Extended producer responsibility policies in the United States and Canada: history and status

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14

Extended producer responsibility policies in the United States and Canada

HISTORY AND STATUS

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This chapter surveys the historical context and current status of extended producer responsibility (EPR) policies in the United States and Canada, especially those focusing on end-of-life product management, and comments on the governance process involved in implementing EPR in the two countries.

EPR is:

> a policy principle to promote total life cycle environmental improvement of product systems by extending the responsibilities of the manufacturer of the product to various parts of the entire life cycle of the product, and especially to the take-back, recycling and final disposal of the product (Lindhqvist 2000).

EPR policies shift 'part, or all, of the responsibility for the end-of-life management of products from tax payers, waste management authorities and conventional waste dealers to manufacturers', with the aim of encouraging 'manufacturers of products to reduce environmental impacts across their entire life cycle' (see Tojo *et al.*, Chapter 15, this volume). For the purposes of this discussion, we consider EPR as a 'policy principle'

rather than a 'policy instrument' (Tojo *et al.*, this volume); accordingly, we cover a range of instruments ranging from legislated programmes and negotiated agreements to purely voluntary initiatives by industries. Most of the instruments discussed shift responsibility in one way or another for the end-of-life management of designated products from local communities, where it has resided for over a century, to the products' producers.

In both Canada and the US, regulation or the threat of regulation has prompted a number of pre-emptive voluntary EPR initiatives by producers, including some examples of product redesign and limited product take-back schemes. There have also been protracted 'multi-stakeholder' negotiations initiated by governments aimed at establishing mutually agreeable industry-funded or industry-operated programmes for certain products. In the US, to date, these negotiations have been inconclusive for the most part; however, several groups continue to provide venues for such policy discussion. In Canada, on the other hand, multi-stakeholder negotiation has proved to be an effective way to arrive at regulatory programmes that have been supported by industry. Canadian initiatives have been directed mainly at end-of-life management, while US concern, especially among environmental non-governmental organisations (NGOs), has also been directed at toxics reduction in product design (Thorpe 2003; CPA 2004). US and Canadian EPR programmes are of special interest because they apply, in some cases, to product categories seldom addressed by other countries: such as paint, domestic pesticides, pharmaceuticals, fuels and flammable liquids.

14.1 North American waste policy: historical context for EPR

Like Europe, North America experienced a public health crisis when industrialisation gave rise to large, densely populated cities with a *laissez-faire* approach to sanitation. In the late 19th century, a broadly focused social reform movement (Progressivism) put pressure on local governments to provide, among other things, public sanitation services. A measure of the movement's success is that universal collection and disposal of 'municipal' waste became one of the core functions of local government (Melosi 1981, 2000). But, over the course of the 20th century, 'municipal' waste changed significantly in composition. At the dawn of the 20th century North American households threw out mostly coal ashes (Morse 1908; Melosi 1981). They now throw out mostly consumer products and packaging (US EPA 2003). Figure 14.1 compares the composition of municipal waste in 1906 and 2001.

While municipal waste was changing, municipal infrastructure for managing it changed little except in scale (US EPA 2004b: para. 4). Technologies and approaches that served the purpose at the beginning of the century proved unsuited to the discards of a modern industrial society (Melosi 1981: 193). In the 1970s tens of thousands of chemically contaminated sites were disclosed in the US. Strong federal legislation, referred to as the 'Superfund' Act, authorised US EPA to mitigate the sites and seek financial compensation from the responsible parties (US EPA 2000). Twenty per cent of the top-priority Superfund sites were municipal landfills (Steinway 1999). In addition

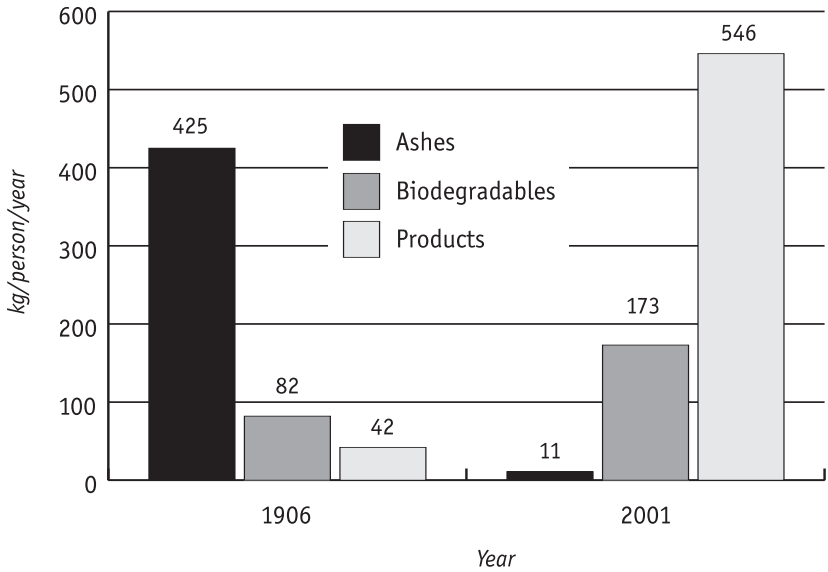

FIGURE 14.1 US municipal waste: 1906 versus 2001

Sources: Morse 1908; EPA 2003

to causing toxic pollution, municipal waste handling practices resulted in large quantities of valuable materials ('secondary resources') being kept from further use by burial in landfills or destruction in waste incinerators. During the 1980s environmental organisers helped local citizens mount successful campaigns against proposed incinerators, citing environmental and health concerns. These citizen efforts, like those of a century earlier, were successful and many cities and towns implemented kerbside recycling programmes instead of waste-to-energy plants (Seldman 1995).

In the late 1980s and early 1990s municipal recycling programmes expanded rapidly across the US and Canada. The quantity of discarded products recovered for recycling in the US, mainly through municipal efforts, increased from 14.5 million tons in 1980 to 46.2 million tons by 1995, representing 10% and 26% of total waste arisings, respectively (US EPA 2003). However, in the mid-1990s improvement in municipal recycling levelled off, a trend that continues to the present. Increases in recycling were matched by increases in the amount of wastes generated in the first place, offsetting gains in waste reduction (Spiegelman and Sheehan 2004). US EPA noted that the design of products was a challenge to municipal recycling, citing the example of plastics, which: 'contribute substantial tonnage [of municipal waste], but are often in products such as appliances or furniture where recovery is difficult if not impossible' (US EPA 1999). As discussed below, policy-makers in the US and Canada began to recognise that local governments did not have the resources to effectively manage certain waste streams. Senior governments, especially in Canada, stepped in to provide programmes and, later, legislation aimed at extending producer responsibility to include product take-back and recycling.

14.2 Extended producer responsibility in Canada

The report *Our Common Future* by the World Commission on Environment and Development (WCED 1987) had a significant impact on environmental policy in Canada, both in the country's policy agenda and in its policy-making process. At both the federal and the provincial levels, governments formed multi-stakeholder 'roundtables' on the environment and the economy (BC RTEE 1994). These roundtables were a Canadian example of the non-hierarchical political steering process termed 'governance' (see Mayntz, Chapter 1, this volume). One such roundtable, established in 1989, was the National Task Force on Packaging. It was chaired by Environment Canada (a federal government agency) and included representatives from other levels of government as well as industries that use packaging, the national consumers' association and the environmental movement. The packaging task force developed a National Packaging Protocol (NaPP), which was subsequently adopted by the Canadian Council of Ministers of Environment in 1990. NaPP established six packaging principles, three milestone targets and the goal of reducing total packaging waste in Canada by 50% by 2000 (CCME 1990). The NaPP initiative was widely viewed as a success when the 50% reduction target was reached in 1996 (CCME 1996). However, self-congratulation by industry provoked criticism from environmentalists because most of the reduction occurred in transport packaging rather than the consumer packaging that becomes a public cost burden in municipal waste systems (Morawski 1999).

In addition to this nationally negotiated EPR initiative, Canadian provinces began actively pursuing product-focused EPR policies, also using a multi-stakeholder consultative process. In Canada, the terms 'product stewardship'[1] and 'industry product stewardship' are often used interchangeably with 'extended producer responsibility' (Environment Canada 2004a). Environment Canada has adopted the definition of EPR used by the 30-nation Organisation for Economic Co-operation and Development: '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' (OECD 2001). The province of British Columbia defines its policy of 'industry product stewardship' as follows: 'a waste management system based on the principle of user-pay, whereby responsibility for materials and products in the waste stream is borne by producers and consumers rather than general taxpayers' (BC MWLAP 2002).

Today all ten of Canada's provinces have regulatory EPR programmes in operation and there are also several nationwide as well as regional EPR initiatives that are voluntary. Canadian EPR programmes are summarised in an inventory conducted by the federal environmental agency (Environment Canada 2002, 2004b).[2] As of 2004, 32 of the programmes were supported with legislation, 12 were voluntary initiatives by producers, and four were under development. All Canadian EPR regulations are enacted at the provincial level. This has resulted in a patchwork effect, which industry associations have tried to address through nationally co-ordinated negotiations with government. For instance, the Canadian Petroleum Products Institute (CPPI) developed a model pro-

1 A different usage developed in the United States, as is discussed in Section 14.3.3 below.

2 The inventory was first compiled in 1999, followed by a major update in 2002, and additions are added occasionally to the website (personal communication with D. Bury, 19 October 2004).

gramme for used oil and oil-related products that has been approved by four provinces (CPPI 2003). The Information Technology Association of Canada (ITAC 2004) formed Electronics Product Stewardship Canada and has published a plan for addressing e-waste in Canada (EPSC 2004). Table 14.1 provides an overview of Canadian EPR programmes.

14.2.1 Provincial EPR programmes (west to east)

British Columbia (pop. 4.1 million)[3]

Canada's westernmost province, British Columbia (BC), has more extensive experience with EPR than any other jurisdiction in North America (Driedger 2002). In 1970 BC was the first jurisdiction in North America to implement a mandatory deposit–return programme for soft drink and beer containers (BC MWLAP 2004a). The Litter Act required retailers to take back empty containers and issue refunds and successfully diverted the majority of designated containers from roadsides and public waste systems. In 1990 BC introduced government-managed recycling programmes for tyres and lead-acid batteries funded with excise taxes remitted to the provincial government by retailers (BC MWLAP 2004b). In 1992, retailers were required to take back used oil from consumers. These programmes were similar to programmes adopted by US states around the same time.

Starting in 1993, BC began to develop policies based on the principles of EPR. The BC Waste Reduction Commission recommended an approach to managing household hazardous waste (HHW) that would shift responsibility from general taxpayers to the producers of household hazardous products (BC WRC 1994). Subsequently, the BC government brought in a series of landmark regulations[4] requiring brand-owners or first importers of the most common HHW products (paint, flammable liquids, pharmaceuticals and household pesticides) to develop 'stewardship plans' for taking back and treating residual products and empty containers in accordance with the pollution prevention hierarchy (reduce, re-use, recycle). Those regulations then became the model for a revised regulation on beverage containers that replaced the retail return provisions in the 1970 Litter Act and expanded producer responsibility to all beverage products except milk and milk substitutes. More recently, a regulatory review process resulted in the replacement of BC's EPR regulations with a single regulation, the Recycling Regulation, which was adopted in 2004. It provides a common framework for producer stewardship of the previously regulated products and also creates a framework for introducing additional product categories. For example, consumer electronics are expected to be brought under the new regulation in the near future (Murray 2003).

Under British Columbia's EPR requirements an affected brand-owner can comply in any of three ways: by submitting its own EPR plan, by joining an association (variously referred to as a 'stewardship agency', 'third-party organisation' or 'producer responsibility organisation' [PRO]) that implements an approved EPR programme, or by operating a stewardship programme according to prescriptive requirements set out in the reg-

3 Canadian population figures are for 2000 (Statistics Canada 2003).

4 Paint Stewardship Program Regulation (BC Reg. 200/94); Residuals Stewardship Program Regulation (BC Reg. 111/97).

Product group	Province									
	BC	**B**	**SK**	**MB**	**ON**	**QC**	**NS**	**NB**	**NF**	**PE**
Regulatory programmes										
Drink containers[a]	PRO1	PRO2	PRO2			PRO2	PRO2	PRO2	PRO2	PRO2[b]
'Blue box' products[c]				PRO2	PRO2	Dev				
Used oil	PRO1	PRO2	PRO2	PRO2	Dev	Dev	Ret	Ret	Ret	Ret
Oil containers and filters	PRO1	PRO2	PRO2	PRO2	Dev	Dev				
Tyres	Gov[d]	PRO2	PRO2	PRO2	Dev	PRO2	PRO2	PRO2	PRO2[e]	Gov
Lead-acid batteries	Gov[f]									Ret
Paints	PRO1					PRO2	PRO2			
Solvents/flammable liquids	PRO1									
Gasoline	PRO1									
Domestic pesticides	PRO1									
Pharmaceuticals	PRO1									
Electronics		PRO2[g]			Dev					
Voluntary programmes										
Milk[h]		$	$				$			
Beer containers[i]	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1
Agricultural pesticides/ containers[j]	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1
Pharmaceuticals[k]		PRO1								
Rechargeable batteries[l]	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1	PRO1

Key: PRO1 = programme designed and managed by brand owners through their own producer responsibility organisation (PRO); PRO2 = programme designed and managed by a PRO established in regulation; Gov = programme managed by provincial government; Ret = retailers required to take product back; Dev = under development; $ = industry voluntarily subsidises public recycling programme

a Quebec's programme is for beer and soft drinks only. Other provinces have deposit–return requirements for all beverages except milk and milk substitutes.
b PEI also requires beer and soft drinks to be sold in refillable bottles.
c Producers required to provide partial funding for municipal multi-material recycling programmes.
d The BC Ministry of Water, Land and Air Protection manages the programme. Retailers collect tyre levies from consumers and remit those funds to the government.
e Retailers pay levies per tyre sold to a crown agency that provides recycling.
f Similar to BC tyres.
g Programme managed by Alberta Recycling Management Authority.
h The dairy industry subsidises municipal or depot collection in these provinces.
i The Canadian beer industry operates a voluntary deposit–return programme across Canada. See www.brewers.ca.
j Programme with 50% funding from industry (CropLife). See www.ec.gc.ca/epr/inventory/en/DetailView.cfm?intInitiative=68.
k Operated by the Pharmacists Association of Alberta.
l Programme funded by industry (RBRC). See www.rbrc.org/index.html.

TABLE 14.1 Canadian EPR programmes funded in whole or in part by producers and consumers

Sources: Environment Canada 2002, 2004b; CATRA 2004; Usedoilrecycling.com 2004; Alberta Environment 2004; Brewers of Canada 2003; Rechargeable Battery Recycling Corporation 2004

ulation. To date, all brand-owners have chosen to join producer responsibility organisations.[5] These industry PROs typically finance their programmes with levies that are set by the PROs and charged to consumers at the point of sale. PROs are required to make annual reports to the government on financial and material flows. Under the regulation the ministry may establish committees of up to 12 persons to provide advice on whether to approve stewardship plans. The new Recycling Regulation requires all programmes to establish and achieve recovery targets. The industry-initiated PRO is unique to British Columbia. In other provinces PROs are established through regulation, by government or by a crown agency. For this reason, British Columbia EPR programmes resemble voluntary programmes except that they are required to report to government and to meet environmental performance standards.

Alberta (pop. 3.0 million)

Alberta, the province directly to the east of British Columbia, has EPR programmes for beverage containers, tyres, used oil, oil containers and oil filters, and, most recently, electronic products. Alberta's EPR programmes are managed by PROs established by government and their powers and responsibilities are spelled out in regulations.[6] Alberta EPR programmes are financed with advance recycling fees that are set either in legislation (e.g. AB Reg. 94/2004 Electronics Designation Regulation) or by the PRO. These recycling fees are charged to consumers at the point of sale. Additional fees can be charged by the PRO to registrants (brand-owners of designated products). In addition to these regulated programmes, a voluntary EPR programme for milk containers is operated by the Alberta dairy industry, which provides subsidies to municipalities and depots that recycle plastic milk containers.

Saskatchewan (pop. 1.0 million)

Saskatchewan, the province directly to the east of Alberta, has EPR programmes for beverage containers, used oil, oil containers and filters, and tyres. Saskatchewan's beverage container programme is managed by a PRO which is a social service organisation, Saskatchewan Association of Rehabilitation Centres Recycling Division (SARCAN). SARCAN operates under contract to the provincial government. The SARCAN programme is funded in part with 'environmental handling charges' levied by the government on beverages at the point of sale. SARCAN also manages empty milk containers, receiving subsidies from the dairy industry under a negotiated agreement with the Saskatchewan

5 There are three PROs for different beverage types (the beer industry PRO is Brewers Distributors Ltd; the wine and spirits PRO is the BC Liquor Distribution Branch of the provincial government; the non-alcoholic beverage PRO is Encorp Pacific [CANADA]). The HHW products are managed by Product Care and the BC Used Oil Management Association, and pharmaceuticals by the Post-Consumer Pharmaceutical Stewardship Association.

6 Thus, the Lubricating Oil Material Recycling and Management Regulation establishes the Alberta Used Oil Management Association; the Beverage Container Recycling Regulation establishes the Beverage Container Management Board; and the Designated Material Recycling and Management Regulation establishes the Alberta Recycling Management Authority (this authority currently oversees EPR programmes for both tyres and consumer electronics).

government. The oil and tyre programmes are operated by PROs similar to those in Alberta.

Manitoba (pop. 1.1 million)

Manitoba, the province located between Saskatchewan and Ontario, is one of only two Canadian provinces that do not have a mandatory deposit–return system for beverage containers (the other being Ontario). In 1995 the Manitoba Multi-Material Stewardship Regulation[7] established a 2 cent levy on soft drink beverage containers (later expanded to all beverages except beer and dairy) and created a PRO called the Manitoba Product Stewardship Corporation (MPSC). The MPSC's role is to disburse funds from the levy to municipalities, reimbursing them 'on a theoretical 80/20 cost-share basis' for providing multi-material kerbside recycling. Manitoba municipalities are required to collect and recycle at least five designated products in order to be eligible for funding from MPSC. However, it has proved difficult to disburse municipal funding equitably (MPSC 2004). In 1998 a PRO called the Manitoba Association for Resource Recovery Corporation (MARCC) received authorisation[8] from the provincial government to operate an EPR programme for oil, oil containers and oil filters. In that same year another regulation[9] formalised an existing government-run tyre recycling programme and established a PRO, the Manitoba Tire Stewardship Board, to manage it. As in Alberta, this government-established PRO is made up of appointees from the industry and the provincial government. In 2001 Manitoba proposed a new regulation under the Waste Reduction and Prevention Act that would make producers responsible for collection and treatment of household hazardous waste (HHW) including consumer electronics. However, the regulation has not yet been adopted.

Ontario (pop. 11.7 million)

In the mid-1980s, Ontario was a leader in implementing municipal kerbside recycling programmes. Ontario's 'Blue Box' programme for collecting paper, bottles and cans was emulated by cities across North America. Uniquely, Ontario's kerbside recycling programme received funding from some of the producers of products collected for recycling. This was the result of an agreement between the Ontario government and the soft drink industry: the province would slash its refillable quota for soft drink containers on condition that the soft drink industry contribute Can$20 million over a five-year period to develop the Blue Box programme (Menzies 1997). Over time, funding from

7 www.canlii.org/mb/laws/regu/1995r.39/20040802/whole.html

8 A letter of approval was issued by the Manitoba Department of Environment in February 1998, under section 7 of the 'Used Oil, Oil Filters and Containers Stewardship Regulation' of the 'Waste Reduction and Prevention Act'. See www.ec.gc.ca/epr/inventory/en/DetailView.cfm?intInitiative=91.

9 The Tire Stewardship Regulation; see www.ec.gc.ca/epr/inventory/en/DetailView.cfm?intInitiative=101.

both industry and the provincial government was withdrawn and municipal governments were left sustaining what was becoming a costly programme[10] (Menzies 1997).

In 2002, the Ontario Waste Diversion Act established Waste Diversion Ontario (WDO), a permanent, non-government corporation whose mandate is to oversee the development of waste diversion programmes for specific wastes as requested by the Minister of Environment (OME 2004). To date, the Minister has designated four classes of products: 'Blue Box Waste'[11] already being collected by municipalities, plus lubricating oil, tyres and, most recently, electronics (all of the latter programmes are still under development). Companies selling Blue Box products in Ontario were required to register with an 'industry funding organisation' (IFO) called Stewardship Ontario by 20 April 2004, in order to fulfil their obligations under the Act. These companies are now required to contribute fees to Stewardship Ontario. The fees will pay for half of the municipalities' 'net cost' (after deducting disposal savings and any recycling revenues) for recycling Blue Box wastes. Ontario's EPR approach is predicated on the involvement of municipalities. Legislation adopted in 1994 requires all Ontario cities with a population over 5,000 to provide residential kerbside recycling of Blue Box materials[12] (OME 2004: 12). The proportion of system costs that brand-owners will cover for used oil, tyres and electronics had not been determined by late 2004, but it is expected to be higher than half.[13]

Quebec (pop. 7.4 million)

Quebec has had mandatory container deposit legislation for beer and soft drinks since 1984, with retailers responsible for taking back containers and issuing refunds. The programme is managed by a government-established PRO called Recyc-Quebec. In 1999 Quebec adopted an Action Plan that imposes on municipalities 'physical, economic, liability and informative responsibility' for achieving waste diversion targets (Environnement Quebec 1999). In December 2002, the Quebec legislature approved legislation (Bill 102) which transferred some of the economic responsibility to producers, establishing an EPR management structure similar to Ontario's. Producers will be required to subsidise municipal multi-material recycling programmes by paying fees to an industry funding organisation (IFO) that is approved by Recyc-Quebec. A separate IFO, Eco-Peinture, has been authorised under regulation[14] to collect fees and operate an end-of-

10 Producers (mainly soft drink companies) paid Can$41 million between 1985 and 1996 while municipal and provincial taxpayers contributed a total of Can$660 million to sustain kerbside Blue Box recycling.

11 'Designated Blue Box Waste' means packaging and printed materials that comprise metal, glass, paper, plastics, textiles or any combination thereof but does not include packaging or printed materials used exclusively for packaging products during their shipment from their place of manufacture to their place of distribution in Ontario, and packaging that is intended for continued use as packaging by the consumer over a period of five years or more. See www.ene.gov.on.ca/envision/land/wda/bluebox/rules2004.htm.

12 Regulation 101/94 required Ontario municipalities to collect five products (newsprint as well as glass, steel, aluminium and PET plastic food and beverage containers), plus two additional products chosen from a list of 12 products.

13 Personal communication with D. Bury, 19 October 2004.

14 Quebec regulation 655-2000. See www.ec.gc.ca/epr/inventory/en/DetailView.cfm?intInitiative=73.

life management programme for paint. Under this programme, brand-owners are not allowed to recover the 'eco-fee' from consumers except through price increases (in other provinces, PROs charge recycling fees as a separate line-item). Seventy per cent of the paint collection is done by municipalities at their own cost, 30% by retailers also at their own cost. Collected paint is delivered to a processing facility managed by Eco-Peinture. In March 2004 a new regulation came into effect that will authorise a similar programme for oil, oil containers and oil filters (Granda 2004). Quebec's paint and oil regulations establish recovery targets.

Maritime Provinces (combined pop. 2.4 million)

The four small eastern Maritime Provinces (Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland) have EPR programmes for beverage containers, used oil/containers/filters, tyres, lead-acid batteries and paint (not all Maritime Provinces have programmes in place for all of these products; see Table 14.1). In most Maritime Provinces EPR programmes are administered either by the provincial government or by a crown agency that acts as a PRO (e.g. Nova Scotia Resource Recovery Board). The programmes are financed with fees charged to consumers as a separate line-item at the point of sale. For beverage containers, only half of the container deposit is refunded; the rest is used by the PRO to subsidise other waste-related programmes.

14.2.2 Discussion

EPR programmes in Canada for end-of-life product recovery and recycling are well established. 'In Canada, we are past the point of discussing whether EPR is a good policy approach', says Duncan Bury, Head of Product Policy at Environment Canada's National Office of Pollution Prevention. 'There is enough of a track record of these operating programmes that there really isn't any question whether this is an appropriate kind of policy. We're now at the point of discussing how to make it more effective.'[15]

After starting out with a negotiated approach to EPR in the early 1990s, Canada has been much more aggressive than the US in recent years in establishing regulatory rather than voluntary EPR initiatives. However, Canadian policy makes an important distinction between government *regulation* and government *management*, which is explained by Environment Canada:

> Notwithstanding this high level of regulatory involvement, it is important to emphasise that few of the programmes are actually managed or implemented by government agencies. Most of the programmes in the inventory have evolved away from or have been designed from the outset to minimise direct government involvement in their management and operation (Environment Canada 2004b).

This approach is most clearly realised in British Columbia, as is illustrated by that province's 'product stewardship regulatory continuum' (Figure 14.2), which shows the BC government's intention of shifting primary responsibility for product waste management from government and taxpayers towards industry and consumers. Only scrap

15 Personal communication with D. Bury, 19 October 2004.

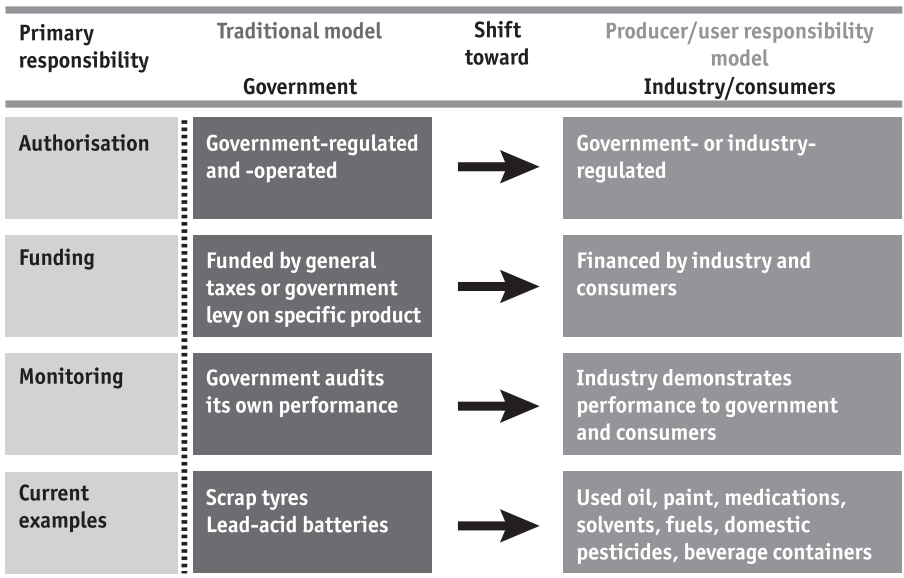

FIGURE 14.2 British Columbia product stewardship regulatory continuum

Source: BC MWLAP 2002: 4

tyres and lead-acid batteries remain under the old, government-managed model; eventually, they too are to be replaced with the producer responsibility model.

BC regulations do not prescribe the system for managing a particular product type; rather they require brand-owners to develop an EPR programme of their own and have it approved by the government. In theory, BC's regulation leaves the door open for new PROs to enter the market and for competition to reduce costs. If a new PRO can provide brand-owners with comparable take-back service at lower cost, there is nothing to prevent a brand-owner from joining that PRO. However, to date, BC PROs have operated monopolistically. The regulations of other provinces, on the other hand, establish PROs and define their powers, essentially prescribing what form the EPR programme will take. Monopolistic PROs are quasi-governmental organisations that function more like public utilities than businesses.

14.3 Extended producer responsibility (EPR) in the United States

EPR had a very different history in the US from that in Canada. After a promising start with container deposit legislation in the 1970s and 1980s, and scattered state take-back

legislation in the early 1990s, legislated EPR with physical or financial producer responsibility, transparency and accountability was absent until the environmental NGO community began to take charge of the agenda and organise public campaigns. We trace the development of EPR in the US chronologically, identifying three periods of roughly five years each.

14.3.1 Industry mobilises against EPR (1988–92)

Concern about solid waste was episodic throughout the 20th century, but in the 1960s and 1970s alarm rose to a level that began to prompt federal government intervention in what was traditionally a local matter (Melosi 1981: 195ff.). Federally mandated closures of municipal landfills and dumps during the 1980s raised waste disposal costs significantly. Then in 1986 and 1987 two barges wandered the Atlantic Ocean in search of a place to dump their waste cargoes—one loaded with New York City garbage, the other with Philadelphia incinerator ash—and medical debris washed up on the New Jersey shore. National media coverage of these events raised public consciousness of waste issues and seemed to demand action.

As a result, the late 1980s and early 1990s saw a spate of federal and state legislative activity on waste issues (US EPA 2004c). Some laws mandated 'manufacturer responsibility' (as 'producer responsibility' was called then) but more legislation was aimed at increasing municipal responsibility. State legislatures imposed obligations on local governments to reach specified waste diversion targets by specified dates—typically between 25% and 50% recycling or waste diversion by 2000. For instance, 42 states and the District of Columbia enacted such goals, which municipalities were expected to meet (Krause 2000). While municipalities invested in recycling programmes, industry mobilised against increased manufacturer responsibility at both state and federal levels.

Federal legislation for manufacturer responsibility was introduced in the early 1990s in both chambers of the US Congress. A national NGO, the Natural Resources Defense Council (NRDC), took the lead in lobbying for the federal bills, taking legislators to Europe to view first-hand early EPR developments there. The proposed National Recycling Act would not have mandated product take-back on the European or Canadian model; rather it focused on utilisation standards that obliged producers to develop end markets. The Act would have given industry a menu of options for meeting targets (Lifset 1995). When the bill came near a vote in conference committee, the small NGO coalition was no match for overwhelming industry opposition. According to NRDC's Allen Hershkowitz, environmental NGOs had made a strategic error by including too broad a range of commodities in the legislation. The result was a broad spectrum of industry vehemently opposed to manufacturer responsibility (Hershkowitz 2002).[16] They were already primed because they had fought and lost battles against recycled content mandates in US state legislatures and against EPR legislation in Europe. Moreover, environmental NGOs concerned about waste issues were not united around manufacturer responsibility as a priority at that time.

While federal legislators were considering national mandates, some states pursued manufacturer responsibility legislation of their own. Recycled content legislation,

16 Personal communication with A. Hershkowitz, 13 September 2004.

mostly for newsprint but also for plastic and glass containers and telephone directories, was adopted by at least 13 states, with another 15 states negotiating voluntary agreements (Lifset 1995). The 'rates-and-dates' legislative model created by the Council of Northeast Governors was adopted widely, setting targets and deadlines for recycling of specific products. Several rates-and-dates bills also targeted packaging manufacturers, requiring the use of recycled content in the event that recycling targets were not achieved. Such bills passed in California and Oregon, but in a major battle in Massachusetts rates-and-dates legislation was eventually blocked. After that the tide of state proposals receded.[17]

The early 1990s was also a time when states passed product-focused take-back legislation addressing management of used oil, scrap tyres and lead-acid batteries. Producer trade associations were successful in promoting model legislation that assigned responsibility to government, consumers or retailers—but not to themselves. For example, the American Petroleum Institute (API) promoted model legislation for used oil that utilises state monies or consumer fees to finance state funds that are used to operate used oil collection facilities. Seventeen states have laws based on the API model.[18] Similarly, the Rubber Manufacturers Association was instrumental in getting 35 states to pass scrap tyre legislation in which fees, collected from consumers by tyre dealers in most cases, fund government-managed tyre management programmes.[19] Finally, the Battery Council International (BCI) successfully promoted legislation for collecting lead-acid batteries used in cars and trucks. Unlike regulations for used oil and scrap tyres, lead-acid battery laws, which have been passed in 37 states, require retailers to take back used batteries (nine of those states require deposits on new batteries if an old battery is not turned in).[20] A common feature of the take-back programmes for all three products is the absence of significant responsibility, either physical or financial, assigned to brand-owners.

14.3.2 EPR is co-opted (1993–98)

After defeats in Congress and in Massachusetts, environmental NGOs turned away from legislating EPR. Several mainstream organisations turned instead to joint projects with industry.[21] The President's Council on Sustainable Development (PCSD), an industry-dominated forum established by President Bill Clinton in 1993, rejected EPR and promoted instead a 'new paradigm' of voluntary, shared responsibility, which it called extended *product* responsibility (Galeano 1997). Extended *product* responsibility was defined as 'a *voluntary system* that ensures responsibility for the environmental effects throughout a product's life cycle *by all those involved in the life cycle*' (PCSD 1996: 40,

17 Personal communication with R. Lifset, 13 September 2004.

18 See www.recycleoil.org/apimodel.pdf; www.recycleoil.org/backup/About_us.htm.

19 See www.rma.org/publications/scrap_tires/index.cfm?PublicationID=11121.

20 The only mention of producers in BCI's model legislation stipulates that manufacturers shall *not* be required to label the plastic resin used in their battery casings. See www.batterycouncil.org/BCIMODEL.pdf.

21 For example, Environmental Defense Fund seized an opportunity created by the grass-roots McToxics campaign and worked with McDonald's, starting the Alliance for Environmental Innovation; Hershkowitz and NRDC turned to developing a paper mill; National Audubon worked with McDonald's on composting (personal communication with R. Lifset, 13 September 2004).

emphasis added). The PCSD was successful in getting the US EPA to embrace the new concept (Davis *et al.* 1997), and key US academics participating in the PCSD also lent their support.[22] A PCSD stakeholder meeting on extended *product* responsibility in late 1996 was conspicuous by the near absence of environmental NGOs.

At this time international experience with EPR as a waste-reduction policy was developing rapidly. In 1994 the Organisation for Economic Co-operation and Development (OECD) began a series of international meetings aimed at developing guidance on EPR policies based on the experience of Member States. The US participated in the OECD process but its position on fundamental policy questions had begun to diverge from developing international norms. The US environmental NGO community had only a small presence at the OECD deliberations.[23] The final document of the OECD deliberations was *A Guidance Manual for Governments* (OECD 2001), which directed responsibility more pointedly than in the American 'extended *product* responsibility' model. While the document acknowledged that responsibilities under EPR are 'inherently shared' by retailers, distributors and consumers, it stated that 'there should be a leader or focal point assigned to organise and undertake action' (OECD 2001: 12), and that '[r]esponsibilities should be well-defined and not be diluted by the existence of multiple actors across the product chain' (OECD 2001: 28). The first guiding principle of EPR policies and programmes, the report noted, is 'to provide producers with incentives to incorporate changes upstream at the design phase in order to be more environmentally sound' (OECD 2001: 27).

In the mid-1990s, following from the new US federal policy direction, there was a shift from state legislative initiatives to lax voluntary initiatives encompassing the entire North American market. Sometimes national programmes superseded state mandates. For example, early in the 1990s, as proposals were circulating in Europe to ban cadmium in batteries, several states, including Minnesota and New Jersey, enacted manufacturer take-back requirements on nickel–cadmium (Ni–Cd) rechargeable batteries. In 1994, as the state take-back requirements were being phased in, the Portable Rechargeable Battery Association established a producer responsibility organisation (PRO), the Rechargeable Battery Recycling Corporation (RBRC), to manage a programme for the recovery and recycling of Ni–Cd batteries. RBRC launched the first industry-wide voluntary take-back programme in the US (and Canada) and set a goal of 70% Ni–Cd battery collection by 2001 (Fishbein 1997: 6-17). In 1998 RBRC moved the 70% recovery target to 2004 and stopped reporting capture rates (only the weight of batteries collected). Subsequently, RBRC simply stopped talking about rates altogether. By 2000, it was apparent that RBRC was grossly failing to meet the original targets it had set. The State of Florida, one of the few states to attempt to track environmental release

22 For instance, in 1994 Gary Davis of the University of Tennessee's Center for Clean Products and Clean Technologies organised a small conference in Washington, DC, attended by federal government officials and academics titled 'Extended *producer* responsibility' (Wilt and Davis 1995). The next year, Davis co-authored with S.F. Galeano from Georgia-Pacific and F.H. Brewer from S.C. Johnson a proposal to the PCSD's Eco-Efficiency Task Force entitled 'Extended *product* responsibility' (cited in Galeano 1997: C-11).

23 Bette Fishbein of INFORM, a New York-based research and advocacy organization, attended the OECD meetings on EPR and documented the 'debate' over shared responsibility and also the aversion of US industry participants to placing any responsibilities on brand-owners for end-of-life product management (Fishbein 1998; Fishbein *et al.* 2000).

of cadmium, calculates that the recovery rate of rechargeable batteries in 2003 was a mere 14%, and there was no reduction in the amount of cadmium discarded annually in rechargeable batteries between 1995 and 2003.[24] Using RBRC's own figures, INFORM estimated that the 2000 capture rate for Ni–Cd batteries was around 10% (Valencia 2002; see also NRDC 2003), and even that estimate may conflate industrial cadmium recycling that existed prior to RBRC's formation (Valiante 1999). But the legislative pressure was off in the US, and the European Union was retreating from banning cadmium. In the face of an extensive RBRC advertising campaign aimed at consumers, few people questioned the effectiveness of the programme or complained about the lack of transparency or accountability. RBRC has been touted in the US as a successful example of voluntary industry EPR. It was used, for example, as the model for a similar initiative by the National Electric Manufacturers Association to establish a PRO, the Thermostat Recycling Corporation (TRC), to recover mercury-containing thermostats (NEMA 2004). Like RBRC, TRC has no recovery targets and lacks transparency or accountability.

14.3.3 Environmental NGOs put EPR back on the US agenda (1999–2004)

Activity by US state and federal governments continued to focus on voluntary and negotiated initiatives as the 20th century drew to a close. The term 'extended *product* responsibility' was gradually phased out and replaced by the term 'product stewardship' by the end of the 1990s.[25] The Minnesota Office of Environmental Assistance (MOEA) was one of the early promoters of state-level product stewardship programmes, networking extensively with other state agencies. MOEA's product stewardship principles strike a compromise between amorphous 'shared responsibility' and focused producer responsibility by stating: 'The greater the ability of a party to influence the lifecycle impacts of the product, the greater the degree of responsibility the party has for addressing those impacts' (MOEA 1999). Two other organisations that work closely with state regulators are the Northwest Product Stewardship Council[26] (founded in 1998) and the Product Stewardship Institute[27] (founded in 2000). These organisations have also been attempting to negotiate voluntary product initiatives with industry. Along with the MOEA, they receive support from US EPA. Their priority products provide an indication of the range and scope of state and federal product-focused activity in the US (Table 14.2).

24 Personal communication with John L. Price, Florida Department of Environmental Protection, Hazardous Waste Management Section, based on 2003 data from the International Cadmium Association, 4 November 2004.

25 Personal communication with C. Lindsay, 7 September 2004.

26 'The Northwest Product Stewardship Council is a group of government organizations that works with businesses and nonprofit groups to integrate product stewardship principles into the policy and economic structures of the Pacific Northwest' (www.productstewardship.net/about.html).

27 The Product Stewardship Institute is affiliated with the Lowell Center for Sustainable Production at the University of Massachusetts in Lowell. 'PSI works with state and local government agencies to partner with manufacturers, retailers, environmental groups, federal agencies, and other key stakeholders to reduce the health and environmental impacts of consumer products. PSI takes a unique product stewardship approach to solving waste management problems by encouraging product design changes and mediating stakeholder dialogues' (www.productstewardship.us).

Priority products	EPA	MOEA	NWPSC	PSI
Electronics (computers and TVs)	✓	✓	✓	✓
Mercury-containing products				
Thermometers	✓		✓	
Thermostats	✓		✓	✓
Fluorescent lamps	✓			
Vehicle components	✓			
(Batteries)	✓			
Batteries (portable)	✓			
Medical products	✓		✓	
Carpet	✓	✓		✓
Packaging	✓			
Beverage containers	✓	✓		
Vehicles		✓		
Tyres			✓	✓
Apparel			✓	
'Emerging products'[a]				
Paint	✓	✓		✓
Pesticides	✓	✓		✓
Building materials	✓			
Radioactive materials	✓			✓
Propane tanks and gas canisters	✓			✓

a 'Emerging products' category is from EPA's website. EPA = Environmental Protection Agency; MOEA = Minnesota Office of Environmental Assistance; NWPSC = Northwest Product Stewardship Council; PSI = Product Stewardship Institute

TABLE 14.2 Priority products for US state and federal governments, 2004

Sources: US EPA: www.epa.gov/epaoswer/non-hw/reduce/epr/products/index.htm; MOEA: www.moea.state.mn.us/stewardship/index.cfm; NWPSC: www.productstewardship.net/products.html; PSI: www.productstewardship.us; websites accessed 12 November 2004

Initiatives promoted by these organisations focus on products with toxic components. Programme descriptions tend to highlight voluntary initiatives by single companies rather than sector-wide efforts. They have limited geographic coverage, may involve one-off collection events and consumer-pay return systems. Moreover, transparency is limited and consequences are lacking for failed commitments.

Several product categories were the subject of intensive negotiations in the US during the early 2000s, most with inconclusive results. The National Electronics Product Stewardship Initiative (NEPSI)[28] was a consultative process funded by US EPA that pri-

28 See eerc.ra.utk.edu/clean/nepsi/default.htm

marily engaged government and industry representatives. It was a response to European Union developments that eventually culminated in the 2003 Waste Electrical and Electronic Equipment Directive. NEPSI met for over three years (2001–2004) but disbanded without agreement. During the same period another multi-stakeholder process was addressing beverage container recovery, this time without direct government involvement. Businesses and Environmentalists Allied for Recycling (BEAR) met for two years, produced a report (BEAR 2002) and then disbanded without action. A third negotiation process, targeting carpet waste, did result in an agreement. Negotiations were initiated by the state of Minnesota's MOEA, funded by US EPA, and engaged state government officials and industry representatives from the geographically centralised US carpet industry. Negotiations led to a 2002 memorandum of understanding (MOEA 2002) and the establishment of a producer responsibility organisation called Carpet America Recovery Effort (CARE 2004a). The carpet agreement requires reporting of sector-wide recovery data and has resulted in significant design innovation to make carpets more recyclable. However, it contains modest goals (23–28% recycling and re-use by 2012), is not on track in meeting these goals, and lacks explicit consequences for failure to meet them.[29]

In the absence of effective and enforceable industry solutions, US environmental NGOs re-engaged in the debate about producer responsibility in the late 1990s and played an increasing role in drawing public attention back to producer responsibility. This time it was not mainstream organisations based in Washington, DC or New York that were active, but grass-roots groups and networks dispersed around the country. They launched campaigns that focused on brand-owners (e.g. Dell and Coca-Cola) and on state legislation because they saw little hope of action at the federal level. They also forged contacts with European and Asian counterparts. For example, in 1999 several US environmental NGO representatives attended a European NGO strategy meeting which energised efforts to organise campaigns for computer and mercury EPR in the US. In 2003, a US–Canadian coalition of environmental, labour, health and environmental justice NGOs, called the EPR Working Group, developed a set of EPR principles consistent with international standards (EPRWG 2003).

The Mercury Policy Project, the Clean Car Campaign, Health Care Without Harm and other organisations organised North American NGO support for phase-outs and bans on new mercury-containing products and producer take-back for historical waste (i.e. products sold before bans were implemented). By mid-2004, many states had considered, and about a dozen passed, legislation requiring labelling or banning of mercury in products ranging from thermometers to mercury-added novelty toys (US EPA 2004a). In 2001, Maine passed the nation's first take-back law for historical mercury-containing waste. Under the law, automobile manufacturers are required to label mercury-containing parts and must pay a bounty to auto salvagers that collect mercury-containing switches (Maine MPAC 2003).[30]

29 In the memorandum of understanding, government signatories reserve the right to use 'policy and regulatory tools as appropriate to bolster the agreement', but there are no explicit consequences for failure to achieve interim goals, other than that industry shall direct CARE 'to develop a detailed analysis with specific recommendations'. In its 2003 annual report, CARE reported that the industry had achieved less than a third (1.94%) of the 5.9% diversion goal for 2003 (CARE 2004b: 4).

30 Automakers pledged to phase out mercury in switches in 1995, but had not done so by 2004 (see Clean Car Campaign 2004).

Meanwhile, the Computer TakeBack Campaign kept pressure on brand-owners and state legislators to find EPR solutions, acting as a counterbalance to industry efforts to keep end-of-life management cost burdens with municipalities as much as possible (CTBC 2004). In 2003 California enacted SB 20, a computer recycling law that failed to assign significant responsibility to brand-owners, instead establishing a government-run programme funded with an excise tax. But the following year, the state of Maine enacted LD 1892 that required industry to take back and recycle discarded computer monitors and TVs that will be collected by cities and towns. This was the first state take-back law for electronics to assign significant producer responsibility for end-of-life electronic products.

Recycling activists in the GrassRoots Recycling Network (GRRN) and Clean Water Action of New England focused on EPR as the most effective strategy to eliminate waste. In the mid-1990s GRRN launched a campaign that pressured the Coca-Cola Company to start using recycled plastic in its containers, and in 2002 helped draft, for beverage containers, the first modern federal EPR legislation, which was introduced into the US Senate (US Senate 2003). Also in 2002, Hawaii became the 11th state to pass container deposit legislation—the first new state bottle bill in 16 years.

14.4 Governance

Mayntz (Chapter 1, this volume) suggests that 'governance' could provide an alternative to either the traditional hierarchical, bureaucratised command-and-control mode of environmental regulation, on the one hand, or the radical deregulation and privatisation exemplified by Thatcherism on the other. Governance, Mayntz explains, arrives at better solutions because it allows the regulated parties and other affected groups a greater share in shaping the rules under which they operate and permits a certain degree of self-regulation. As we have seen, British Columbia EPR regulations allow brand-owners to develop their own EPR programmes, as long as they meet the approval of the province.

Thomas Lindhqvist has noted how EPR policies appeal to both conservative and liberal political perspectives. Indeed, negotiation may provide an opportunity for traditional policy adversaries to disaggregate each other's positions and forge solutions that contain the best of both sides. From a fiscal conservative perspective, EPR makes sense because it gets waste management off the tax base and it is based on the notion that the market will drive programmes that are more efficient than government-managed programmes. Those of a more liberal bent support EPR because they believe that producers should have responsibility for pollution prevention. In Sweden, several Canadian provinces and elsewhere, EPR regulations have been implemented, maintained and strengthened by conservative governments. If public-interest organisations can come to accept industry's hopeful view that markets, rather than bureaucratic planning, will be the source of solutions to our environmental problems, can the business community be convinced that regulation is necessary to engage the market in this problem-solving activity?

Mayntz cautions that effective governance 'needs a sufficiently powerful state to motivate self-regulation that takes account of *public* interests and which benefits not only the participating actors themselves'. Governance, then, is 'not so much the loss of state control, as a change in its form' (Chapter 1, this volume; [emphasis in the original]). Governance and self-regulation can only be evaluated in the light of empirical results. To assess different approaches to EPR policy, the critical need now is for monitoring and meaningful targets. With increased reliance on voluntary initiatives and cooperative agreements to address environmental problems, little is known about their effectiveness. In part, this is a function of fundamental inattention to programme evaluation and obstacles to evaluation inherent in voluntary programmes (Harrison 1999). Moreover, in few cases have voluntary environmental approaches been found to contribute to environmental improvements significantly different from what would have happened anyway (OECD 2003). Hence, the environmental effectiveness of voluntary approaches is questionable. On the other hand, many existing regulatory programmes also lack explicit performance targets for evaluation, a deficiency that is now being addressed in British Columbia. As former US President Ronald Reagan said (in reference to negotiations with the former Soviet Union): 'trust, but verify'.

References

Alberta Environment (2004) 'Electronic Recycling Program Overview', www3.gov.ab.ca/env/waste/ewaste/index.html.

BEAR (Businesses and Environmentalists Allied for Recycling) (2002) 'Multi-Stakeholder Recovery Project Report on Beverage Container Recycling', www.globalgreen.org/bear.

BC MWLAP (British Columbia Ministry of Water, Land and Air Protection) (2002) 'British Columbia Industry Product Stewardship Business Plan 2002/2003–2004/2005', www.env.gov.bc.ca/epd/epdpa/ips/pdf/prodstew_plan.pdf.

—— (2004a) 'British Columbia Beverage Container Deposit Refund System' (updated August 2004), wlapwww.gov.bc.ca/epd/epdpa/ips/bev/index.html.

—— (2004b) 'The Financial Incentives for Recycling Scrap Tires (FIRST) Program' (updated 2004), wlapwww.gov.bc.ca/epd/epdpa/ips/tires/index.html.

BC RTEE (British Columbia Round Table on the Environment and the Economy) (1994) 'Local Round Tables: Realizing their Full Potential', Commission on Resources and the Environment, Fraser Basin Management Program, and National Round Table on the Environment and the Economy, www.nrtee-trnee.ca/Publications/PDF/Local-Round-Tables_E.PDF.

BC WRC (British Columbia Waste Reduction Commission) (1994) *Greener Homes, Cleaner Communities* (Vancouver: BC WRC).

Brewers of Canada (2003) 'Brewers of Canada Home Page', www.brewers.ca.

CARE (Carpet America Recovery Effort) (2004a) 'Annual Report 2003', www.carpetrecovery.org/annual_report/03_CARE-annual-rpt.pdf.

—— (2004b) 'CARE Home Page', www.carpetrecovery.org.

CATRA (Canadian Association of Tire Recycling Agencies) (2004) 'CATRA Home Page', www.catraonline.ca/index.html.

CCME (Canadian Council of Ministers of Environment) (1990) 'National Packaging Protocol', www.ccme.ca/assets/pdf/pckging_prtcol.pdf.

—— (1996) 'National Packaging Protocol 1996 Milestone Report', www.ccme.ca/assets/pdf/milestone_e.pdf.

Clean Car Campaign (2004) 'Automotive Mercury Releases to the Environment Reach Record Levels', in *Update* (Ann Arbor, MI: Ecology Center, www.cleancarcampaign.org/Mercury_April_2004.pdf).
CPA (Clean Production Action) (2004) 'EPR Toolkit', www.cleanproduction.org/epr/tool_kit.htm.
CPPI (Canadian Petroleum Products Institute) (2003) 'CPPI Used Oil Management Program', PowerPoint dated 12 May 2003, www.usedoilrecycling.com/html/about_on.htm.
CTBC (Computer TakeBack Campaign) (2004) 'CTBC Home Page', www.computertakeback.org.
Davis, G.A., C.A. Wilt, R. Thornburg, D. Droitsch and C. Dummer (1997) *Extended Product Responsibility: A New Principle for Product-Oriented Pollution Prevention* (Knoxville, TN: The University of Tennessee's Center for Clean Products and Clean Technologies; US EPA).
Driedger, R.J. (2002) 'From Cradle to Grave: Extended Producer Responsibility for Household Hazardous Wastes in British Columbia', *Journal of Industrial Ecology* 5.2: 89-102 (mitpress.mit.edu/journals/pdf/jiec_5_2_89_0.pdf).
Environment Canada (2002) 'An Inventory of Waste Diversion Programmes in Canada. Part 1: Programmes Funded in Part by Industry and Consumers', www.ec.gc.ca/epr/inventory/en/index.cfm.
—— (2004a) 'Extended Producer Responsibility', Extended Producer Responsibility and Stewardship website, www.ec.gc.ca/epr/en/epr.cfm.
—— (2004b) 'List of EPR and Stewardship Initiatives in Canada', www.gov.ns.ca/enla/emc/wasteman/epr/eprAndSI.asp, updated March 2004.
Environnement Quebec (1999) 'Quebec Residual Materials Management Policy, 1998–2008', www.menv.gouv.qc.ca/matieres/mat_res-en/part-5.htm.
EPRWG (EPR Working Group) (2003) 'Extended Producer Responsibility: A Prescription for Clean Production, Pollution Prevention and Zero Waste', www.grrn.org/epr/epr_principles.html.
EPSC (Electronics Product Stewardship Canada) (2004) 'EPS Canada's Plan for Addressing E-waste in Canada', www.epsc.ca/pdfs/EPS_Canada_BusinessPlan.pdf.
Fishbein, B. (1997) 'Industry Program to Collect and Recycle Nickel-Cadmium (Ni-Cd) Batteries', in G. Davis and C.A. Wilt (eds.), *Extended Product Responsibility: A New Principle for Product-Oriented Pollution Prevention* (Washington, DC: EPA Office of Solid Waste): 6:1-30.
—— (1998) 'EPR: What Does it Mean? Where is it Headed?', *P2: Pollution Prevention Review* 8: 43-55 (preprint available at www.informinc.org/eprppr.php).
——, J. Ehrenfeld and J. Young (2000) *Extended Producer Responsibility: A Materials Policy for the 21st Century* (New York: INFORM, Inc).
Galeano, S.F. (1997) 'Extended Product Responsibility: Origins of the Concept and Evolution of the PCSD's Approach to Shared Responsibility', in *Proceedings of the Workshop on Extended Product Responsibility*, Washington, DC, 21–22 October 1996 (summary available at clinton2.nara.gov/PCSD/Publications/EPR.html#framework): C3-C14.
Granda, P.R. (2004) 'New Quebec Regulation on the Recovery and Reclamation of Used Oil, Oils or Fluid Containers and Oil Filters', Gowlings, 8 April 2004, www.gowlings.com/resources/publications.asp?pubid=985.
Harrison, K. (1999) 'Talking with the Donkey: Cooperative Approaches to Environmental Protection', *Journal of Industrial Ecology* 2.3: 51-72.
Hershkowitz, A. (2002) *Bronx Ecology: Blueprint for a New Environmentalism* (Washington, DC: Island Press).
ITAC (Information Technology Association of Canada) (2004) 'Policy Advocacy and Environmental Issues', www.itac.ca/PolicyandAdvocacy/EnvironmentalIssues.html.
Krause, T. (2000) 'Short of the Goal, Ahead of the Curve', *Resource Recycling*, May 2000: 40-46.
Lifset, R. (1995) 'Extending Producer Responsibility in North America: Progress, Pitfalls and Prospects in the Mid-1990s', in *Proceedings of the Symposium on Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention* (Knoxville, TN: University of Tennessee Center for Clean Products and Clean Technologies).
Lindhqvist, T. (2000) *Extended Producer Responsibility in Cleaner Production* (PhD dissertation; Lund, Sweden: Lund University, www.lub.lu.se/luft/diss/tec355_transit.html).
Maine MPAC (Mercury Products Advisory Committee) (2003) 'Report to the Legislature', www.maine.gov/dep/rwm/publications/legislativereports/pdf/mercuryproductserport.pdf.

Melosi, M.V. (1981) *Garbage in the Cities: Refuse, Reform, and the Environment, 1880–1980* (College Station, TX: Texas A&M University Press).

—— (2000) *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present* (Baltimore, MD: Johns Hopkins University Press).

Menzies, D. (1997) 'Waste Blues: Curbside Recycling Reassessed', *The Financial Post Magazine*, September 1997 (www.web.net/~jjackson/wstblues.html).

MOEA (Minnesota Office of Environmental Assistance) (1999) 'Product Stewardship in Minnesota', www.moea.state.mn.us/stewardship/index.cfm.

—— (2002) 'A Memorandum of Understanding for Carpet Stewardship', www.moea.state.mn.us/carpet/MOU-020108.pdf.

Morawski, C. (1999) 'Caught NaPPing', *Solid Waste and Recycling*, October/November 1999 (www.solidwastemag.com/issues/ISarticle.asp?id=52367&story_id=SW72931&issue=10011999&PC=&RType).

Morse, W.F. (1908) *Collection and Disposal of Municipal Waste* (New York: Municipal Journal and Engineer).

MPSC (Manitoba Product Stewardship Corporation) (2004) 'Sustaining the MPSC Model: 2004–2007 Business Plan', www.mpsc.com/pdf/Business%20Plan%20Final%20February6final%20for%20web.pdf.

Murray, J. (2003) 'BC Leads Recycling of Electronic Waste', Victoria: Opinion Editorial, 18 November 2003, www2.news.gov.bc.ca/nrm_news_releases/2003WLAP0079-001026.htm.

NEMA (National Electrical Manufacturers Association) (2004) 'Thermostat Recycling Corporation', www.nema.org/index_nema.cfm/664.

NRDC (Natural Resources Defense Council) (2003) 'The Afterlife of Batteries', *On Earth*, Fall 2003 (www.nrdc.org/onearth/03fal/livgreen.asp).

OECD (Organisation for Economic Cooperation and Development) (2001) *Extended Producer Responsibility: A Guidance Manual for Governments* (Paris: OECD, browsable version available at www1.oecd.org/publications/e-book/9701041e.pdf).

—— (2003) *Voluntary Approaches for Environmental Policy: Effectiveness, Efficiency and Usage in Policy Mixes* (Paris: OECD).

OME (Ontario Ministry of the Environment) (2004) 'Ontario's 60% Waste Diversion Goal: A Discussion Paper', www.ene.gov.on.ca/programs/4651e.pdf.

PCSD (President's Council on Sustainable Development) (1996) *Sustainable America: A New Consensus* (Washington, DC: The White House, clinton2.nara.gov/PCSD/Publications/TF_Reports/amer-top.html).

Rechargeable Battery Recycling Corporation (2004) 'Rechargeable Battery Recycling Corporation Home Page', www.rbrc.org/index.html.

Seldman, N. (1995) 'History of Recycling', in *Encyclopedia of Energy, Technology and Environment* (New York: John Wiley).

Spiegelman, H., and B. Sheehan (2004) 'The Future of Waste,' *BioCycle* 45.1: 59ff. (January 2004; www.productpolicy.org/resources).

Statistics Canada (2003) 'Waste Management Industry Survey Business and Government Sectors 2000', March 2003, www.statcan.ca.

Steinway, D.M. (1999) 'Trashing Superfund: The Role of Municipal Solid Waste in CERCLA Cases', *CCM: The American Lawyer's Corporate Counsel Magazine* (library.lp.findlaw.com/articles/file/00333/005987/title/Subject/topic/Health_Poisons%20and%20Hazardous%20Substances/filename/health_1_630).

Thorpe, B. (2003) 'Beyond Recycling: Why We Need Producer Responsibility in North America', paper presented at the Berkeley Ecology Center 'Thirty Years of Curbside Recycling' Conference, 2003.

US EPA (US Environmental Protection Agency) (1999) 'Characterization of Municipal Solid Waste in the United States: 1998 Update', www.epa.gov/epaoswer/non-hw/muncpl/pubs/98charac.pdf.

—— (2000) 'Superfund 20th Anniversary Report', EPA 540-R-00-007, www.epa.gov/superfund/action/20years/index.htm.

—— (2003) 'Municipal Solid Waste in the United States: 2003 Facts and Figures', www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm.

—— (2004a) 'Mercury in Products: State/Local Initiatives', www.epa.gov/epaoswer/hazwaste/mercury/legislatn.htm.

—— (2004b) 'RCRA Statute, Regulations and Enforcement', www.epa.gov/compliance/civil/rcra/rcraenfstatreq.html.

—— (2004c) 'MSW State Data', www.epa.gov/epaoswer/non-hw/muncpl/states.htm.

US Senate (2003) 'National Beverage Producer Responsibility Act of 2003', thomas.loc.gov/cgi-bin/bdquery/z?d108:SN01867:@@@L&summ2=m&; www.grrn.org/beverage/jeffords.

Valencia, A. (2002) 'The Path to Zero Waste', *Terrain Magazine*, Spring 2002 (www.terrainmagazine.org/article.php?id=13068).

Valiante, U. (1999) 'Batteries Not Included', *HazMat Management Magazine*, December/January 1999 (www.hazmatmag.com/issues/ISarticle.asp?id=51623&story_id=HMX51623&issue=12011998&PC=&RType).

WCED (World Commission on Environment and Development) (1987) *Our Common Future* (Oxford, UK: Oxford University Press).

Wilt, C.A., and G. Davis (eds.) (1995) 'Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention', *Proceedings of the Symposium on Extended Producer Responsibility*, Washington, DC, 14–15 November 1994.