Collection<br>**-retailers**: **old for new**<br>**-local governments**: products not covered by the retailers<br>**-repair companies** may bring the products that are brought by private households and are impossible to repair to the take back sites established by local governments.<br>Establishment of take-back sites - **local governments**<br>Take back, reuse and recovery - **manufacturers and importers** | Collection by retailers, establishment of take-back sites, take back, reuse and recovery<br>**manufacturers and importers**<br>Manufacturers and importers must **finance cycle deficits**[60] from retailers, repair companies, and establishment of take back sites done by local governments. | Take back, reuse and recovery, financial scheme<br>**manufacturers and importers** must submit **notification** to the Minister **in advance**, and **annual report** on their **actual implementation.** | | |

*Source*: Tojo, August 1999.

[59] The old for new rule refers to the case where retailers take back the same type of a product as a new product they sell to the end-user at the time of sale (e.g. TV to TV, refrigerator to refrigerator).

[60] Cycle deficit is defined in the Disposal of White and Brown Goods Decree as the negative balance that occurs when the cost of disposal of a product is higher than the revenue from that disposal, Section 1.

## ALLOCATION OF RESPONSIBILITY FOR ELECTRICAL AND ELECTRONIC EQUIPMENT, (EEE) PROGRAMMES IN SWEDEN, THE EU AND DENMARK - CHART B

| Type of responsibility and entities responsible for various stages of end-of-life treatment of the products | Physical responsibility | Financial responsibility | Reporting responsibility towards authorities on the status of the implementation of their duty | Informational responsibility to parties other than authorities | Other responsibility |
|---|---|---|---|---|---|
| **Sweden** | Collection<br>**- manufacturers, importers and retailers**: **old for new**<br>**-local governments**: products not covered by manufacturers, importers and retailers<br>Establishment of take back sites, take-back<br>**-manufacturers, importers and retailers**<br>Environmentally sound pre-treatment before final disposal to landfill or incineration **treatment facilities** | Collection in accordance with old for new rule, establishment of take back sites, take-back, environmentally sound pre-treatment before final disposal to landfill or incineration - **manufacturers, importers and retailers** | Collection in accordance with old for new rule, establishment of take back sites, take-back, provision of information to end-users and commercial treatment facilities - **manufacturers, importers and retailers** | Provision of information about the take-back system to end-users; about the content of EEE to treatment facilities - **manufacturers, importers and retailers** | Consultation with local governments regarding the take-back infrastructure - **manufacturers, importers and retailers** |
| **EU** | Collection - **retailers**: **old for new** from **private households**<br>Treatment, recovery, environmentally sound disposal of WEEE from households, set-up collection system for end-users other than private households - **manufacturers and importers** | Collection, treatment, recovery, environmentally sound disposal of WEEE from private households – **manufacturers and importers** | | Mark products with a specified symbol, provision of information about the content of EEE to treatment facilities, provision of information to the authorities about the amount of products put to the market -annually **manufacturers and importers** | |
| **Denmark** | Collection, take-back and treatment from private households - **local governments**<br><br>**-Manufacturers and importers may take-back** their products if a **permit** is granted to them by local governments.<br>-Enterprises on WEEE management can keep their operation if they fulfill the documentation requirement set by the Order.<br>-Private households may return **end-of-life EEE to distributors for marketing purposes**. Under the Order such products taken back are **regarded as waste** and should be treated in accordance with the Order and regulations from the local governments. | Collection, take-back and treatment of WEEE - **local governments**, (in the form of tax) | Collection, take-back and treatment of WEEE<br>-When **enterprises** are **exempted from participation in the waste management system** provided by local governments, or **manufacturers or importers get permits** to conduct take-back systems, they have to provide **annual document** to the local governments on the status of their waste management. | | Provision of regulation related to the end-of-life management of EEE in accordance to the Order **local governments** |

*Source*: Tojo, August, 1999.

* For the EU, the information on this chart reflects the status of the draft Directive as of August 1999.

## ANNEX 9: DEGREE OF PRODUCER INVOLVEMENT

| Option | Degree of Producer Involvement | Examples |
|---|---|---|
| **Public** | Some consultation; compliance with legal requirements, typically payment of a product or disposal fee | Belgian product tax<br>Florida's Advance Disposal Fee |
| **Public Consultative** | Producers sit on multisectoral board of a producer-funded organisation that subsidizes municipalities' recycling | Manitoba's [Canada] recycling regime |
| **Shared Control** | Producer-run organisation, funded by a provincially regulated levy based on the cost of managing the producer's packaging materials, subsidizes municipalities' recycling costs | Canadian Industry Packaging Stewardship Initiative, (CIPSI)<br>French Packaging Ordinance |
| **Shared Operations** | Law requiring producers to either pay a levy or form a not-for-profit organization that takes responsibility for packaging materials at specified stages of the product life cycle; local authorities retain responsibility for waste collection | Ontario's Waste Advisory Committee, (WRAC)<br>Dutch Packaging Covenant |
| **Private** | Producers assume full responsibility for waste, including operation of take-back system, subject to government EPR policy or legal framework | German packaging Ordinance<br>Austrian Packaging Ordinance |

*Source*: Background Paper for the National Workshop on Extended Producer Responsibility, Environment Canada, 27-28 May, 1997.

## ANNEX 10: EXAMPLES OF ACTORS AND THEIR ROLE IN A PRODUCT CHAIN

Paper presented by Cynthia A. Lewis, Beveridge and Diamond, P.C.,1997, EPR workshop, Ottawa, Canada

- Suppliers can provide to their customers' information regarding proper downstream handling and disposal or recycling.

- Producers can design products to perform their function with reduced environmental effects and to facilitate, as appropriate, end-of-life reuse, recycling or energy recovery; operate their facilities in an environmentally sound manner. They can also work with upstream suppliers to identify opportunities for greater efficiency, improved product design, or partial assembly that reduces duplication or wasted resources later in the manufacturing process.

- Transported and shippers can co-operate in developing more efficient procedures for handling and shipping, (e.g., containerisation innovations that reduce energy consumption).

- Retailers can provide feedback to upstream actors and convey to users/consumers information from producers regarding proper use and appropriate end-of-life handling.

- Users and consumers can educate themselves regarding the environmental performance of the products they purchase and how to handle and use products to improve environmental performance; provide feedback to producers on desired product attributes; use products properly; and participate in appropriate programmes established for end-of-life products.

- Governments can base their environmental requirements on sound science, preserving as much flexibility as possible for the private sector to develop appropriate methods of achieving environmental objectives, and eliminate or avoid creating legal and regulatory barriers to SPR [shared producer responsibility].

## ANNEX 11: CASE STUDY OF THE SWEDISH AUTOMOBILE TAKE-BACK REQUIREMENT

Paper presented by Thomas Lindhqvist and Eric Ryden, Lund University, 1998
EPR workshop

In a joint project with the International Institute for Industrial Environmental Economics at Lund University, the Swedish car industry formulated a system proposal that in many ways responds to the challenge of finding a system which promotes product innovation. The proposal represents a novel way of thinking which has the potential for solving key problems in implementing extended producer responsibility. The key elements of the proposal are presented below.

By making the car manufacturers responsible for the end-of-life management of new cars, a feedback mechanism regarding scrapping properties is created. The driving force for the car manufacturers in such a system is obtained primarily through the introduction of economic steering instruments that favour car manufacturers that assume *responsibility*. Thus, a car manufacturer that produces cars with little environmental impact when scrapped should be favoured economically in the system.

A problem that can arise is that car manufacturers may disappear from the industry for different reasons, e.g., bankruptcy, before they have fulfilled their obligation. In such cases, there is not responsible actor when the worn-out cars are being processes. In order to avoid this situation, it is necessary that funds be already reserved and invested in a suitable way when the cars are sold.

In order to avoid any problems in connection with a possible differentiation of scrapping fees, *all car manufacturers pay a uniform fee* which is charged in connection with the sale of a new car. This minimises the risk of the scrapping fee being regarded as a commercial impediment.

### Funding of scrap fees

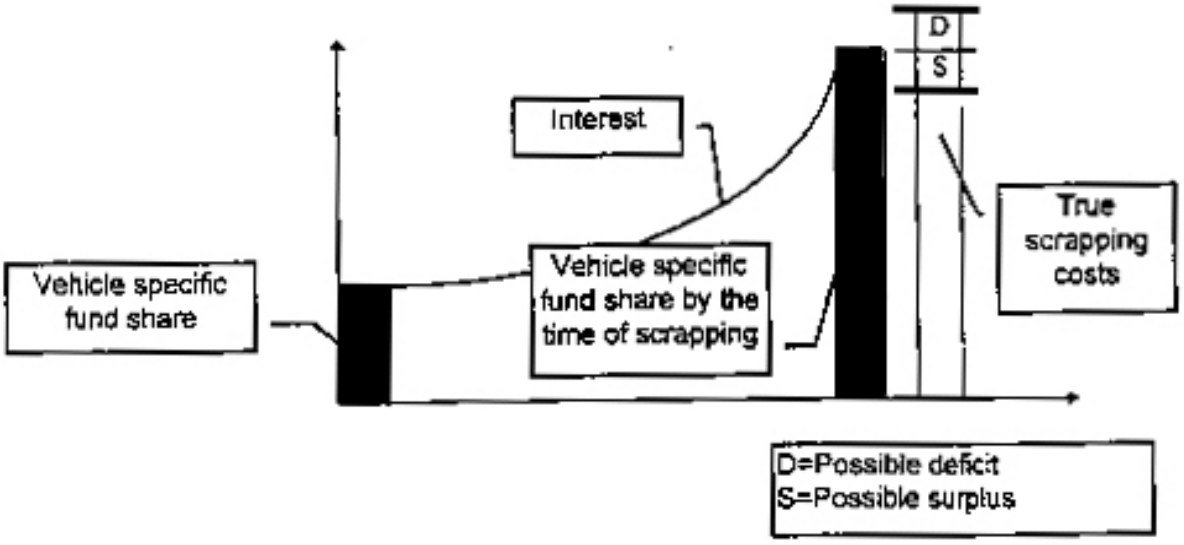
The fees paid are consolidated into a fund to ensure moneys are available when the car is scraped. Fees paid for cars are linked to a specific car for later use when it is scraped [or sent for recycling and recovery]. This is managed through fund shares owned by the respective car manufacturers. The fees are administered in such a way that interest is generated on the fund. This means that the fees to be paid when a new car is purchased can be set at a lower scale that otherwise would be the case due to the potential interest on the fee, (see Figure 1).

The proceeds from the fund are divided amongst the different fund share holders in relation to the size. Restrictions on the withdrawal of money by the car manufacturers from the fund share are built into the system so that the fees paid into the fund remain in the fund share and can be used for car-scrapping even if a manufacturer disappears from the market for one reason or another.

In order to avoid fees being set at too low of a level, a guarantee commitment can be built into the model so that the means are transferred from the fund share of each manufacturer disappears from the

market and the scrapping fees deposited for the vehicle are not sufficient. Since no car manufacturer wants to pay in practice for the care-taking of the cars of other manufacturers, this will in and of itself provide a deterrent against fees being set at too low of a level.

Figure 1. **Schematic illustration of a fund share**




**Agreement with the dismantling and recovery industry**

Each car manufacturer negotiates an agreement with authorised dismantling and recovery companies regarding the handling of worn-out vehicles. This arrangement provides for the compliance with environmental requirements, as well as fulfils the demand for cost efficiency. When the time comes to scrap a car, the last owner hands in his car to an authorised receiving facility where the car is scrapped according to the methods specified by the car industry and the minimum requirements specified by the authorities. Financial resources from the respective car producer's fund share, including interest, thus rendering the end-of-life management free of charge for the last car owner cover possible net costs for the handling of the respective worn-out car.

**Incentives for collection**

The opportunity to introduce incentives for collection of worn-out cars, a hand-in obligation should be employed. What is meant by a hand-in obligation is that the last car owner must turn the car into an *authorised* car scrapper in order to receive the scrapping certificate required for de-registration of the vehicle. To further increase the incentive for the last car owner, some form of reimbursement comparable to that in the current Swedish car-scrapping system could be granted to cover any net costs that may arise in connection with the scrapping of car.

**Incentive for scrap adaptation**

The opportunity for car manufacturers to make withdrawals from their fund shares creates incentives for the care industry to develop better cars from the recovery and dismantling standpoint. This means that if the future scrapping cost for a certain car manufacturer are less than what was estimated, e.g., if the individual car manufacturer has improved the scrapping characteristics of his cars or developed better scrapping methods for his vehicles, the manufacturer should be able to receive a refund equalling the surplus in his own fund share. Likewise, if a deficit should arise in a car manufacturers fund share, it is primarily the manufacturer that is responsible for making up the difference through an additional payment. To guarantee that every car manufacturer can fulfil his obligations, even if his company has disappeared from the market, a collective payment responsibility for other car manufacturers could be required, as previously mentioned. As an alternative, a form of insolvency insurance could be made obligatory.

**The responsibility for the cars in existence**

The model is based on the principle that for each newly manufactured vehicle a fee reserved for future scrapping should be paid by the producer or manufacturer of the car. The system will, therefore, come gradually into force and reach its full effect when today's existing cars will be scrapped. During the time period until then, other ways of financing the scrapping must be employed. From a steering point of view, it is probably of less importance which actor [producers] will be charged with the cost. The costs for the scrapping of today's existing cars could be covered by introducing fees or taxes. However, from a cost efficiency point of view, it might be of greater importance where the fees are charged and who makes the decision about how the collected fees are to be used [e.g., the manufacturer pays the fee and decides how fees are used].

**What we have learnt**

The main conclusion of the studies conducted at IIIEEE [Lund University, Sweden] is that it is possible to create a practical implementation of an EPR system that promotes product innovation. Such a system must include incentives for the actor [producer], i.e. manufacturer, who has the power to change the product design. If an EPR system is designed based on a shared responsibility, there is a clear risk of no one assuming the responsibility for product innovation, and all improvements will be focused only on waste management and recycling.

## ANNEX 12: LESSONS LEARNED BY THE DSD

by Karin Muenk - International Affairs Manager
Der Grüne Punkt - Duales System Deutschland Aktiengesellschaft

**OECD EPR workshop, Washington D.C., December 1 - 3, 1998**

On 1st January 1993, as the last part of the Packaging Ordinance effective since 1991, the obligation to take back and recycle sales packaging came into force. The possibility, implicit in the ordinance, of meeting the individual obligation to take back by participating in a "dual system" was a reason for approximately 600 companies from industry and commerce to found, the present-day "Der Grüne Punkt - Duales System Deutschland Aktiengesellschaft", in 1990.

In early 1993 the company started its operating activities. In late summer of the same year, the chairman of the managing board Wolfram Brück saw himself compelled to announce that the company with a deficit of DM 1 billion becoming apparent was faced with bankruptcy.

Looking back the quite clear majority of the circles involved share the assessment that it was not the decision to select a second way besides the public waste disposal that had led to the precarious commercial situation, but that this was, rather, the result of the obligation to meet the highest statutory requirements within a short period resulting from the Packaging Ordinance on the one hand as well as the inadequate checking of the contractual partners by the company on the other.

What, in detail, then led to the almost financial collapse of the dual system?

In the first place, here the statutory specifications for nation-wide collection and sorting of sales packaging immediately upon the coming into force of the Packaging Ordinance on 01.01.1993 and the obligation to comply with the high collection and/or sorting quotas already in the first year of the operational activities of the dual system can be named.

To make this more clear: The setting-up of a nation-wide collecting and sorting system meant for the dual system that between the day of its establishment and the coming-into force of the Packaging Ordinance, after all within 18 months, negotiations with municipalities and private disposal companies regarding issues, such as, for example, the setting-up of collecting containers on public sites, consultation and agreement concerning collection logistics, the integration of existing systems - different from one municipality to the other - and not least the question of the payment had to be brought to a conclusion in the form of a contract. In fact the dual system as of 1.1.1993 was able to meet this statutory requirement by concluding more than 540 contracts with municipalities and private disposal companies. However, the company saw itself compelled to largely comply with the financial demands of municipalities and of the waste disposal industry. Awarding of contracts for the work on a competitive basis and the associated possibility of comparing prices was not possible due to the shortness of the time available.

The quotas to be met already in the first year were a further cost-raising factor which themselves considerably exceeded the maximum specifications of the subsequent EU directive for packaging 94/62 EC. Here, too, the dual system and its guarantors were induced by the time factor to conclude contracts for the recycling capacities available at home and abroad without any great room for maneuver in negotiations on the terms required. In order to make the difficulties clear with which the dual system was confronted, a brief comparison of two figures can be used: In 1993 there were, in the Federal Republic of Germany, recycling capacities for sales packaging made of plastic in the order of approximately 20 000 to 30 000 tonnes per annum. The quantity collected the same year, on the other hand amounted to 300 000 tonnes.

Moreover, in absence of the possibility of drawing on experience from the past the actual system costs, in particular for the recycling of plastic sales packaging, were underestimated. This led to a situation in which the costing of the license fees for this packaging material was markedly below the cost to be paid by the dual system for its collection, sorting and recycling.

Besides that, the dual system was, after the first few weeks of its activity, already faced with a situation in which there were markedly more sales packaging units with the green dot in the collecting containers than license fees had been paid for the use of the financing symbol “the green dot” on the basis of license agreements concluded. The necessary checking of the correct settlement by the licensees failed due to the absence of adequate control rights in the license agreements concluded between the dual system and the licensees of the symbol “the green dot”. In addition there were, (still) no controls in existence in order to prosecute infringements of symbol rights by companies which did not have any license agreement for the utilization of the financing symbol “the green dot”.

The above list of some decisive problems shows that the cause of the difficulties arising was not the decision in principle in favor of a private dual system **alongside** the public waste disposal system, but in the statutory requirements and starting difficulties within the system. Seen against this background it is also possible to explain that despite the deficit of DM 1 billion nobody, neither business nor politics, wanted in mid-1993 to wind up the system and instead considered other instruments for safeguarding the taking-back and recycling of sales packaging units - for example based on a tax or a pledge ruling. Rather it was the case that between all the persons responsible there was a consensus concerning the continuation of the dual system as the implementation of a private system for the recycling of sales packaging supported by business and representing the assumption of responsibility for the product.

In view of the degree of unity concerning the joint road to be taken, under the moderation of Prof. Töpfer, then minister of the environment, politics, commerce, industry, municipalities and not least the disposal sector agreed to provide both financial assistance in the form of loans etc. and also to accept changed contractual terms on the expense and income side of the company for retaining and continuing the dual system. As a result of these negotiations a restructuring plan agreed upon with all those involved was worked out.

Before we look at the details of this plan it should be remarked that after three years it was already shown that this decision was the right one. Since already for financial year 1996 the chairman of the managing board Wolfram Brück was able to announce the complete elimination of the previous deficit. Meanwhile the financial situation of the company has stabilized to such an extent that Duales System Deutschland AG has announced a reduction in the license fees for 1999 amounting to 9.5% for each packaging material.

Before, however, a look is taken at further approaches to cost reduction planned for the future, at this point it is to be shown with what measures the dual system has not only achieved economic upswing

leading to a balanced company result, but, moreover, also the forthcoming reduction of the license fees.

As far as the statutory specifications are concerned, they had to be met. Thus the basis of cost reduction was only able to be found in those areas which were accessible to a contractual ruling. This meant that the dual system on the expense side, the collecting and sorting of all the materials as well as the recycling of plastics, had to make savings and at the same time ensure on the revenue side the orderly payment of license fees.

At first negotiations were started with the municipalities and private disposal companies concerning the existing contracts which essentially led to the following amendments:

- The payment of the collecting and sorting work for the materials from the yellow bag, (light fraction) were changed from the weight-related payment for sorting unit input to sorting unit output. Thus it was ensured that the dual system pays exclusively for sorted resources meeting the quality criteria specified by the dual system and no longer, as in the past, for non-packaging and non-recyclable packaging which is also found in the collection containers.

- Restriction of the quantity to be charged for to an order of magnitude which is orientated to the kg quantity of sales packaging materials per inhabitant and year required for meeting the quotas. By means of this restriction, a situation was achieved in which the companies responsible for collection and sorting are themselves interested in carrying-out qualitatively high-grade sorting of the materials. This had an indirect effect, at the same time, on the recycling costs as the share of outside materials was considerably reduced and thus an improved quality of the recycled materials was reached.

- Additionally, the contractual partners of the dual system obtained an opportunity to market the sorted materials themselves. In return the contractual partners undertook to pay a lump-sum fee to the dual system for the marketing of the materials. Also by means of this measure, existing cost-reducing potential was exhausted.

Parallel to the limiting of expenditure, a new license agreement for the utilisation of the mark “the green dot” was worked out and concluded with the licensees at the end of 1994. Specifically the revenue side was strengthened by the following measures:

- Adjusting of the license fee structure to the actual costs in which the various materials in the system cause. This meant that the pricing of the license fee now took into account both the material and weight of the packaging as well as the number of units put onto the market.

- Invoicing at intervals of less than one year of the sales packaging actually put into circulation with the mark “the green dot” instead, as in the past invoicing at intervals of less than one year according to estimated sales figures, which only after the end of the fiscal year of the particular company had to be corrected by the actual quantities sold. This resulted, in particular, in the situation where the dual system no longer had to finance the recycling of sales packages in advance to a considerable extent up to one year.

- Evidence of orderly invoicing of license fees by the licensees of the dual system was extended by the contractual obligation to annual presentation of a certificate prepared

by an independent auditor which the information provided by the particular licensees about the use of the mark “the green dot” at intervals of less than one year had to confirm.

– Finally control systems were set up, (e.g. store checks) which revealed the unlawful use of the mark “the green dot” by companies which applied the green dot to their packages without having a license agreement with the dual system. Not least the consistent prosecution under criminal and civil law of these infringements of trademark rights led to the virtual disappearance of unlawful use of the symbol.

Expressed in figures, besides other supporting measures, mainly the amendments mentioned above led to a situation in which with a cost framework of DM 3.16 million in 1994, DM 3.83 million in 1995 and DM 3.86 million in 1996 the deficit which had been run up in the past was already reduced to a “black zero” by the end of 1996.

Also in 1997, with a cost framework of DM 4.02 million as well as in 1998 there is an indication of a further positive economic development of the dual system with its license fees which have remained unchanged for three years.

After the consolidation phase in 1996 was largely considered concluded, in 1998 and according to information available at present, also in the coming year a surplus in the amount of DM 200 million each can be expected. This surplus will, as the Duales System Deutschland AG is a non-profit company, in the coming year be passed on to the licensees as a result of the reduction of the license fees by 9.5% for each material already mentioned above.

Also in the future, the dual system would like to achieve further cost reduction potentials without neglecting the goal of a further increase in the sorting quality and the introduction of new, future-oriented recycling technologies.

Especially the experience of the past has shown that the objectives mentioned above do not exclude but complement each other.

As a concrete measure, the dual system will, after the expiration of the agreements valid at present, award contracts for collecting and sorting materials on a competitive basis in future. Here the dual system expects a considerable savings potential in the medium term.

At the same time, the dual system will increasingly promote the introduction of new technologies. The first step in this direction will be achieved with a fully automatic sorting plant used on an industrial scale for the first time at EXPO 2000 in Hanover. The dual system expects, due to an increased utilization of this new technology, a further optimization of the sorting quality and the combination of existing sorting capacities.

Finally by the implementation of further licensee potentials the revenue of the company is to be increased in order to thus be able to lower costs further for all licensees.

In summary it can be stated that the decision made in Germany in favor of the setting-up of a private system **alongside** the public waste disposal system was correct and that such a system can work with commercial efficiency. Not least, the necessity of cost efficiency on the one hand and the implementation of the product responsibility on the other hand have, moreover, led to new promising technical developments in the field of recycling which further promote the idea of conservation of resources.

## ANNEX 13: CONTRACT COVERING THE RIGHT TO USE THE TRADE MARK

**This sample contract was provided by**

**"Der Grüne Punkt", (Trade Mark Contract)**
**Duales System Deutschland**
**Aktiengesellschaft**

to exempt the Trade Mark User from his obligation to take back and recycle used packaging as specified in the
German Packaging Ordinance, (Verpackungsverordnung)

between

Der Grüne Punkt -
Duales System Deutschland
Aktiengesellschaft
(hereinafter referred to as "Duales System")

and

***This is a sample translation for your information.***
***Do not complete this form.***
Version dated 05.09.1994
.....
(hereinafter refered to as the "Trade Mark User")

To achieve the waste management objectives of the "Ordinance on the Avoidance of Packaging Waste" of 12 June 1991, (German Federal Law Gazette I p. 1234), Duales System organizes the development and operation of a private enterprise dual waste disposal system in the Federal Republic of Germany. The German federal states have established by general decree that this system satisfies the requirements of Article 6, para. 3 of the Packaging Ordinance, thus exempting participating manufacturers and distributors from their obligations under the Ordinance to take back and recycle used packaging. Duales System holds a registered collective trade mark "Der Grüne Punkt" and grants manufacturers and distributors the right to use this trade mark on sales packaging covered by the system under the conditions of a uniform Trade Mark Contract.

For this purpose, the parties conclude the following Trade Mark Contract:

**Article 1**
**Permission to use the trade mark**

(1) Under this contract, the trade mark user shall obtain against payment the right to use the trade mark "Der Grüne Punkt" illustrated in Appendix 1 to this contract to mark any sales packaging he may have registered separately for this purpose.

(2) The Trade Mark User shall not be entitled to extend to third parties the right to use the trade mark which is hereby granted to him without Duales System's prior consent in writing.

Third parties for the purposes of this provision are not:

- related enterprises within the meaning of Articles 15 ff. of the German Stock Corporation Act, (Aktiengesetz), vis-à-vis one another and vis-à-vis a parent company;
- licensees of the Trade Mark User which market a licensed product in the same packaging as the User, vis-à-vis the User.

In such cases the Trade Mark User shall be obliged to notify Duales System, unsolicited and in advance, of the related enterprises or licensees and of the extent to which the right to use the trade mark is to be extended.

(3) The right of use shall include the right to use pictures of packaging labelled with the trade mark "Der Grüne Punkt" for advertising purposes.

(4) The Trade Mark User undertakes to furnish three specimen copies of the registered packaging on request.

**Article 2**
**Exemption from the obligation to take back and recycle packaging as specified in the Packaging Ordinance**

On the basis of the Packaging Ordinance of 12 June 1991, Duales System guarantees to conduct the nationwide collection, sorting and recycling of used sales packaging in such manner as to exempt participating manufacturers and distributors from their obligations under the Packaging Ordinance to take back and recycle sales packaging covered by the system.

**Article 3**
**Obligation to use the trade mark, customer number, other information**

(1) The Trade Mark User shall be obliged to affix the trade mark to all registered packaging for domestic consumption in such a way as to be visible to consumers and only in connection with such information as has been approved by Duales System. The colour "green" and the lettering "Der Grüne Punkt" should be used, and a diameter of 6 mm must be observed. The trade mark may be affixed in a different colour or by stamping. Exemptions from the obligation to use the trade mark must be expressly permitted in writing by Duales System; in such cases, the following provisions shall apply accordingly.

(2) If the Trade Mark User or the party entitled to use the trade mark under Article 1, para. 2 is not indicated by the information on a package, Duales System may request the Trade Mark User to affix his customer number directly beside the trade mark on the registration of such packaging. If Duales System does not avail itself of this right on registration of the packaging, a written request subject to six months' notice shall be required for subsequent assertion of the same.

(3) Duales System may demand, subject to six months' advance notice, that the packing material used and/or information about disposal be indicated on the packaging as far as this is required for the enforcement of or by any amendment of the Packaging Ordinance.

(4) If, on assertion of the above-mentioned rights, the Trade Mark User incurs any costs as a result of any necessary packaging modifications, they shall not be reimbursed by Duales System unless the latter is accountable for the costs incurred.

**Article 4**
**Licence fees**

(1) The Trade Mark User shall pay Duales System a licence fee for all packages bearing the trade mark "Der Grüne Punkt" which are distributed in the territory of the Federal Republic of Germany. Within the scope of this contract exceptions hereto shall require a separate written agreement.

(2) The licence fees shall be governed by the valid scale of fees and the applicable basis of assessment. The licence fees shall be subject to statutory value-added tax, (VAT).

(3) Duales System reserves the right to adjust the scale of fees and/or the basis of assessment and to inform the Trade Mark User of any such adjustment in writing six months before this adjustment is due to come into force. Any increase or reduction of licence fees and any change in the bases of assessment shall be subject to the following principles:

- Licence fees shall be calculated without any profit mark-up; they shall serve solely to cover the costs entailed in collecting, sorting and recycling used packaging as well as necessary administrative expense, (system costs).
- Licence fees shall be reduced or increased in such a way as to ensure that the system costs are allocated to the specific groups of materials as fairly as possible on the basis of the polluter-pays principle.
- The licence fees and bases of assessment shall be checked at appropriate intervals, (as a rule, annually) by accountants commissioned by the Duales System to ensure that they are allocated fairly according to the polluter-pays principle.

**Article 5**
**Scope of payments**

(1) A licence fee shall be charged for all packaging bearing the trade mark "Der Grüne Punkt" which is distributed by the Trade Mark User within the territory of the Federal Republic of Germany. In the case of packaging put into circulation for the first time, this shall apply from the date of its introduction to the market. This date shall be no later than the day after the first delivery of the packaging bearing the trade mark "Der Grüne Punkt" within the territory of the Federal Republic of Germany. If, after a request from Duales System, the Trade Mark User fails to report an introduction date within a reasonable period of time, the date on which Duales System received the registration of the packaging in question shall be binding for billing purposes, unless Duales System proves that the packaging was introduced to the market even earlier.

(2) The fee shall be payable monthly, quarterly or annually on the following terms:

a) If the licence fees paid in the previous accounting year or the fee anticipated for the current accounting year exceeds DM120,000.00, the Trade Mark User shall register and pay the corresponding fees for the actual sales of packages bearing the trade mark "Der Grüne Punkt" to Duales System on a monthly basis, at the latest 14 working days after the end of the respective accounting month using the monthly actual sales registration form. The actual sales shall be registered and the corresponding fees paid for the first time in the month following the introduction of the packaging to the market.

b) If the licence fee paid in the previous accounting year or the fee anticipated for the current accounting year is less than DM120,000.00, the Trade Mark User shall register and pay the corresponding fees for the actual sales of packages bearing the trade mark "Der Grüne Punkt" to Duales System on a quarterly basis, (based on the calendar year), at the latest 14 working days after the end of the quarter using the quarterly actual sales registration form. The actual sales shall be registered and the correponding fees paid for the first time in the quarter following the introduction of the packages to the market.

c) If the fee paid in the previous accounting year or the fee anticipated in the current accounting year is less than DM10,000.00, the Trade Mark User shall notify Duales System in advance of the estimated sales of packages bearing the trade mark "Der Grüne Punkt" for the Trade Mark User's business year using the registration form provided and shall pay half of the corresponding fees within the first month or, as the case may be, within one month after introduction to the market. The other half of the fees shall be paid at the beginning of the second half of the accounting year.

(3) The number of packages bearing the trade mark "Der Grüne Punkt" which are actually sold shall be registered using the original forms provided by Duales System or the data carriers allowed by Duales System. The data required shall be furnished completely and properly according to the instructions given on the form. Incomplete or improper registration and settlement shall be deemed not to have been effected if the Trade Mark User fails to rectify any errors within 14 calendar days after receiving a written warning from Duales System.

In effecting payment, the Trade Mark User shall indicate his customer number and the accounting period on the remittance slip or cheque form. Payments made without this information may be rejected by Duales System and shall be deemed not to have been effected.

(4) The licence fee to be paid by the Trade Mark User shall be due on the dates provided in para. 2. In case of failure to pay when due, as in all cases of default of payment, the Trade Mark User shall pay interest at a rate of 3% p.a. above the corresponding base interest rate according to article 1 DÜG, (law on transition of discount rate). The Trade Mark User shall retain the right to prove to Duales System that no loss or a substantially lower loss has resulted from exceeding the due date or default of payment.

(5) The Trade Mark User shall be entitled to set off or retain payments only if his counterclaims are legally enforceable, uncontested, or recognized by Duales System.

(6) The registration and accounting procedure shall be based on the Trade Mark User's business year. The Trade Mark User shall inform Duales System when his business year begins. The Trade Mark User's own classification as monthly, quarterly or yearly payer shall apply until the end of his business year. If, in spite of a written warning being given, the Trade Mark User fails to classify himself or classifies himself incorrectly, Duales System shall be entitled to classify the Trade Mark User for the current business year on the basis of such classification criteria as may be discerned by Duales System.

(7) Within three months after the end of each business year, the Trade Mark User shall submit an end-of-year statement on the form provided by Duales System. He shall be obliged to clear any resultant balance to the credit of Duales System immediately. If it emerges from the end-of-year statement that the Trade Mark User has taken advantage of Duales System by incorrectly classifying himself as a quarterly or yearly payer or by deferring payments to the end-of-year statement, and if the Trade Mark User is answerable for the same, the latter shall be obliged to pay retroactive interest on the resultant deficit according to the end-of-year statement as a penalty, at a rate of 3% p.a. above the corresponding base interest rate according to article 1 DÜG, (law on transition of discount rate) valid as per the due date for the end-of-year statement. The obligation to pay interest shall be backdated to the date on which the first monthly or quarterly payment became due in the preceding business year. The Trade Mark User shall be invoiced for payment of this penalty.

## Article 6
## Payments on account

If the Trade Mark User does not meet his registration and accounting obligations in due time and in due form, Duales System may demand on the due dates a payment on account amounting to the last fee paid by the Trade Mark User, which shall then be offset against the Trade Mark User's subsequent payments. If the Trade Mark user has not yet settled any fees in accordance with the terms of this contract, Duales System shall be entitled to fix the amount and due date of the part payment on the basis of the registered packages and an estimated turnover considering all the facts and circumstances discernible by Duales System and taking account of the fees paid by Trade Mark Users with comparable product ranges and turnover. This shall not affect the Trade Mark User's obligation to register his actual sales and pay the corresponding licence fees punctually and in compliance with the contract, nor shall it affect any attendant legal consequences, (Articles 4 and 5).

## Article 7
## The Trade Mark User's disclosure and audit obligations

(1) The Trade Mark User shall be obliged to furnish Duales System with any and all information required for the implementation of this contract without undue delay.

(2) If, in spite of a written warning being given, the Trade Mark User breaches any major obligations under this contract, especially Article 1, para. 2, sentence 3; Article 3, paras 1 and 2; Article 4, paras 1 and 2; Article 5, para. 1, he shall be bound, pursuant to section 25b of the Trademark Act, (Warenzeichengesetz) to provide Duales System immediately with information concerning the origin and channels of distribution of the packaging covered by this contract. Specifically, this information shall include the name and address of the manufacturer, supplier and other previous owners, of the trade customer, as well as the quantity of goods produced, delivered, received or ordered. Above and beyond that, Duales System may demand a complete list of the products sold by the Trade Mark User.

(3) Within six months after the end of the Trade Mark User's business year, the latter shall be bound at his own expense to have a professional auditor, chartered accountant or tax adviser certify that the statements made in the end-of-year statement are accurate on the basis of the guidelines issued by Duales System and using the forms provided or the data carriers allowed by Duales System.

(4) Any balance in the Trade Mark User's favour according to the end-of-year statement shall be cleared by Duales System immediately on submission of the audit certificate and to the amount certified. If the certified end-of-year statement shows a balance in favour of Duales System, Article 5, para. 7, sentences 2 - 4 shall apply accordingly.

(5) If there is reasonable doubt as to the accuracy of the Trade Mark User's reports and accounts and if so requested by Duales System, the Trade Mark User shall submit an interim audit certificate from a professional auditor, chartered accountant or tax adviser as per a specific date fixed by Duales System. If such an audit reveals that the fee paid by the Trade Mark User falls short of the fee calculated on the basis of the audit by more than 5%, the Trade Mark User shall bear the costs thereof.

## Article 8
## Duales System's rights of verification

(1) If there is reasonable doubt as to the accuracy or completeness of the Trade Mark User's reports or accounts, Duales System shall be entitled to have a professional auditor, chartered accountant or tax adviser, (hereinafter referred to as "the auditor") whom it has commissioned and enjoined to secrecy check the accuracy and completeness of the reports and accounts submitted by the Trade Mark User, at a date and time agreed upon by both parties, in the accounting period of the previous two years. This inspection may be carried out subject to the following provisions even if the Trade Mark User has not submitted any reports or accounts.

(2) The auditor commissioned by Duales System's auditor shall be entitled to enter the Trade Mark User's premises and inspect all required records. The Trade Mark User shall enjoin his staff to answer the auditor's questions correctly and completely. The Trade Mark User must place suitable informants at the auditor's disposal.

(3) If the Trade Mark User exercises his right under Article 1, para. 2, he shall be obliged to ensure compliance with the obligations laid down in the foregoing paragraphs 1 and 2 on the part of those entitled to use the trade mark pursuant to Article 1, para. 2.

(4) In particular, the auditor shall be entitled to calculate the amount of the Trade Mark User's fees for the past and future on the basis of spot checks. The auditor's findings and calculated results shall be binding on both parties in accordance with the provisions of section 317 of the Civil Code, (BGB) unless and until the Trade Mark User furnishes a more recent audit certificate from a professional auditor, chartered accountant or tax adviser which proves a lower financial obligation.

(5) In any and all cases in which the auditor is denied access to the Trade Mark User's premises or is not furnished with all the records or information required, the auditor shall be entitled to estimate the amount of the fee payable, in accordance with section 317 of the Civil Code, at his reasonable discretion and considering all facts and circumstances discernible by him, with binding effect on both parties. The second sentence of para. 4 shall apply accordingly.

(6) If the amount calculated on the basis of an inspection or estimate as per the foregoing stipulations should exceed the fee actually paid by the Trade Mark User by more than 5%, the Trade Mark User shall bear the costs of the entire procedure. In any case, the Trade Mark User shall bear the costs of the procedure if, even after receiving a request in writing or repeatedly, he has submitted no, improper or incomplete reports or accounts for the period under review.

## Article 9
## Lump-sum damages

Any difference chargeable to the Trade Mark User between the amount determined on the basis of an inspection by an auditor commissioned by Duales System or an interim audit certificate from a professional auditor, chartered accountant or tax adviser and the amount actually settled shall fall due when invoiced with a 10% surcharge as lump-sum damages and with interest at a rate of 3% p.a. above the corresponding base interest rate according to article 1 DÜG, (law on transition of discount rate) if the Trade Mark User is responsible for the difference. The Trade Mark User shall retain the right to prove to Duales System that the latter suffered no loss or a substantially lower loss.

**Article 10**
**Condition of validity of the contract, rejection of packages**

(1) The validity of the contract shall be subject to the suspensive and dissolving condition of the registration of at least one package by the Trade Mark User using the contract documents provided by Duales System.

(2) If the provisions of the Packaging Ordinance are not applicable to a given package, the Duales System shall be entitled to reject the registration of such a package.

**Article 11**
**Cancellation/part cancellation,**
**Consequences of termination and damages**

(1) The Trade Mark User shall be entitled to terminate this contract subject to six months' notice if he should cease to market the registered packages in the territory of the Federal Republic of Germany. Furthermore, the Trade Mark User shall be entitled to cancel the registration of individual packages that are no longer marketed in the territory of the Federal Republic of Germany. Such packages shall cease to be covered by this contract as from the date of cancellation to be stated by the Trade Mark User. No cancelled packages may be marketed by the Trade Mark User in the territory of the Federal Republic of Germany after the date of cancellation.

(2) Duales System shall be entitled, after prior written warning, to terminate the contract with immediate effect if

- the Trade Mark User seriously or persistently breaches his contractual obligations, particularly his registration and financial obligations;
- the Trade Mark User gives Duales System a wrong introduction date for one of the packages registered by him;
- the Trade Mark User affixes the trade mark "Der Grüne Punkt" to packages in his product range without having included them in the contract, and no other Trade Mark User has included these packages in his Trade Mark Contract either;
- the Trade Mark User makes false statements regarding the registration or accounting of one or more packages which have a substantial effect on the scale of its mandatory payments.

(3) a) Until final review of the contract documents, Duales System shall be entitled to terminate the licence to use the trade mark on specific or all registered packages at any time and without notice if it is established that the provisions of the Packaging Ordinance do not apply to these packages. Duales System shall inform the Trade Mark User in writing of the result of the review.

b) Duales System shall be entitled to terminate the contract in respect of specific packages at any time and without notice if these packages cause serious disturbances to the collection or sorting system for reasons for which the Trade Mark User is answerable.

c) Continued use of the trade mark on the packages concerned shall be prohibited in these cases – except on packages already marketed – without any allowance of time for the packages concerned to be used up.

(4) Both parties shall retain their right to extraordinary or part cancellation of the contract for an important reason.

(5) Continued use of the trade mark after termination of the contract shall not be permissible either for either labelling or advertising purposes. Packages that have already been produced or marketed by the Trade Mark User with the trade mark "Der Grüne Punkt" shall not be affected.

The obligation to pay fees shall also extend to packages marketed during the time allowed for these packages to be used up.

(6) Continued use of the trade mark – except on packages already marketed – shall be prohibited without any allowance of time for the packages concerned to be used up in the event of extraordinary or part cancellation by Duales System.

(7) If registered packaging or any residual product still present in the package causes loss or damage to Duales System or third parties commissioned by it in the course of collection, sorting or recycling, the Trade Mark User shall be obliged to pay damages or indemnify Duales System against all resultant damages if the Trade Mark User is responsible for the loss or damage.

**Article 12**
**Supersession clause**

When this contract takes effect, it shall thenceforth supersede the Trade Mark Contract in the version dated 10 December 1991 as well as any contract modifications and appertaining circulars.

**Article 13**
**Confidentiality**

(1) Duales System shall be obliged to treat as confidential the information furnished to it in implementation of this contract and to disclose the same to third parties only as far as may be required for legal reasons. This obligation shall apply accordingly to third parties acting for Duales System.

(2) Duales System shall be entitled to inform third parties that a Trade Mark Contract has been concluded with the Trade Mark User and to advise them as to which packaging will be covered by the contract and paid for by the Trade Mark User as from which date. As far as necessary to assert its claims for payment, Duales System may furnish third parties with further information if the Trade Mark User is repeatedly in default of payment or settlement. In such cases Duales System shall enjoin the third party to maintain secrecy accordingly.

**Article 14**
**Law, legal venue**

(1) This contract shall be subject to the law of the Federal Republic of Germany.

(2) The legal venue or place of jurisdiction for any disputes arising out of this contract shall be the corporate seat of Duales System.

**Article 15**
**Written form, language of the contract**

(1) The facsimile signature of Duales System shall suffice for the validity of the contract.
Alterations and additions to this contract must be made in writing. This shall also apply to any alteration of this provision. The facsimile signature of Duales System shall suffice for the same.

(2) The language of the contract shall be German. The German version of the contract shall be decisive.

**Article 16**
**Commencement and term of this contract**

This contract shall take effect on ..... and shall run until the end of the following calendar year. Each year, the contract shall be automatically renewed for another year unless notice is given at least two months prior to expiry.

| | |
|---|---|
| Trade Mark User | Der Grüne Punkt –<br>Duales System Deutschland<br>Aktiengesellschaft |

*This is a sample translation for your information.*
*Do not complete this form.*
*Please submit the German original.*

| | |
|---|---|
| ..... | ... |
| (Place, Date, Signature) | (Place, Date, Signature) |

## ANNEX 14: EPR IN GERMANY

Dr. Ulf D. Jaeckel
Federal Ministry for the Environment, Germany OECD EPR-Workshop
Washington D.C., 1-3 December 1998

### 1. EPR as an instrument for Environmental Policy in Germany

The politics of Extended Producer Responsibility are one cornerstone of the closed loop economy we are trying to reach. The aim is to increase resource productivity that shall be going along with the reduction of pollution and of waste production.

For that purpose we chose different approaches depending on the political situation and the product group. There are regulations that are fixed by national law like ordinances, there are voluntary commitments by the industry and there are mixtures of both types.

In the following the different approaches are shortly described. Finally I want to summarise by working out necessary key elements of EPR systems.

### 2. EPR systems in Germany

#### *2.1 Packaging Ordinance*

The starting point, the prototype and the model example for the "new product responsibility" and the start of an economy based on product recycling was the Packaging Ordinance of 12 June 1991. When we are talking about policy experience with EPR in Germany, this Ordinance is the most important measure in the waste management field.

In the meantime the Ordinance has been revised and the new Packaging Ordinance has entered into force in august 1998. One of the aims of the amended Ordinance is to create a balance between those who participate in a dual system and those who want to organise the return and recycling of their packaging themselves. Now there are recycling quotas for the latter. This shall solve the free-rider problem. Also, the amended Ordinance is to encourage competition in the field of waste management to reduce costs. The new Packaging Ordinance therefore does not contain any substantive changes to the overall approach.

The Ordinance contains the main following individual stipulations:

- Manufacturers and distributors have to take back packaging and arrange for their reuse or substance recycling, (basic principle for all packaging).

- Manufacturers and distributors of sales packaging have the choice between organising take and recycling by themselves or to join a take back system which operates all over Germany and near private households. This possibility was provided by the option of a so-called dual system. It was called dual because it is a scheme which operates side-by-side with traditional waste disposal provided by the local authorities.

- consumers are able to leave secondary packaging behind in the shops. Distributors have to arrange for this so-called secondary packaging to be reused or recycled.

The costs, which are met by DSD, play an important role concerning the control of material flows. These costs are divided amongst the participants of the dual system. Therefore, licence fees are charged by DSD dependent on the kind of material and on weight, (with an additional fee per item). The licence fee range from 0.15 DM/kg for glass packaging to 2.95 DM/kg for plastics. The fees will be an equivalent to the actual costs for collecting, sorting and recycling, (/disposal). With these licence fees, (some) external costs of waste management are internalised.

Nearly seven years after the entry into force of the Packaging Ordinance this policy has proved successful in several fields:

- Manufacturers have changed their packaging habits. Environmentally friendly disposal of packaging is a factor which is indeed taken into account during the production process and is also increasingly used as an advertising argument in competition.

- Due to the differences in licence fees for different materials and the fees themselves, changes in the packaging market can be seen. Packaging have become lighter and smaller. Some packaging with proportional higher licence fees, (i.e. plastics, glass) have been replaced by packaging with lower fees, (i.e. cardboard). Useless packaging have disappeared.

- As a result, the use of packaging has been considerably reduced in Germany. In 1997 there were 1.4 million tons less packaging p. a. than in 1991, the year the Packaging Ordinance entered into force.

- In the field of transport packaging we are witnessing a trend towards reusable packaging. Examples here are packaging for furniture, food, pharmaceutical products and bicycles.

- Industry has set up a nation-wide collection system for throw-away packaging and has increased its recycling capacities for all packaging material. In 1997 5.45 million tons, (80,6%) of used sales packaging has been recycled and for the materials recycling quotas of 64% for plastics, 72% for compounds, (beverage cartons), 79% for tinplate, 80% for aluminium, 83% for glass and 87% for paper and cardboard were reached.

Talking about experience, it is also necessary to mention some problems for the Duales System Deutschland GmbH. The initial phase has shown that there were some serious financial problems to be solved. The causes of the financial difficulties include:

- "Free riders", that are firms which, although they imprint the green dot on their packaging as a sign that they are members of the system, pay for far less packaging than they actually produce and than the system has to dispose of.

- Very often the public also disposes of non-packaging substances via the dual system. The figure here averages 20%, a fact which also contributes towards higher costs for which the system does not obtain any financial recompense.

### *2.2 Regulation for Drink Packaging*

The Packaging Ordinance protects systems of refillable packaging for beverages by means of a combined quota and deposit system. This system is based on the status quo for refillable percentages in Germany in 1991. It basically provides for a compulsory system of deposits on all one-way beverage packs. This deposit requirement is suspended nation-wide as long as the refillable percentage for all beverages, (excluding milk, sparkling wine and spirits) does not fall below 72 per cent. If this quota is not reached in two consecutive years, the mandatory deposit requirements will apply to those types of drink packaging which fall short of their own reference percentages for 1991.

This regulation was proven by Life Cycle Assessments, (LCA) which showed significant advantages of refillables. One of theses studies by our Federal Environment Agency, (Umweltbundesamt) showed that only one one-way drink package has nearly the same ecological advantages as refillable drink packaging. This is a pouch of polyethylene for milk. In consequence in the new Packaging Ordinance the use of this pouch is encouraged along with refillable drink packaging. Therefore we opened the quota of refillable drink packaging to a quota for ecological advantageous packaging which include the pouch and may include other one way drink packaging which will prove to be ecological equal with refillables in the future.

This change in the regulation because of LCA results was followed by a very welcomed reaction of manufacturers and users, (fillers) of drink packaging. The use of LCA in the field of drink packaging increased tremendously. Manufacturers and fillers are searching for more ecological sound packaging solutions. Drink packaging has become lighter, the recyclability was increased and new materials were taken into account. Furthermore a fruitful discussion of new packaging alternatives and their ecological impacts between the Ministry for Environment and the industry began.

### *2.3 Ordinance for Old Batteries*

In April 1998 an ordinance for used batteries went into force. It contains the obligation that retailers have to take back batteries free of charge. For this purpose retailers have to signal consumers that there is the possibility of free return. Also free of charge the manufacturers have to take back the batteries from the retailers. Beside the batteries given back by retailers manufacturers have to take back old batteries from the, (separate) municipal waste collection, too.

Because of the special structure of the battery market manufacturers have to fulfil these obligations in a joint take-back-system. This system was established shortly before October, 1st, 1998, the date the take back obligations went into force. There are no experiences with this system so far but also before the Ordinance a lot of shops took back old batteries free of charge so that there is no big change for most of the retailers. The take-back by the manufacturers is something new.

The take-back system is supported by an obligation for the consumer to give back old batteries to the retailers or the municipal collection system.

To ensure that there are no emissions of dangerous substances like heavy metals for starter batteries for cars there is a deposit requirement which is with 15 DM high enough to guarantee that the consumers will bring them back. Furthermore there are obligations for the recycling and the final disposal of that batteries.

### *2.4 Draft Ordinance for Used Information Technology Products*

In the field of electronic appliances there is a draft ordinance for used information technology products like computers, printers, fax machines and so on. The collection of these products shall be left in the hand of the communities, which is different from the approach in the field of packaging.

The producer responsibility is implemented by the obligation for manufacturers to take back used information technology products free of charge from the municipal collection systems. Costs for sorting which may occur at the municipal collection system have to be carried by the manufacturers.

Recycling of these products has the first priority. There is an obligation to recycle these products whenever it is possible. If recycling is not possible producers have to care for an environmental sound disposal. Because of the danger of emitting dangerous substances there is also an obligation for the last owner to give back the product to the collection system.

In the field of electronic scrap the EU is working on a Directive which may go further as this Draft Ordinance by implementing EPR for more products than only information technology. Therefore it is quite likely that there will be an expansion of the products contained in this Ordinance.

### *2.5 Voluntary Commitment for Newspapers and Magazines*

The voluntary commitment in the field of newspapers and magazines contains the commitment of the print media industry to increase the recycling quota of newspapers, magazines etc. to 60% by the year 2000. For the monitoring a council is created with members of the industry, the Federal Government and the State Governments. This monitoring showed that the quota is already fulfilled. In 1997 approx. 72% of newspapers and magazines were recycled.

Also the print media industry and the importers of paper products committed themselves to increase the use of secondary material in newspapers and magazines. Furthermore the print media industry finances studies to examine possibilities to optimise the collection of old papers.

### *2.6 Voluntary Commitment Scrap Cars*

In the field of **scrap cars**, the automobile industry, (German industry and importers) promised to reduce the waste for disposal to a maximum of 15% by 2002 and to a maximum of 5% by 2015. Furthermore the automobile industry declared that it would take back scrap cars up to 12 years old. , (That fact in particular was a compromise.) Every manufacturer has to take back scrap cars of his brands.

To meet this obligations industry promised to set up a nation-wide collection system which operates near the last owner so that there is no hurdle for him to bring back scrap cars. Furthermore car manufacturers are to take appropriate measures in construction and production to improve the possibilities for reusing and recycling parts and materials.

This voluntary commitment has been framed by an ordinance, which contains certain obligations in connection with the recycling and the final disposal of scrap cars, i.e. requirements to avoid ecological hazards when storing, handling and recycling. Scrap cars has to be brought to plants which operate in an ecologically compatible manner and which have been approved, (audited) by qualified experts. Furthermore correct disposal and recycling is linked with de-registration of the car by requiring a recycling certificate which has to be presented by the last owner.

### *2.7 Voluntary Commitment for Building Rubble*

In the field of **building rubble** the building industry has promised to reduce the, (recyclable) waste for disposal from 1995 to 2005 to a maximum of 50%. With this commitment incentives shall be given to use new techniques and new organisation for the pull down of old buildings. Also the recyclability of building materials shall be improved.

The field of building rubble is of very high importance for German waste management because nearly half of the yearly waste amount in Germany is building rubble. This waste often is very heterogeneous and therefore hard to recycle in a cost efficient way.

## ANNEX 15: EPR COMPARISON MATRIX

Bette Fishbein, Inform, presented the following Matrix at the 4th EPR workshop, Towards Environmental Sustainability, Paris, 4-7 May, 1999[61]

### EPR COMPARISON MATRIX (example)
### Sector: Packaging

| Program Characteristics | Country …A B C |
|---|---|
| **What is the scope?**<br>By type of product/package, (i.e. white goods vs. all electric/electronic)<br>By generator, (i.e. residential, commercial, institutional) | |
| **Timeframe, (phase-in)**<br>Date of legislation, regulation or agreement<br>Date of program initiation<br>Date of full implementation | |
| **Is Programme mandatory/ negotiated/voluntary?** | |
| **Financing of waste management costs**<br>**Allocation of responsibility?** Ultimate producer, shared, etc.?<br>**Role of actors in product chain?** | |
| **Operations**<br>Use existing infrastructure, (i.e. collection, sorting, recycling)<br>New Infrastructure needed? | |
| **Responsible entity, (i.e. brand name, manufacturer, retailer, product chain)**<br>Take back own product<br>Third party take-back, (PRO) | |
| **For take-back, what are the take-back fees**<br>Entity setting fees<br>Entity receiving fees<br>Fee basis, (i.e. unit, material, weight, volume, other)<br>Fee level set by material or by product, (list)<br>Paper computers<br>Glass televisions<br>Metals refrigerators<br>Plastics washing machines<br>Composites air-conditioners | |
| **Point of fee payment, (producer, point of purchase, end of useful life, etc.)** | |

[61] Not all points listed in this matrix address all programmes. This matrix provides a base for what type of information could be collected for the various operating EPR programmes.

**EPR COMPARISON MATRIX (continued)**

| **Programme Characteristics** | |
|---|---|
| **If targets are set, what are the rates and dates, (i.e. reduction, recycling, recovery, collection)** by material or by product | |
| Paper<br>Glass<br>Metals<br>Plastics<br>Composites | computers<br>televisions<br>refrigerators<br>washing machines<br>air-conditioners |
| **Technologies**<br><br>Recycling, (i.e. mechanical only, feedstock?)<br>Recovery, (energy recovery should be separated) | |
| **Reporting requirements, (i.e. waste generation, recycling, recovery, recycled content, costs)** | |
| **Other requirements**<br><br>Bans<br>Of materials from products<br>Of materials/products from municipal waste<br>Of materials/products from landfill<br>Refill rates<br>Labelling<br>Deposits<br>Import/Export<br>Return by end user<br>Mandated free take-back<br>Access to collection points<br>Exemptions, (i.e. health/safety, sales revenue) | |
| **Sector specific issues-long lived products**<br><br>Orphan products<br>Existing products<br>Certificate of de-registration/recycling<br>Exchange existing for new | |
| **Compliance monitoring**<br><br>Responsible entity<br>Penalties<br>Recycling documentation/accreditation | |
| Free riders | |

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