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Implementing an EPR program in the United States

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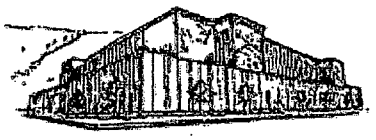

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IMPLEMENTING AN EPR PROGRAM IN THE UNITED STATES

by

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Implementing and EPR Program in the United States

Director: Dr. Nader H. Shooshtari Nader H. Shooshtari

Director: Dr. Nader H. Shooshtari Nader H. Shooshtariated in Germany in 1991. Ten years later, more than twenty-eight countries have implemented some type of an EPR take-back recovery program. Each country places a designated percentage of responsibility onto product manufacturers for the recycling of consumer waste and packaging.

Due to landfill shortage and decreasing quantities of raw resources, Americans became more conscious about recycling in the early 1980's. Although, recycling in American standards, placed end-of -life product recycling solely onto the consumer. Consumers have been responsible for the collecting, sorting through, and depositing recyclables, while also absorbing the cost of recycling through taxes. Placing the responsibility of recycling consumer waste and packaging onto consumers exist even today in the U.S.

In 1994, the European Union passed the Directive on Packaging and Packaging Waste. The Directive stated that all European Union members were required to recover at least 50 percent by weight of consumer and protective packaging. The result of the Directive was to make manufacturers responsible for the end-of –product life stage, by making manufacturers absorb the cost of recycling. In return, manufacturers would streamline product packaging and design innovative products from recycled materials.

Germany remains the only country with enough experience and data to distinctly examine EPR. Using a nonprofit company, Duales System Deutschland, recyclables bearing the company's green dot logo are collected, sorted, and directed to recyclers. Owners of the product brand name or fillers of the product absorb the cost of EPR program by paying the third party fees to use the green dot logo. The revenue is used to finance the green dot system.

Despite opposition and concern from both public and private agencies, EPR can be implemented in the United States. The key is to involve the consumer, private industry, and public organizations in the planning process. The main concern is cost, while the benefits of EPR need to be tangible and recognizable. Despite intangible benefits such as reducing pollution and using less raw resources, EPR needs to demonstrate benefits such as economic and monetary gains for both the private and public arenas.

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CHAPTER ONE

INTRODUCTION

The goal of this paper is to discuss the current U.S. recycling program in relation to the recycling programs in countries that belong to the European Union such as Germany that has taken its recycling program a step further by creating Extended Producer Responsibility (EPR). This will be done through a discussion of the overall recycling infrastructure in the United States and the current Extended Producer Responsibility efforts in European countries. The European Union member country, Germany, will be used specifically to present the global history of EPR, while other countries will be mentioned in order to discuss relevant EPR policies, definitions, and issues that pertain to U.S. businesses and consumers. Individual aspects of EPR are analyzed, and conclusions and recommendations concerning the implementation EPR are developed regarding the social, environmental, and economic conditions in the United States.

Extended Producer Responsibility

The concept of Extended Producer Responsibility for end–of-life packaging and products is spreading fast around the world. Currently, more than twenty-eight countries have "take-back" mandates for packaging, including twenty European countries and at least eight more in Asia.[1]Countries that have or will initiate EPR take-back recovery programs for recyclables and packaging by the year 2005 include, but are not limited to, Austria, Belgium, France, Germany, Netherlands, Sweden, Greece, Ireland, and Portugal. (Raymond 1998).

The responsibility of recycling post consumer products and packaging has historically been placed on the consumer. Consumers are responsible for collecting and transporting recyclables to collection sites or services and absorb the costs of recycling through taxes. Extended Producer Responsibility places the accountability of recycling on manufacturers, making manufacturers responsible for products throughout the product lifecycle and absorbing recycling costs, while governments are free to provide incentives and flexible mandates for the collection, proper disposal, and recycling of products and packaging. Therefore, EPR places the responsibility to collect and dispose of post consumer products and packaging on the packaging and product manufacturer and/ or name brand owner.[2]

The United States has adapted the fundamental principle of EPR by placing some responsibility on the producer by encouraging more recycled content products into the marketplace and creating laws and fines to prevent environmental disasters. The U.S. has diluted the responsibility of manufacturers in preventing pollution and conserving resources by extending financial and environmental responsibility to the consumer. Consumers not only pay for recycling programs, but also product packaging (by paying more money for the packaging and for its weight through shipping and handling) and clean up costs. While government regulations are techniques to impose environmental awareness to businesses, consumers are the stakeholders who are obligated to purchase, reuse, and recycle

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[2]Consumers are responsible partners in EPR by separating recyclables and often returning the recyclables back to retailers or dropping the products off at specified locations. Consumers, municipalities, and businesses become partners responsible for recycling.

consumer products and packaging. Tools such as refunds for depositing recyclables at the proper centers and environmental education are used as incentives to consumers to help volunteer in recycling. Therefore, the responsibility of recycling post consumer products and packaging has been placed chiefly on the consumers, while producers are able to continue to use wasteful packaging methods for products and use large amounts of raw resources.[3]

Under President Bill Clinton, the United States Congress accepted EPR to be an emerging pollution prevention and waste management program that focused on completing the total life cycle of products. The goal of EPR in the U.S. was to encourage producers to prevent environmental pollution and to reduce resource and energy consumption at each stage of the product's life cycle. Manufacturers and consumers were collectively thought of as "producers" of consumer waste and packaging. However, after the consumer purchases a product, the product manufacturer is not responsible for the product after its life-use ends. (U.S. Congress, House 1999). Most other countries such as Germany, adopt an EPR strategy to aid in finishing the two final recycling phases of collecting post-consumer products and the purchasing of post-consumer recycled content products. Along with making producers rethink their product's entire lifecycle, the program also eliminates the need to invest resources and to create consumer demand of recycled content goods.

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[3] An example of over packaging is best discussed through the example of how Germany and the United States package a tool such as a wrench. In Germany, a wrench is on display without plastic and cardboard wrapping, while in the U.S., the same wrench would be protected in a thick plastic cover and with cardboard.

By applying EPR voluntarily, and not by government regulation, or by continuing the current recycling program in its present condition, two major problems occur in the United States. First, producers are not encouraged to actually create products that are more environmentally sensible. That is, producers are not primarily using recyclable and recycled materials for production. Secondly, manufacturers view post-consumer waste as a byproduct from consumers, not by the manufacturers. Therefore, producers are not creating innovative products that are made from recyclable materials and use less packaging. If manufacturers primarily absorbed the recycling costs, less packaging would be used and innovative methods would be developed in order to lower production cost.

According to Bette K. Fishbein (1998), when recycling is understood as a taxpayer responsibility, corporations often do not make packaging recyclability a priority.

EPR would pass the cost of collection of recyclables and packaging on to the producers. Manufacturers would absorb the cost of collection and the separation of collected materials, the first two steps of recycling. By initiating these costs onto manufacturers, innovations and redesigning of packaging would hopefully follow.[4]

However, some American businesses have implemented EPR for a variety of reasons. Some are responding to mandates abroad such as The European Union Directive on Packaging and Packaging Waste passed in 1994, while some are installing corporate objectives to make products more environmentally friendly. A few even recognize that products can be valuable assets even at the end of their useful life. (U.S. Congress, House 1999). Whatever the reason companies decide

[4] Product and Packaging Redesign will be further illustrated later in this paper.

to implement EPR-based recycling programs, most wish to prevent similar mandates such as the EU directive to be applied in the United States.

The United States is one of the world's top producers, surpassing countries that have already implemented an EPR program. Recycling has been the first step to resource and energy conservation and a product of environmental awareness. It is now time to rethink how American businesses produce products and waste; to look at a product's entire life cycle. Recycling rates have slowed down, while businesses continue to produce astronomical amounts of packaging waste. By creating EPR, Germany is now considered to be the forefront of global environmental leadership, surpassing the United States, Canada, Japan, and even Sweden.

The country enacted a stringent manufacturers' responsibility law for packaging in 1991, which initiated the EU to pass its Directive on Packaging and Packaging Waste in 1994. The main catalyst for Germany's packaging law was the imminent shortage of landfill capacity. Germany's initiative shifted the cost of collecting, sorting, and recycling used packaging and other recyclables away form municipal government to private industry.

The intent of European Union's 1994 Directive's was to regularize national measures on package recycling, while EPR was established in European countries because of multiple reasons. Reasons such as to maximizing recycling without adding new taxes; diverting waste from landfills; creating new markets; and reducing packaging consumptions.

The United States faces these challenges with its own recycling programs. Therefore, this paper carefully analyzes EPR, while suggesting that EPR could be the foundation in improving the country's recycling infrastructure.

CHAPTER TWO

RECOVERY AND COLLECTION INFRASTRUCTURE IN THE UNITED STATES

Recycling History

In 1990, Americans threw away 195.7 million tons of ordinary trash, or about 4.3 pounds per person per day. The biggest component of consumer waste was paper and paperboard, which accounted for 37.5 percent, while the second largest component was waste clippings and leaves at about 17.9 percent. The next largest waste components were all metals, and plastic items, which accounted for 8.3 percent. Food waste and glass each accounted for 6.7 percent, while wood products accounted for 6.3 percent of materials sent to landfills. (Swanson 1994).

In addition, American businesses and their employees contribute heavily to the U.S. landfill problem. The average corporate employee is responsible for creating an astounding metric ton of garbage every year. Businesses without recycling programs send their wastes directly into landfill sites, while businesses that do recycle are only doing half the job. A mere 50 percent of paper and cardboard is netted in most corporate recycling programs. (*Recycling Works* 1997).

American state and local governments have enacted an array of measures in the past few years to attack the American garbage crisis. Some recycling laws

require residents to recycle, while other laws require cities and counties to establish and initiate voluntary recycling programs.[5]

Although, the results of a voluntary recycling program based on consumer demand can be seen as promising, is it enough? In 1995 as much as 30 percent of garbage collected was recycled. In 2000, an estimated 35 percent of garbage will be recycled, while in comparison, under German legislation, 80-90 percent recycling targets have been made for packaging materials.[6] Waste laws have been directed at state and county levels, but U.S. legislation has only so far created a federal solid-waste law concerning hazardous waste. The House and the Senate even proposed a bill to recycle up to 50 percent of recyclable garbage by the year 2000, and create the demand for recyclables, but for different reasons environmentalists, industry groups, and bureaucrats rejected this proposal.

The Elements Required for a Successful Recycling Program

The voluntary recycling process in the United States requires three essential elements. Collecting materials that could be recycled, but are usually thrown away is the first component of the recycling process. This element is extremely important to the recycling process, and is where consumers play a significant role. Consumers are generally responsible for recycling their waste, either at home or at workplace. The second element is manufacturing new products from collected materials and being able to finance a budget for recycling these

[5] In 1982, St. Louis Park, Minnesota, was one of the first municipal governments to initiate a curbside-recycling program to further enhance voluntary recycling participation by residents. The initial program ran with relative success throughout the 1980s, but St. Louis Park wanted to increase participation beyond 45 percent. In an effort to reach this goal, in December 1987 the city passed an ordinance that reward a $6.60 quarterly credit to citizens who recycled at least once a month.

[6] According to Franklin Associates, some individual categories are higher such as the U.S. aluminum industry. An estimated 65 percent of all aluminum cans are recycled annually.

materials. Purchasing these new recycled content materials is the third required element.

All three of these elements are equally essential for the success of recycling. The key points in successfully accomplishing the complete recycling process are to increase consumer participation and develop consumer demand. Despite the proposed environmental benefits that recycling can produce, consumers want cost benefits. Most consumers would like monetary rewards for physically collecting and transporting recyclables to recycling locations, while other consumers just do not have time to recycle. In addition, David E. Folz, the author of *Municipal Recycling Performance: A Public Sector Environmental Success Story*, states that there is an enduring concern by recycling program managers in getting residents to actually participate in recycling programs (1999).[7](See exhibit 1).

In addition, consumers want to be able to purchase high quality products for a reasonable price. Two issues that hinder consumers' demand for recycled goods are questionable cost and quality of recycled products. The cost of recycled content goods can be less or more expensive than non-recycled content products. For some of those products that are priced higher, life cycle costing is used to assess the true cost of a product (Connecticut 1998).[8] The quality and performance of recycled goods in the past were questionable, but with the aid of

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[7] To determine the extent to which cities encountered common recycling problems and how these changed in importance over time, recycling coordinators were asked to rate, on a five-point importance scale, the six factors in Exhibit 1.

[8] When comparing prices of recycled content products to their virgin product counterpart, unit price is not the only basis for cost comparison. Another factor is the life cycle cost. Some recycled products can save on maintenance or replacement costs, reduce the cost of disposal, and increase revenue from the recyclable waste materials collected. In a life-cycle cost analysis, these additional savings and revenue sources are factored into the initial unit price.

technology, the quality and variety of recycled products have come a long way. Similar to virgin products, performance requirements and specifications of recycled products need to be met in order to achieve high market quality goods.

U.S. Channels of Recovery and Collection for Consumer Waste

In the U.S., there are many methods of collecting recyclables, including residential curbside collection. Residential curbside collection, with the aid of technology, has lowered recycling cost and increased efficiency in some counties. Using curbside collection would be a key part in EPR and should be viewed as a channel for consumer participation in the collection of recyclable goods and packaging

Other methods include having recycling companies set up accounts with manufacturers, businesses, churches, schools, and other central locations for on-site recycling programs. Generally, recycling companies offer two or three types of collection services. However, there are some "third parties" or companies that specialize in one or a combination of commercial customers, single-family homes, or multi-family residences. Americans who live in counties that have curbside collection pay for third parties to collect their consumer waste: non-recyclable and recyclable. Other recycling companies offer no collection services and purchase large amounts of collected materials by other recyclers or collection services and process the purchased recyclable waste for shipping.

Another type of collection is through recycling centers such as the ones made popular in California. These centers are drop off sites where such items as

discarded aluminum cans, plastic bottles, and glass are dropped off for money. Consumers are therefore responsible for the collection and transportation of recyclable products and packaging. In Germany and other countries that have already implemented EPR, collection centers are also used. Even though monetary rewards are not offered, consumers participate primarily in the EPR program by depositing their recyclables at these collection sites.

While most recycling companies that handle a diversified list of materials have seen tremendous growth, volume in certain items can be temporarily low for a variety of reasons. With voluntary collections, monetary factors are usually the reason why volumes of collected items are low. There is a direct link between compensation and recycling when dealing with consumers. Generally, the demand and pricing of recyclable materials fluctuates with market prices. For example, collection companies will see a lower volume in plastics, while newspaper volumes would be well above the break-even point because the weight in newspaper is worth more than the weight of plastics. This element of recycling creates discrepancies in the program.

Degree of Volunteerism and Business Accountability

As discussed previously, many groups, including industries and politicians have diligently opposed the initiation of EPR in the United States. A truly voluntary approach to initiating EPR seems to be an abstract concept for the United States. American companies would only volunteer to participate in an EPR program if they were able to make a profit or gain a substantial marketing advantage by taking back and reusing their products. Corporations would have to

recognize that products can be valuable assets even at the end of their useful life.[9] EPR programs have shown that profits are not generated immediately, which could be the primary obstacle for EPR's acceptance by corporations in the U.S.

In addition, business-friendly legislators are less likely to pass environmental mandates and more likely to find ways to encourage market-based solutions to environmental problems.[10] This allows companies to freely continue their negative impact on the environment by not practicing environmental sustainability.

After analyzing many EPR programs around the world, Bette K. Fishbein has formed the conclusion that every EPR program implemented cannot be labeled as simply a mandatory or a voluntary program. She believes it is more accurate to think of initiated programs falling along a continuum from mandatory to truly voluntary. The initiation of EPR programs can be considered voluntary in some EU countries, but companies usually volunteer to accept EPR to preempt pending or future legislation. Other methods of initiation are driven by the threat of legislation, or result from agreements negotiated between industry and government (such as in Germany). As expected, industry argues for a voluntary approach to EPR, but sometimes countries are dissatisfied by the results of voluntary efforts. In Germany, voluntary efforts were not successfully meeting the country's EPR packaging goals, resulting in passing strict legislative mandates (1998).

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[9] An example of this Kodak's take-back of single-use cameras, where the company collects and recycles these cameras.

[10] The legislative battle for the Clean Air Act went on for ten years. "Government representatives have figured out they are better off providing incentives for environmental reform," says Ray Harry, a Washington based manger of environmental issues for Southern Co.

Germany shifted total responsibility for managing packaging waste to manufacturers, while in other countries such as France, municipalities remain responsible for waste collection and industry is made responsible only for the recycling of certain materials. Rather than a single producer remaining responsible as in Germany, various players can also be held responsible along the EPR program. That is, various actors in a product's life cycle share responsibility for its post-consumer stage, while either government or the producers allocate responsibility among the different industry players. Even in Germany, where the manufacturers pay the third party fees, municipal governments, retailers, waste haulers, recyclers, and consumers are all involved in the EPR program.

In order to have further success with recycling programs, it would be essential for manufacturers to do business in terms of corporate accountability, not just corporate accounting.[11] In particular, a company could audit its business not only based on economic prosperity, but also based on successfully assisting and sustaining higher social and environmental quality.[12] It is important to keep in mind that the aim of EPR is to send the right economic indication to businesses, while allowing companies to be flexible and innovative.

Another explanation regarding why EPR or any type of recycling program cannot be entirely voluntarily is the irregular involvement of consumer participation. According to David E. Folz (1999) cities with mandatory recycling

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[11] Corporate accountability, according to John Elkington, chairman of Think-Tank Sustainability, uses this term to describe how operations should audit their businesses based on the "triple bottom line" of social justice, economic prosperity, and environmental quality. Further, this change in accountability would reflect changing social values, changes in corporate governance, the globalization of markets, and a broader sense of corporate accountability.

[12] Higher social quality, for example, is for a company to aid in lowering poverty or spending money for programs that help its employees and their families (such as dependency programs).

strategies generally had higher rates of participation and lower rates of diversion to landfills. Consumer participation also increased where there were mandatory programs managed by a full-time recycling coordinator, which in effect promoted higher levels of diversion of recyclable waste from landfills. Also according to Folz, on average, recycling cost per ton were lower by 1996 for those cities that recycled larger volumes of materials, and had higher rates of recycling participation (See exhibit II).

Despite opposition, EPR needs to be recognized as a key response to human impact on our environment. Continuing to allow a volunteer approach to recycling for businesses is not the answer. A flexible EPR policy that focuses on accountability can create methods where corporations will be capable of structuring a low cost recycling strategy. By incorporating and continuing today's technological standards and cost-effective performances in American business, EPR can create a competitive advantage for international companies.

CHAPTER THREE

THE BEGINNING OF EPR

The 1994 Directive on Packaging and Packaging Waste

In 1994, The European Union passed the Directive on Packaging and Packaging Waste. The EU required all European members to recover at least 50 percent by weight of consumer and protective packaging. The material recycling rate must be 25 percent minimum, and with no material recycled at less that 15 percent. The Directive also sets the target of recovering 90 percent of packaging waste by 2004. Of this material, 60 percent must be recycled, giving a recycling rate of 54 percent and not more than a tenth of packaging can be land filled (Raymond 1998). The Directive is binding on national governments, not on individual companies. Companies are responsible for complying with legal requirements at the national level.

The intent of the EU's Directive was to regularize national measures on package recycling, while EPR has been established in these countries because of multiple reasons. The reasons are to maximize recycling without adding new taxes; diverting wastes from landfills; create new markets; and reduce packaging consumption.

National governments also are required to secure proper systems that are efficiently set up for the return or collection of used packaging, ensuring that it is effectively reused or recovered. Each country is allowed to set up its own economic instruments (taxes, deposits, or a combination) and each country can stress different types of packaging from different sources.

Extended Producer Responsibility in Germany

Germany remains the only country with enough experience and data to distinctively examine EPR. It enacted a stringent manufacturers' responsibility law for packaging in 1991, which prompted the European Union to pass its Directive on Packaging and Packaging Waste in 1994.

German industry responded to the 1994 Packaging Directive by creating what is known as the Dual System, or Green Dot System, which takes back and recycles packaging waste. A nonprofit company, Duales System Deutschland (DSD), operates the system while charging a fee to use its logo, the green dot.[13] Packaging bearing this symbol is collected, sorted, and directed to recyclers by DSD. Collection and recovery fees are based on the material collected and the weight of the packaging. The owner of the product brand name, or "filler" pays for the cost (Fishbein 1998).

German households have two bins, one for non-recyclable trash and one for packaging and recyclables such as glass and paper. Households pay their municipality to collect the non-recyclable trash, while DSD collects the packaging materials for free.

Germany does have the most expensive EPR system in the world, but it is considered to be at the forefront of global environmental leadership, surpassing the United States, Canada, Japan, and Sweden. Germany's initiative requires a high 80 percent recycling rate quota. Due to quick initiation, Germany's industry had little

[13] A company will pay the DSD for every package it puts on the German market. The DSD uses the revenues to finance the Green Dot System.

time to implement its Ordinance. Because of this, and despite incorporating environmental cost into production cost, Germany has ended up with the highest recovery costs in the world. Overall, Germany's laws were initially the drivers in reductions of packaging and landfill diversion, but economic profits have aided in its environmental efforts.

Klaus Topfer, once the German Environmental Minister and now head of the United Nations Environmental Program, predicted that EPR would stimulate new recycling technologies. Germany, by becoming the forerunner in environmental technology would enhance its competitive position and become the major exporter of environmental technology. Becoming highly environmentally conscious has not been seen as an impediment to commerce, but as a stimulus.[14] Germany citizens, businesses and government have concluded that a robust economy and a safe environment go "hand-in-hand." One leads to the other. Edda Muller, chief aide to Germany's minister for the environment, states, "What we are doing here is economic policy, not environmental policy" (Moore 1992).

Results of German Initiative

Official statistics indicate a long-term trend of decreasing packaging consumption following the initiation of Germany's packaging ordinance. Between 1991 and 1995, packaging consumption was decreased by one million tons, or 11 percent. Landfill diversion of packaging in Germany reduced packaging going to

[14] In the mid- 90s, while power plant companies in the United States continued to bicker over the details of acid rain, Germans were selling Americans and the rest of the world antipollution technology and intelligence.

landfills by about 60 percent (Raymond 1998).[15] Though, Germany's focus was not only on reducing the need for disposal after production and use, but also on moving toward a new way to design products and packaging. EPR was designed as an incentive for producers to make less wasteful and more economical recyclable products and packaging.

Elimination of unessential packaging such as box enclosings and increased use of concentrates and refill packs have resulted.[16] As Topher predicted, the Packaging Ordinance has also stimulated development of new sorting and recycling technology. Germany is also licensing some of its new technologies in Japan. Germany expects major increases in exports within Europe and to Asia. Its country's exports of environmental technologies are only slightly less than that of the U.S., but the U.S. has an economy and population three times as large as Germany (Fishbein 1998).

The Green Dot System has produced both environmental and economic benefits, but these benefits have cost Germany a high price. In 1996, the system cost $2.2 billion for 5.5 million metric tons of collected materials (U.S. equivalent is $356 per ton). With an estimated population of 80 million, Germany is paying $28 per person per year to operate the system (Fishbein 1998).

As expected, controversy surrounds Germany's EPR initiative. An industry group called the European Recovery and Recycling Association (ERRA) opposes

[15] In contrast, during the same period, the throwaway packaging discard generation grew about 13 percent in the U.S., while the U.S. also managed to only divert about 4 percent of recyclable consumer waste from landfills.

[16] DSD reports show that Green Dot packaging decreased 14 percent from 1991 to 1995, while total packaging decreased 7 percent. Reports also show an increase in packaging recycling from 52 percent in 1993 to 84 percent in 1996. There has been a large increase in the recycling of plastic packages, reported in 1996, while plastic package recycling was under 10 percent in the U.S.

the Green Dot System because of its collection requirements of "fast-moving consumer goods" such as packaging. "The ERRA states that applying EPR to packaging is too expensive and has no clear environmental benefits, and that it increases bureaucracy, and that it results in fragmented waste collection," writes Bette K. Fishbein (1998). The ERRA objective is to end EPR by making consumers, rather than producers, manage collection and absorb collection cost of packaging waste.

Another group opposed to Germany's EPR strategy are the environmentalists. Environmentalists do not trust the industry to properly manage the Green Dot System because they do not believe that industry keeps the interest of the environment in mind. The group also favors stricter bans on beverages in non-refillable containers and on plastic packaging. Environmentalists want a higher mandated refillable rate, and plastic is one of the most difficult materials to recycle.

Germany's zealous collection of post-consumer materials left the country with stockpiles of used packaging. Consumers dutifully collected materials, but landfills were not equipped with the amounts of materials collected. In comparison, to Germany's high-rate recovery program, recycling industries in many other countries are at a huge disadvantage. Germany subsidizes materials, upsetting the recycling industry in other EU member countries. Germany's Green Dot System was also under scrutiny because some believed it restricted free trade. However, Germany resolved its stockpile issue by increasing its own recycling

capacity. Klaus Topher has acknowledged that an attempt to move "too fast, too far" has caused many growing pains. (Moore 1992).

Standardization of Packaging Design and Quality

Although Germany's Green Dot System almost reached bankruptcy and complications surfaced from moving too fast, EPR has spread quickly around the world. EPR is usually first applied to packaging and then other products in other countries. The foundation of EPR is to make companies accountable for the process of setting up, initiating, and building the post-consumer stage of products. Therefore, multi-national companies are given incentives to produce and redesign less wasteful and more recyclable products and product packaging. EPR can provide an important economic incentive to drive product innovation toward more efficient resource use, leading the way for EPR to become a business-based program.

In 1994, the EU issued its own Packaging Directive in order to harmonize the packaging policies in Europe. The directive states that each country should reach targets of recycling 25 to 45 percent of packaging waste, with a minimum of 15 percent for each packaging material by the year 2000.[17] Each country can require a higher percentage as in Germany or Sweden, while the level of mandated recycling rates and time frame for achieving recycling rates differ across every country. [18] Throughout, the directive tries to balance the environment with the

[17] As of 1996, the EU legislation needed at least two years to figure out technical standards, and in defining what substances would be legal in packaging and in what quantities.

[18] Sweden enacted laws in 1996 to implement the EU Directive on Packaging. After 2001, the country will require 90 percent of aluminum, 70 percent of glass, 65 percent corrugated materials, 30 percent of plastics, and 15 percent of wood to be recycled. Being influenced by Germany's Ordinance, Sweden has become highly environmentally aware.

economy.[19] Countries such as Ireland, Greece and Portugal have been given lower targets. Countries wishing to recycle more than 65% of packaging may do so only if they have the facilities to use it. All EU member countries will ultimately have EPR systems for packaging, while most countries already have packaging policies in operation, and others are still developing their own.

Despite the packaging Directive in 1994, many variations of EPR programs for packaging exist. There are eight major differences across the fifteen European members, and among other countries such as Poland, Hungary, the Czech Republic, and Asian countries. Such variations relate to the allocation of responsibility between government and industry players, what packaging and consumer waste and materials count as recyclable, types of collection facilities and methods used, whether deposit/refund provisions are used, and whether implementation through third party organizations should be employed (Fishbein 1998). These variations bring both confusion and higher costs to multi-national companies wanting to do business in countries that have implemented the EPR recovery system.

Despite these differences in recovery of packaging, some EU countries have used Producer Responsibility Organizations (PROs) to improve the coordination and collection of packaging. Eight countries, which belong to the organization PRO EUROPE, now license the "Green Dot" symbol originated in

[19] Balancing the environment with the U.S. economy will be extremely important to manage for the success if EPR, and discussion of this issue will be discussed later in this chapter.

Germany.[20] The Green Dot symbol standardizes the system which forces companies to calculate packaging tons and pay fees, while creating a network for communication between the eight countries. However, each country has differences in fees and packaging requirements. The key point is that the countries do communicate with each other, leading to the possible standardization of the PRO EUROPE Green Dot system. If this system was harmonized so companies could submit one form and one set of data, compliance would be improved and costs would eventually go down.[21]

The Effects of the EU Mandate on the United States

American businesses are concerned with the cost of the Extended Producer Recovery systems in European Union countries. According to speakers at the first "Take It Back" workshop which took place on November 12, 1998 in Chicago, Europe's complex take-back recycling laws are costing the American industry millions per year in fees, data collection, and package tracking (Burget 1997). For example, in order for an American metal manufacturer to do business in Europe, it must join and pay fees to a third-party collection organization, or the company will get its own packaging back.[22] Paperwork can double the cost. By not tracking these developments firms face a genuine liability. Firms that do not pay the third party fees can be found liable and pay fines and back fees, and they may even face prosecution.

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[20] The eight countries that currently belong to PRO EUROPE are Germany, Norway, Portugal, Belgium, Ireland, France, Austria, and Luxembourg. Within the last five years, Canada has remained open to the possibility of considering the Green Dot system.

[21] In some countries, the Green Dot system is too expensive. It costs more to calculate the fees for each company than the fees themselves.

[22] It is estimated that it takes an average of $500,000 for a large multi-national steel company to set up a package tracking system and calculate fees in Europe, while another $100,000 is spent per year to maintain the tracking system.

Multinational companies must also face packaging regulations. A package must be source-reduced; recyclable or reusable or safe to burn; and must not negatively impact any of the country's recovery systems. Packaging that cannot be justified on protection, safety, or marketing grounds is banned. Germany is a conclusive example of this.[23]

The majority of costs to multinational companies have resulted from the variations of EPR programs and the management of packaging and recyclables such as the ones listed above. Despite taking on many different forms, EU countries share several distinct elements in their EPR policies. One is to extend responsibility to the post-consumer stage. A second element is that the responsibility of the producer is always physical or financial. Also, guidelines that are set up require specific recycling rates, define what constitutes as recyclable, and require data collection and reporting.[24] The variations within these three elements have proven to be most costly for multinational businesses.

Differences in policies about identifying the producer are erratic across countries. In Germany, fees are paid exclusively by the owner of the brand name. The filler of the packaging, not the company who produces the package, pays the collection and recycling fees. In other economies, all active participants share responsibility uniquely in the product life cycle. For example, the United Kingdom

[23] The country has banned the sale of goods from companies who do not cooperate with the EPR mandate, while most outer secondary packaging has nearly disappeared in Germany. Concentrates and refillable beverage containers are popular, where pouches are used more in Germany than in the U.S.

[24] Defining what materials are recyclable deals with non-toxic or toxic materials, and what materials certain economies can support to recycle.

has assigned its players percentages of responsibility for the collection and recycling of packaging waste.[25]

Guidelines, which are generally set up by governments, also vary between countries. Policies on recycling rates, on what consumer waste and packaging constitutes as recyclable, and reporting collection data are as confusing as their cost. Multi-national corporations are responsible for understanding and following each unique policy. Variations related to types of collection facilities and methods are used, whether deposit/refund provisions are used, and whether implementation through a third party organization are employed, add to the perplexity of doing business in EPR markets (Fishbein 1998).

In the U.S., EPR represents higher accountability, cost, and interruptions for its industries. Most industries take on the position that the consumer should continue to assume the financial responsibility for consumer waste and packaging management, since it is the consumer that is thought to be the polluter. With this mind, it is not hard to see the struggle and conflict of implementing EPR in the U.S.

Some progress, however, has been made toward implementing EPR in the U.S. Despite its controversy, EPR is actively being implemented in the United States, and is bringing about significant changes in some products and their associated environmental impacts (U.S Congress, House 1996). In many cases, changes are occurring at multiple stages in product life cycles: during manufacturing, during product use, and at the end of the product's useful life.

[25] Each industry participant is allocated a specific percentage of responsibility. For example, 6 percent is allocated to raw material processors, 11 percent to converters, 36 percent for packers and fillers, and 47 percent for retailers.

Though EPR is not yet a standard way of doing business in the United States, the President's Council on Sustainable Development and The U.S. Environmental Protection Agency agreed that the idea must spread to more products and players in this country (1996). Despite this support, U.S. industries continue to resist the spread of EPR into mainstream business practices, and continue to defend traditional recycling management practices.

Packaging Issues in the United States

In the U.S., packaging is designed to attract attention. Unique packaging is stressed for marketing reasons, while packaging can also protect items from being stolen. Packaging and product design also are important to ensure quality. Firms that recognize the importance of designing products and manufacturing processes to ensure quality could also design products and processes to reduce or eliminate their negative impact on the environment.

Corporations can accomplish a "pollution prevention" strategy rather than focusing on the traditional method of cleaning up after a pollution crisis occurs (Feltes and Fink 1996). According to Patricia Feltes and Ross L. Fink (1996), there are three strategies to accomplish "pollution prevention." The first strategy is to design the product to eliminate or reduce the use of production processes that are harmful to the environment. The second strategy is to eliminate environmentally undesirable materials from both the product and the production process. Eliminating these materials from the product make it easier to either recycle or dispose of the product when it reaches its end of life stage. The third strategy is to make it easy to recycle or dispose of the product when its useful life ends. One

procedure, which makes it easier to separate the different types of materials in a product so that the product can be recycled, is what Feltes and Fink refer to as "design for assembly" (1996).

These techniques, and the standardization of packaging design and content should naturally be incorporated into a U.S. EPR policy. As Bette K. Fishbein has pointed out, "A company that must pay to recycle its product and packaging has a strong incentive to design for recyclability"(1998). This is what many multi-national companies are faced with when dealing with members of EPR. In the U.S., it is the consumers' responsibility to recycle, but as American companies do business with member s of EPR, EPR begins to affect the way they design and produce their products and packaging.

As EPR spreads throughout the world it is important to ensure its success through effectiveness and efficiency. The standardization of packaging design and content is extremely important in order to maintain EPR and its expansion into new countries. It is important to continue allowing each municipality to control its EPR system, but it is equally necessary to create an EPR system that promotes free trade and competitive business. EU laws will eventually not only control packaging recovery, but also standardize packaging design and quality, while promoting transnational business practices.

A common thread among all countries that have initiated EPR is that industry must ensure the markets for collected materials. Governments do not want to interfere with these markets by requiring recyclables to be used. In the U.S., recycling is under complete control of the government, where it is responsible for

creating the markets for collected materials.[26] Each state is left to do its own thing. There are about 500 recycling laws on the books, but few of these laws affect manufacturers. Most laws are created to help create "markets for recycled materials that are collected at curbside or drop-off programs (there are an estimated 9,000 such programs). There is a connection between markets and the success of recycling programs. As with each unique country that is involved with EPR, each state in the U.S. will need to carefully balance its environmental and economic interests and its facility to use consumer packaging and recyclables. However, despite the necessity to understand and respect each state's differences, recycling initiatives should be decided on a federal and more central level where states are not in competition with each other.

[26] It is important to note that only Germany and Austria have 100 percent producer responsibility for packaging costs and collection. Other countries allow government, industry, and consumers to take on the responsibility for EPR.

CHAPTER FOUR

U.S. STAKEHOLDERS INVOLVED

Certain conditions pose as obstacles to a successful EPR program in the U.S. In order to implement an EPR program in the U.S. all stakeholders must be considered and factored into the actual implementation process. Further, it is extremely important to enhance and increase stakeholders' influences into the implementation and maintenance of an EPR program in the U.S. According to The President's Council on Sustainable Development American stakeholders (1999), include federal, state, and tribal governments; community-based and environmental organizations; and the private sector. These stakeholders must cohesively work together to empower communities with the tools they need to develop an enduring and solid EPR curriculum. In addition, it is important for the U.S. to create synergies with international environmental programs and to evolve with international EPR standards.

U.S. Government Environmental Policies

In order to overcome major obstacles from the execution of an EPR program, stakeholders need education, technical, and financial assistance. The U.S. government would need to align its environmental programs with the economy.

The current national environmental protection system has achieved a degree of success by initiating recycling programs and by requiring manufacturers to control emissions of pollutants. However, it is time to consider implementing new approaches in order to evolve with social, environmental and global issues.

"After decades of evolving environmental regulation, there is a growing variation in the way different organizations perform," stated the President's Council (1999). Some companies focus on simple compliance, while other organizations have internalized the need for environmental business practices. Some businesses need a great deal of assistance in order to meet environmental requirements. (US Congress, House 1999). At the local level, communities that started recycling programs had to cancel them only because of lack of budgetary and political support.

Further, economic growth and increased environmentalism cannot occur without a commensurate increase in employment opportunities (US Congress, House 1999). EPR can create employment opportunities through multiple means. Recycling research and development, recovery and transporting of recyclable consumer waste and packaging, and the engineering and maintenance of EPR throughout communities will create many jobs.

The government would be responsible for creating an EPR program that considers all stakeholders and that will function in parallel with the economy and American social conditions, along with evolving international EPR standards. Besides understanding who or what group is responsible for the allocation of responsibility, it is also necessary to decide to what degree industry players should be held responsible for the EPR system. Where consumer responsibilities in all EPR programs around the world involve separating recyclables and returning them to collection sites, the allocation of responsibility of industry players such as retailers, packers and fillers, and raw material processors is more complex.

Legislatures would also need to promote EPR by assigning appropriate levels of care to those who have the greatest capacity for stewardship in the life cycle of a product. Organizations that lead in research, development, and application of recycling and using lower resources should be supported and rewarded. Large corporations and industry leaders need to be encouraged to adopt EPR practices, while setting examples for other U.S. companies. Strategies that provide a framework and incentives for an EPR program should be sensitive to business size, differences, and channel infrastructure in players' communities.

Private Sector Considerations

In order to be considerate of business size and industry differences, performance measures and compliance need to be somewhat flexible and supportive for businesses. Factors such as size, information sources, technological advances, level of competition in their business sector, and how many players are involved in getting the product to the consumer should be considered. More actors in the channel structure require a thoughtful allocation of cost and responsibilities of those players. Therefore, responsibility of an EPR program should remain shared between the private and public sector, and among the different members of the distribution channel for the product.

According to Bette K. Fishbein (1998), EPR programs throughout Europe shift sufficient responsibility to those with the greatest potential to generate the actions needed to move toward a sustainable pattern of material and resource use. As mentioned in the previous chapter, Germany shifted almost full responsibility for packaging to industry members. The French government made municipalities

responsible for consumer waste collection and industry is made responsible only for the recycling of certain materials. Britain exemplifies shared responsibility between industry actors along the product chain. Each industry player is allocated a specific percentage of the responsibility for a product's life cycle.

In order to make the most powerful incentives for EPR, the government would require all individual producers and manufacturers to recover and recycle their own products. This is not reasonable, or economically feasible for producers of such goods as low-value, high volume products. EPR policies usually permit producers to form "producer responsibility organizations" (PROs), which enable them to fulfill these requirements collectively (Fishbein 1998). [27] Industry groups can form PROs in order to collectively share the responsibility and decision making of collecting and recycling consumer waste products and packaging.

With the initiation of the EPR program in Germany, the country's government also created competition among businesses by having each absorb the cost of recycling packaging and consumer waste products. This system created a natural economic competitiveness among businesses. Corporations had to streamline their packaging in order to remain competitive in their industries. Increased incentives overall can reduce cost through innovation, while technology and information systems can allow companies to change more rapidly and become more innovative in production processes and product design and packaging. We

[27] Within the U.S. a form of PRO is already set up among players in the battery industry. The Rechargeable Battery Recycling Corporation takes-back Ni-Cd batteries. The RBRC and private industry set up the fees and the revenues are also used to finance the recovery and recycling system. Revenues collected could also fund recycling research and development and the engineering and maintenance of EPR throughout localities, which would be similar to PRO's in Germany.

could expect the same events with U.S. companies if the government initiated allocation of responsibility among industry players.

Incorporating the Value of Community and Environmental Performance

An EPR program also needs to incorporate the value of community and place in the U.S. Communities differ in size, ability, sophistication, and understanding of environmental issues. Therefore, implementing EPR in American communities involves sensitivity to such communal differences. According to David Folz (1999), citizen altruism was a major reason for the success in some voluntary recycling programs. Cities that established a recycling goal to be achieved sooner than later, had higher participation in their programs. Convenience such as same day pick up scheduling and free curbside bins are also essential for a recycling program that aims to have a high community involvement. Such conveniences also need to be established for an EPR program in the states.

In different parts of Europe, different approaches have been adopted by the industry. In Germany, aluminum cans are collected through the Duales System, which is funded through returnable levies on packaging. In other European countries, aluminum cans are collected solely through local municipalities. Altogether, different collection methods run parallel with each other across Europe (Penson 1995). The recovery of recyclables in the U.S. should be similar to Europe's approach to recovery among EU members. The consideration of differences among EU members is similar to those among individual states in the U.S., where each European country is recognized as having a unique recycling and recovery infrastructure, and local economy.

As with all environmental management programs, EPR needs to have effective methods in place so that environmental performance can be measured, and political, private, and public confidence in the system are ensured. The cost of recycling is the greatest barrier for cities implementing their own program. The environmental benefits of recycling and the need for landfill space are not enough to continue recycling for some political officials. Budget coordinators rank the cost of recycling versus the cost of solid waste disposal and recycling's popularity among politicians as top issues in budget discussions. Further, environmental programs at the local level have to compete with other local programs for support[28] (Folz 1999). An analysis of the cost and benefits of recycling and the breakdown of the recycling cost structure will be discussed in a later chapter. The importance of this issue is that EPR provides extremely significant environmental benefits, which to some supersede all costs that are involved with an EPR program. In order to establish an EPR program in the U.S., environmental benefits are required, but to gain support on both political and private levels, cost-effectiveness and performance are also needed.

EPR Success and Stakeholders' Participation

In conclusion, the study by David Folz (1999) suggests that recycling has had a strong record of success in diverting more recyclables from landfills; national growth in recycling increased from the rate of 9 percent in 1989 to 28 percent in 1996. His study indicates that it is through environmental awareness and

[28] According to David Folz's article, local managers of recycling programs were unable to document the cost and benefits of recycling. Managers have to demonstrate a recycling program's performance and cost-effectiveness to win official support.

participation (through voluntary or mandatory means) by consumers that the rates of recycling have increased. However, it is the lack of political support and recycling's intrinsic benefits versus its budgetary requirements that have hindered recycling's further growth. This is where EPR prevails. EPR changes the traditional methods of recycling and actually places responsibility on federal agencies and the private sector while also using drop- off sites and curbside recycling channels (two major consumer participation methods in recycling). The U.S. voluntary recycling system seems to be "maxing" out (Raymond 1999). Because of recycling rates flattening out and the need to make recycling and its new markets a long-term interest for industry players, the initiation of EPR into the U.S. needs to be actively looked at and not disregarded.

CHAPTER FIVE

INCENTIVES AND RELATED COSTS

There are several drivers for initiating EPR in the U.S. that have been detected and discussed by Bette Fishbein (US Congress, House 1999), the Senior Fellow of INFORM.[29] [30] By using Fishbein's research, it is possible to demonstrate that EPR can be incorporated into American business practices. Further, it is possible to discuss several incentives and benefits that EPR can give to businesses, and industry players including the consumer. Along with incentives and benefits, it is also important to discuss the potential cost associated with initiating an EPR program in the U.S.

Incentives and Benefits

The first driver for EPR affirms that businesses seek to enhance their bottom line. Using the premise of EPR, businesses can achieve resource efficiency along with lowering overall cost. The cost of reusing a resource versus using raw materials is more cost efficient for companies because of less energy being used. Asset recovery programs not only increase recycling among businesses, but also companies can reuse their products. Kodak has already initiated its own asset recycling management program where the company recovers its single-use cameras in order to recycle and resell them. Companies can develop asset recovery

[29] Bette Fishbein has been focusing on a case study approach to EPR that highlights business innovation in achieving environmental goals. The organization's particular area of interest is the development of public policies that create economic incentives encouraging businesses to innovate. During a case study, Bette Fishbein and her group, sought to articulate and identify drivers and benefits of EPR for businesses in order to make EPR more attractive to targeted businesses.

[30] INFORM's mission is to inform the public about the debate on environmental policy options. It is a nonprofit environmental research organization based in New York.

programs that create the need to recover used products because these products can be recycled for less cost.

Another key driver of EPR is building partnerships with other members in the same or similar industries and with members along a product's life cycle. As discussed in the previous chapters, it will be important to use the government to initiate EPR in the U.S, but government should take on a more catalytic role rather than only acting as a law enforcer. Companies in American industry are fearful of regulation. By building relationships with other individuals along the product chain, government legislation might not have to be so enforcing on industries, and instead rely on voluntary initiatives. Relationship building could be important for companies by producing benefits such as avoiding strict legislation that allocates what participant is responsible for what in the product's life cycle, and helping to lower costs for the channel's participants.

Thirdly, brand loyalty and consumer demand are two drivers that can produce benefits by helping a company achieve customer satisfaction and an environmental marketing advantage. The use of recycled content in a product might encourage certain customers to purchase that product if price and performance were equivalent to a product that did not contain any recycled content. Marketing a high performance product that is made from recycled content might encourage consumer demand and increase customer satisfaction. In addition, industry would make greater use of these market forces.[31] EPR's principal will

[31] A key point here is that it is not certain if the "green market" niche is substantial in the larger marketplace. Though, in anticipation of doing business in EU member countries, it is important for American companies to start "greening" their products in order to avoid fines and barriers. Some

produce better quality products in order to eliminate cheaply produced products that need to be replaced more often, consequently reducing what goes to the landfill.

Currently, the U.S. government is responsible for creating markets for products with recycled content. To be sustainable in the long term, EPR needs to be market driven, while giving companies the responsibility of marketing recycled products. Although, in the short term, EPR policies and some government regulation will be needed to drive the markets[32](Raymond 2000). Therefore, R&D and cooperative partnerships will be responsible for creating recycled content products that achieve higher performance than non-recycled content products and can be offered at lower prices. High performance, recycled content products that are offered at the same price, should support increased market performances. This relies on the indication that consumers purchase products based on performance and price. Therefore, companies that build strong relationships along the product chain while investing in R&D for creating improved recycled content products will be ahead of the game.

Economics play an integral part in implementing EPR. Economic incentives such as financial and technological support, and tax subsidy reform should be in place. In addition, economic and environmental benefits need to both be achieved and a method of measuring these achievements needs to be

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companies that rely on international sales have already been hit hard with fines and expenses, while others will be facing this.

[32] According to Michelle Raymond of Raymond Communications, a federal Executive Order on Recycling requires certain agencies to purchase and use recycled products such as copier paper, but this does little to push other recycled products. Recycled content mandates work fairly well in well-integrated industries such as the paper industry, but in other industries such as plastics it is harder to enforce since it is not practical for companies to use recycled material in plastic bottles.

established (i.e. methods to determine net economic and environmental benefits that are achieved).

Firms within an industry can also be driven to work together to produce approaches for reducing environmental impacts before strict, and possibly inflexible and expensive regulation is enforced. American firms can redesign products and processes to reduce or eliminate negative impact on the environment. According to Patricia Feltes and Ross L. Fink (1996), a "pollution prevention" approach can provide profit margin relief and improve international competitiveness.[33] According to these authors, by focusing on pollution prevention rather than the traditional approach of pollution control, businesses can cut manufacturing cost and reduce unnecessary pollution. For a conventional business, materials and packaging wastes, pollution control devices and regulatory fees generate no income and have a negative impact on the company. By making more proactive business decisions, such as practicing pollution prevention and not just reacting when a crisis occurs, a firm can prevent unnecessary pollution and waste from being produced, thus saving themselves and the consumer the cost of cleaning up pollution and waste. If firms view recycling and reusing materials as a long-term process, costs from waste and pollution will be reduced.

With this in mind it is easy to understand in business terms that waste and pollution are expensive. Waste and pollution adversely affect the consumer in many ways. Increased health care costs, the growing commitment of tax dollars to

[33] The elements required for a pollution prevention strategy are discussed in more detail in Chapter Two.

clean up and removal operations, and the loss of scarce raw resources are all effects of waste and pollution by companies (Feltes and Fink 1996).

According to a Whitehouse Publication (1999), experts from industry and environmental organizations have already been trying to answer the question on how companies can save money and cut down on waste and pollution.[34] This group recognizes the need for government, consumers, and environmental groups to work to together to enhance EPR's success in the United States. It is these groups' collective knowledge that can create government support for increased market shares of renewable and recoverable resources, and innovativeness and technology development that can increase the growth and application of lowering consumer waste and improving resource efficiency. This group is an excellent example of how innovative partnerships can yield to greater accomplishments in cost savings and waste and pollution prevention.

As mentioned above, a company that initiates R&D and builds rapport with channel members in order to incorporate the principals of EPR is a company that will avoid preemptive legislation and avoid strict regulation. Further, by embracing this initiative, companies can have the satisfaction of building and improving relationships with regulators. If industry in the U.S. elects to take on a more voluntary approach, a relationship with government agencies is extremely important since it will allow these companies to have a voice in regulation.

Altogether, these drivers and benefits should aid in reducing the barriers to implementation of EPR in the business sector. In order to promote EPR within a

[34] This group is called The Pollution Prevention Pilot Project (4P). It is led by a group from the Natural Resources Defense Council, Amoco Petroleum, the Dow Chemical Company, Monsanto Company, Rayonier, and the New Jersey Department of Environmental Protection.

company, Fishbein (1998) suggests directing the efforts of implementing EPR to three levels of the company. First, senior management should be involved in an EPR strategy within a company since they are the responsible party in the organization who set the company's vision and standard. With a clearly stated and manageable goal and objective, senior management usually will more likely accept a project. Since companies view waste in terms of lost profits, reducing waste is good for the bottom line. Secondly, marketing and product managers should be directly involved. These positions will be directly responsible in producing and marketing recycled content products to the marketplace. Waste reduction objectives can provide an incentive for product and packaging innovation. Since businesses internalize the cost of recycling, incorporating these costs into product prices is inevitable. The result of this internalization is that companies are making less wasteful products and product packaging in order to maintain competitive pricing. Therefore, they are responsible for creating innovative products that will produce consumer demand. Third, research and development divisions should be involved since this sector is directly responsible for pollution prevention techniques and reducing resource use. Innovation along with resource use will result in greater efficiency and lower costs.

If these three divisions in a company accept a voluntary approach to EPR and voluntary initiatives spread throughout industries, government can avoid having to issue strict legislation and be encouraged to introduce tax subsidy reform. By avoiding Germany's method, American government and industry can implement EPR more effectively and efficiently.

It should be a goal for the coordinators of EPR to make businesses think about their product(s) as they become post-consumer waste. Consumers will continue to play a part in recycling by using drop off sites and separating materials, but industry absorbs the cost and the responsibility in creating the channels for products and packaging to be collected and recycled. Besides making recycling easier for consumers, EPR also provides other incentives with valuable benefits.

As discussed in earlier chapters, consumer participation in recycling has been motivated by certain incentives. The landfill issue is an incentive that has driven the U.S. to recycle. The landfill incentive is based on the concept that no one wants a landfill in his or her back yard. By understanding that "out of sight, out of mind" can no longer work when facing landfill issues is a true wake up call, leading to the reality that something else must be done.[35] Landfill bans have been effective in reducing land filled waste and in encouraging recycling both in the U.S. and in Europe. Certain countries such as in the United Kingdom have taken it a step further. The U.K. has implemented a landfill tax. This landfill tax makes businesses pay more for trash and less for labor taxes. According to Raymond (1999), a landfill tax would compensate for increasing unemployment taxes on businesses.

Other incentives are environmental and employment opportunities. Environmental incentives lead to the prospect of less pollution and less use of raw resources such as lumber. Employment possibilities stem from new R&D and

[35] Chapter Two discusses the actual amount of recyclables heading to landfills, and how much land is needed for our consumer waste.

business opportunities. In addition, new transportation and collection requirements can create new employment opportunities.

Mutual Benefits for American Business and Consumers

Extending EPR into the U.S. should also involve extending relationships between channel players. Responsibility given to consumers to provide feedback along the product chain is a benefit not only to consumers, but also to everyone along the product channel. Consumers will be able to provide feedback for product design and be entitled to form a rapport with all parties involved along a product's life cycle. That is, customer-supplier relationship would be redefined, while a synergetic and more non-linear relationship would need to be formed. In order for EPR to work, all players need to establish relationships with each other. These relationships will aid in innovative product design and packaging, and give consumers a stronger voice in a product's life cycle.

Another mutual benefit for consumers and businesses is that EPR can be extended even further and can prompt industries that generally sell products into selling services instead. Besides businesses such as cleaning services or rental services where one can rent items such as equipment, service and rental industries could be extended and include more options.[36] Renting a service rather than owning a product, can lower consumer waste, increase recycling, and create asset management programs.

[36] Another probable example could be a carpet rental service. The carpet renting service would have the R&D and means to clean the carpet better than the carpet owner would, and/or be able to rent out sections of carpet. This would end having to replace the entire carpet every time stains or wear and tear occur.

Related Costs

It is difficult to calculate how much EPR will cost American businesses. By comparing the cost of the current recycling programs in the United States to traditional solid waste and disposal, one can grasp a sense of the cost involved with EPR.

According to David H. Folz (1999), comparisons of the unit costs for recycling and solid waste disposal have indicated that recycling is not always more expensive. .[37] In Folz's study, the cost of recycling was compared to the cost of solid waste disposal. Cost comparison, along with political acceptance, environmental benefits, and state goals were all very important to municipal recycling coordinators around the U.S. (1999).

Between the years 1989 to 1996, the average recycling costs for all cities increased by 220 percent (See Exhibit II). Despite this notable cost increase, cities still continue their recycling programs. Exhibit III compares the cost of recycling with the costs of solid waste collection and disposal. This exhibit presents a comparison of the actual net costs per ton for recycling /composting and the mean actual costs per ton for solid waste collection and disposal for 1996. On average, the net recycling costs per ton was $66.96, while the total costs of solid waste collection and disposal on average was $133.82 per ton ($81.99 for collection/ton and $51.83 for disposal/ton). The net average for recycling costs per ton was taken from the costs of recycling per ton at $103.63 and then subtracted from the average recycling revenue per ton at $35.67. (Folz 1999).

[37] Mr. Folz's full text describes the means and methods of data collection and issuing of surveys. In addition his full text includes statistical data, which is used in the latter segment of this chapter.

These numbers indicate that collectively, recycling waste is less expensive than solid waste collection and disposal for most cities. Despite the fact that recycling is not inexpensive to implement and those revenues from recycling materials rarely cover recycling program costs, recycling is more cost effective to most cities than traditional solid waste collection and disposal practices (Folz 1999).

In addition, data collected from 1989 to 1996 suggest that on average, the unit cost of tons recycled declined as the city size and the number of tons recycled increased. The larger the city, the higher the cost is in order to divert more materials from the waste stream. Though, despite higher costs for larger populated cities, a lower cost per ton was created. All cities averaged around $94.96 per ton in 1996, where cities with a population of under 5,000 people estimated $144.94 per ton and cities with a population of over 100,000 had a cost of $80.67 per ton recycled (See Exhibit IV). This suggests that when communities invested in recycling programs, the investments "improved diversion performance and program efficiency." When communities invested resources in their recycling programs, they were able to effectively and efficiently divert recyclables from landfills. Folz's (1999) data also suggest that a possible economy of scale for larger recycling operations may exist. In addition, higher participation levels by consumers and businesses also lowered recycling unit costs (Folz 1999).

Altogether, these numbers indicate that recycling can be less expensive than traditional waste disposal methods. In addition to EPR's initial costs, direct

and indirect costs such as infrastructure development need to be considered.[38] Distribution and collection routes and connecting American standards with international EPR standards, changing the mindset of product players, and changing product cycles present apparent difficulty. With the potential partnerships of businesses, municipalities, and the public, along with the assumption that the private sector has the resources to be more innovative and cost effective than the public sector, EPR can be more cost and economically efficient.

In order to accept EPR, many American institutions will need to be transformed. Besides the everyday occurrence of throwing trash out without separating recyclables, many other social methods will need to be revised in order to initiate an EPR program. An EPR program cannot simply be accepted without proper education to all players and without extending EPR's principals into most aspects of American life. EPR can work in American society if everyone realizes the radical benefits it can create with proper planning and understanding. Balancing the cost of EPR with environmental and social benefits will be one of the greatest challenges in instituting EPR.

[38]Direct cost also includes daily operating expenses, equipment and vehicle expenses, insurance, depreciation, utilities, and payments for long-term capital debt. Indirect cost include items such as executive oversight, legal services, building operations that support central services, financial accounting and payroll, data processing and records management.

CHAPTER SIX

RECOMENDATIONS AND CONCLUSIONS

If the U.S. continues its recycling program as is, the Government will to continue to expend its valuable resources on managing solid waste, on the manufacturing of new products from collected recyclable materials, and creating the demand for these recycled products to be purchased by consumers. These three elements are equally significant and all need to occur in order to make recycling successful (Wade 1994).

Despite landfill diversion methods such as composting, the U.S. maintains its high municipal solid waste discard level. The U.S. continues to have the highest municipal solid waste discard level of any country in the world (Swanson 1994). Therefore, it makes sense to continue incorporating all stakeholders involved in the recycling process. By integrating the private sector in the recycling process, new responsibility will be placed onto this sector. The collaboration of the business sector, the government, and the consumer will create a more effective program that limits what goes to our over-used landfills and precious raw resource use.

Recommendations

In agreement with Bette Fishbein's panel (US Congress, House 1999), an EPR program should accomplish several things. This paper has tried to point out

that a good EPR policy needs to accomplish a number of objectives: prevent further environmental impact, provide ways to assign responsibility, encourage technological and product and packaging design innovation, provide mechanisms for information sharing and provide the information and education needed to all players in a product's life cycle, establish appropriate incentives and financial support to product's channel participants, and remain flexible to individual product industries. EPR should not be a one size fits all model. Modeling a program for one industry before applying EPR to all levels would be wise. While it is important to start an EPR program, it is equally significant to implement one carefully.

In order to enhance the EPR program, the government and all stakeholders need to address certain barriers such as technological, regulatory, costs, social inertia, stakeholder involvement, and overall acceptance barriers. Regulatory barriers such as antitrust laws, policies, and regulations, and harmonization issues with international trade and treaties can be solved through government intervention. Concentrated industries could be allowed to work together to design approaches to eliminate or limit environmental consequences. In addition, using a partial voluntary approach, Government could establish tax incentives for companies using recycled materials. Further, the EPA could prescribe a more outcome-oriented approach rather than a prescriptive approach to environmental crisis. The ability for the private sector to come up with low-cost solutions to environmental problems is based on the premise that prevention cost are less than cure or cleanup costs; targeting causes rather than consequences (Boyd 1998).

Stakeholders should focus on solving technological barriers by supporting research and coordinating cooperative R&D. Government assistance and support should be offered to industries, especially those industries that use the most of virgin materials. By supporting innovation and news ways of thinking in limiting waste, corporations can eliminate or reduce waste in their manufacturing and production processes.

The availability of education and providing open means of communication to all stakeholders are extremely important. Offering the opportunity for each stakeholder to state concerns and discuss new information and possible solutions is the only way an EPR policy can improve and excel in the U.S. Using the Internet is key as Fishbein (1999) points out; a World Wide Web Site would be a perfect tool to provide information to everyone.

Conclusions

As mentioned in earlier chapters, EPR needs to be flexible, and requires all stakeholders' participation. EPR shifts or more accurately creates a partnership between the public and private sectors, where government, industry, and nongovernmental organizations need to be involved in the defining and implementation of the EPR process.

A comprehensible and applicable definition of EPR is critical to developing an effective policy. Based on EPR's objectives, the entire product life cycle needs to be involved with an EPR policy. The very core of EPR's goals should encompass all stages of a product's existence. A sound layout of the definition of an EPR program and its strategy (similar to a business strategy) will

be the guideline and auditing structure of the policy. Just as a business strategy adapts and works with changes, an EPR policy should also follow this example.

EPR is the future. It can only work if all stakeholders are involved and continue to be involved in its process. By involving everyone, assessment structures will be in place. By making manufacturing companies responsible for products throughout the product lifecycle, while government provides incentives and flexible mandates, an EPR policy can change our social approach and outlook. Throughout this paper, it has been suggested to place responsibility of consumer products and packaging onto manufacturers, but the public sector and consumers need to be included in many aspects of implementing an EPR policy. Together, we can make EPR work.

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EXHIBIT I

The Importance of Problems in Municipal Recycling Programs in 1989 and 1996

	Mean Scores(*)		Rank in	Rank in
	1989	1996	1989	1996
Financing the & recycling program securing an adequate budget	3.37	3.68	4	1
Getting residents to participate	3.70	3.59	2	
Lack of reliable material markets	4.17	3.37		
Unfunded state mandates	3.47	3.28		
Obtaining information about best recycling practices	2.85	2.76	5	
Theft/scavenging of recyclables	1.78	2.16	6	

(*) 1 = Not Important; 5 = Very Important

Exhibit 1 shows the 1989 mean scores of how recycling coordinators rated the lack of reliable material markets as their biggest setback. Though by 1996, marketing challenges still were prominent on local radar but fell to third place. Financing the recycling program and securing an adequate budget for the program assumed

primary importance. Municipalities who have not initiated or have cancelled curbside recycling programs have done so generally because of budget reasons.

Source: Folz, David. "Municipal Recycling Performance: A Public Sector Success Story." *Public Administration Review*. July 1999, v59, i4, p336.

EXHIBIT II

Trends in Mean Annual Recycling Program Costs in Constant 1992 Dollars(*) by Population Class and Program Type in 1989 and 1996. In constant 1992 dollars, the average recycling cost for all cities increased by 220 percent between 1989 and 1996.

Population	1989	N	1996	Percent Change
Under 5,000	$26,768.38	23	$54,447.45	103.40
5000 - 10,000	53,073.02	23	117,564.03	121.51
10,001 - 25,000	92,159.42	25	189,687.18	105.82
25,001 - 50,000	165,645.98	13	286,565.56	61.45
50,001 - 100,000	247,589.20	15	871,757.18	252.10
Over 100,000	367,149.46	15	1,760,524.88	379.51
All Cities	134,659.02	114	430,848.87	219.95

(*) Data for 1989 and 1996 were converted to 1992 constant dollars by using the implicit price deflators for state and local government purchases of goods and services as published in the Survey of Current Business, Bureau of Economic Analysis, US Department of Commerce.

Source: Folz, David. "Municipal Recycling Performance: A Public Sector Success Story." *Public Administration Review*. July 1999, v59, i4, p336.

EXHIBIT III

Mean Net Recycling Costs Per Ton and Mean Costs Per Ton for Solid Waste Collection and Disposal in 1996 (actual dollars)

Population Class	Recycling Costs/ton	Recycling Revenue/ton	Net Recycling Costs/ton	N
Under 5,000	158.14	24.46	133.68	24
5000 - 10,000	119.02	12.84	106.18	21
10,001 - 25,000	92.86	19.31	73.55	20
25,001 - 50,000	48.10	16.16	37.94	11
50,001 - 100,000	48.77	17.51	31.26	11
Over 100,000	88.02	14.75	73.27	13
All Cities	103.63	35.67	66.96	101

Population	SW Collection Costs/ton	SW Disposal Costs/ton	N	Total SW Costs/ton
Under 5,000	81.51	68.82	24	150.33
5000 - 10,000	141.45	57.96	19	199.41
10,001 - 25,000	48.50	52.75	20	101.25
25,001 - 50,000	120.05	40.79	14	160.84
50,001 - 100,000	46.11	43.37	12	89.48
Over 100,000	53.54	34.96	17	88.50
All Cities	81.99	51.83	106	131.63

Exhibit III presents a comparison of the actual net costs per ton for recycling/composting and the mean actual costs per ton for solid waste collection and disposal for 1996 as reported by
Recycling coordinators. The net recycling cost per ton for each city was obtained by
subtracting the mean revenue per ton (obtained from material sales) from the total per ton program cost. Solid waste collection costs per ton were obtained by dividing total collection costs by the number of tons disposed during 1996 as reported by recycling managers. Solid waste disposal costs per ton represent the costs to dispose of the reported 1996 volume of solid
wastes in a sanitary landfill or incinerator. Total solid waste costs per ton are the sum of the mean collection and disposal figures.

Source: Folz, David. "Municipal Recycling Performance: A Public Sector Success Story." *Public Administration Review*. July 1999, v59, i4, p336.

EXHIBIT IV

Trends in Mean Tons Recycled/Composted and Mean Total Cost Per Ton in Constant 1992 Dollars by Population Size in 1989 and 1996

1989

Population Class	Tons Recycled	Cost per Ton	N
Under 5,000	636.03	$78.52	19
5000 - 10,000	637.23	109.16	21
10,001 - 25,000	1,837.44	94.15	21
25,001 - 50,000	3,585.93	90.19	13
50,001 - 100,000	2,176.86	136.87	12
Over 100,000	4,304.55	164.79	15
All Cities	1,865.06	109.18	101

1996

Population Class	Tons Recycled	Cost per Ton	N	Percent Change Cost/ton
Under 5,000	1,536.01	$144.94	24	+84.58
5000 - 10,000	1,493.90	109.09	21	0.00
10,001 - 25,000	3,097.05	85.11	20	-9.60
25,001 - 50,000	11,761.19	44.08	11	-51.12
50,001 - 100,000	18,509.60	44.70	11	-67.34
Over 100,000	58,718.98	80.67	13	-51.05
All Cities	12,398.17	94.96	100	-13.02

Exhibit IV reports how much recycling cost on a unit basis for cities of different size. It cost cities more to divert more materials from the waste stream, but an important result was a lower cost per ton. This suggests that the sizeable investments communities made in their recycling programs helped to improve both diversion performance and program efficiency. These data also suggest a possible economy of scale for larger recycling operations. Once the recycling infrastructure is in place in the community, collection costs are not likely to be significantly increased by changes in the volume or types of materials set out by generators.

Source: Folz, David. "Municipal Recycling Performance: A Public Sector Success Story." *Public Administration Review*. July 1999, v59, i4, p336.