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 cannot 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 coordination that often exists in the design and implementation of multiple policies at different points in the product chain.

4.4.10 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 can be a useful guide for policymakers 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 economize 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: 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 carried out by the producer. 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 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.

4.5. Roles and responsibilities

Key takeaways

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

02 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.

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

04 Communication and coordination with all actors in the product chain are vitally important to the success of the EPR policy and program.

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

06 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.

07 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.

08

State and local authorities play a crucial role under EPR. This includes their role and relationship to the producer, the producer responsibility organization (if one is to be formed) and in the co-ordination of their participatory role when the product is a classical consumer product. Roles and responsibilities for local government under the EPR programme should be precisely defined. When however, it is a more B2B-product such as photovoltaic modules, local authorities are a stakeholder with whom the producer or the PRO can then make arrangements for the limited amount of post-consumer waste which might end up at local authorities collection facilities.

09

The consumer and the final owner of the waste plays a dynamic role in most EPR programmes. For take-back programmes, it is imperative to inform the consumer and final owner 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 programs. Consumer and final owner convenience can be an important determinant of a program'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 (distributor) within the context of the EPR programme should be established. The retailer can be a key conduit of information to the consumer and final customer and bridge the information gap between producers and consumers / final customers.

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 when we deal with classical consumer products such as TV sets, washing machines.

4.5.1 Introduction

The objective of this Section is to summarize 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 Section 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.

4.5.2 Context

In reviewing the programmes in existence around the globe, 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 section and previous sections to evaluate the issues and needs when considering the application of take-back and other policy instruments.

4.5.3 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. Paragraph 3.3.2. will address the identification of the producer and the shared responsibility options.

4.5.3.1 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 characterized by Thomas Lindhqvist (1998)[23]. 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

[23] *LINDHQVIST, Thomas (1998), What is Extended Producer Responsibility? In Extended Producer Responsibility as a Policy Instrument -What is the Knowledge of the Scientific Community? International Seminar, May, 1998, Lund.*

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

4.5.3.2 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[24]). The producer is also in the position to influence the environmental impact(s) of their products -- or correct the market failure.

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[25]). 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

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[24]FENTON, Robert W and John Sinclair (1997), Roles and Structure of Producer Responsibility Organisations, Canada.

[25]TIMONEN, Paivi (1997), Consumers as Co-producers, paper presented at the OECD EPR Workshop, December, 1997, Ottawa.

Rydén, Erik. (1998) Extended Producer Responsibility - an emerging field for new economic actors. In K. Jönsson, & T. Lindhqvist,

Extended Producer Responsibility as a Policy Instrument – what is the Knowledge in the Scientific Community? (24-28). AFR-

Report 212. Stockholm: Swedish Environmental Protection Agency.

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 (such as photovoltaic modules), 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 cannot be clearly identified, the manufacturer would be considered as the producer.

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 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. 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.

4.5.3.3 Other responsibility combinations

Shared responsibilities

While close coordination 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. Many 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 applies for true products consumed by households. However, for products which are mainly consumed – installed with reference to photovoltaic modules – at large power plants and thus within a Business-to-Business environment, the shared responsibilities are spread amongst the producer and the other actors of the business value chain.

This shared method provides for partial cost internalization for the financial management of post-consumer products.

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 organization (PRO).

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 (free-riding) 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.

Within 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.

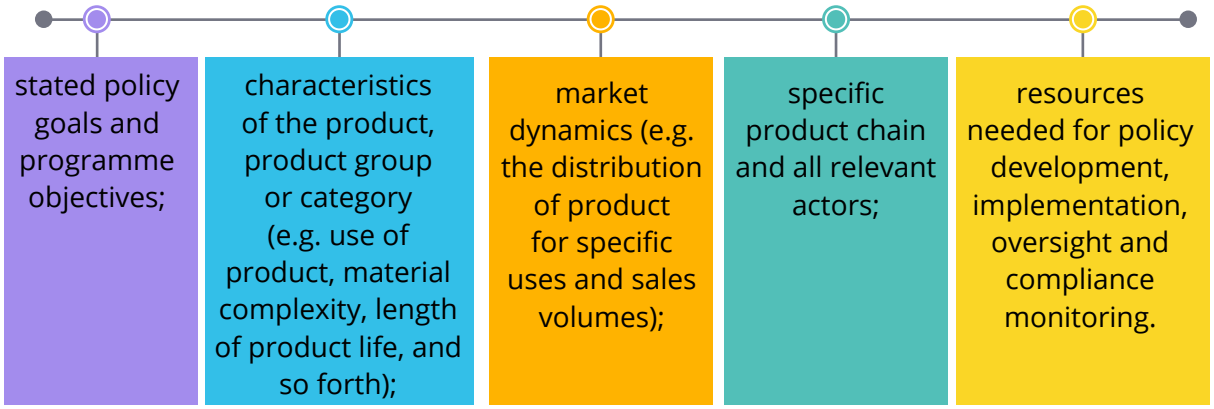
4.5.4 Distribution of responsibility

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.

Combinations of these approaches to include full or partial responsibility are possible. Policymakers need to review the range of possibilities in the distribution of responsibility in relation to policy goals and the practicality of its implementation.

4.5.5 Considerations when allocating responsibility

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



4.5.6 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 recognizes that producers are most able to alter products to prevent waste, minimize waste management costs and reduce environmental pressures of a product at its 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).

4.5.6.1 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.

4.5.6.2 Internalization 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 internalization. Internalization 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 internalization 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 internalization, 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.

4.5.7 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 programs by: (i) raising awareness of program and requirements; (ii) eliminating policies that are inconsistent with EPR objectives (for example subsidy programs 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 policymakers wish to promote industry-based EPR initiatives, obstacles that would affect the initiation of voluntary efforts should be eliminated.

4.5.8 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.

4.5.9 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 jeopardize the operation of the EPR programme.

4.5.10 Role of retailers (distributors)

Roles and functions of retailers (distributors) need to be clearly defined because their strategic position in the product chain can influence the operation of EPR programs. 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.

4.5.11 Producer Responsibility Organizations

Under take-back programs, it could be impractical and not particularly economically feasible for each producer to take back its own products. Therefore, third party organizations are often formed allowing producers to collectively manage the take-back (and most often arrange for the treatment) of products.

These organizations 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 of an EPR program.

Most PRO's 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 organization 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.

PRO's can support both voluntary and mandatory take-back schemes, deposit/refund systems, and advance disposal fee programmes. PRO's 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.

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 organizing 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 program.

4.6. Free riders, orphan and existing products

Key takeaways

Free riders