

Roundtable Three

*Packaging Waste:
Whose Responsibility Is It Anyway?*

November 6, 1998

A Final Report

*Conducted by
The Cornell Waste Management Institute*

*Sponsored by
The U.S. Environmental Protection Agency Region 2*

*On behalf of The New York City
Department of Sanitation*

April, 1999



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ACKNOWLEDGEMENTS

The success of this New York City Roundtable on Packaging Wastes was largely due to the enthusiastic participation of the attendees who shared their knowledge and ideas. Those who came from as far as Germany or as near as NYC all provided perspectives that are useful in considering reduction of packaging in the NYC waste stream.

The commitment of the New York City Department of Sanitation to waste reduction and in particular the efforts of Dave Kleckner and Robert Lange in the Bureau of Waste Prevention, Reuse and Recycling, were key to the development and implementation of this Roundtable. Without the assistance of EPA, Region 2 and the enthusiastic support of John Filippelli and Lorraine Graves, the Roundtable would not have been possible.

Many thanks to all involved – Ellen Z. Harrison, Director

The Cornell Waste Management Institute (CWMI) was established in 1987. CWMI addresses the environmental and social issues associated with waste management by focusing University resources and capabilities on this pressing economic, environmental, and political issue. Through research, outreach, and teaching activities, CWMI staff and affiliated researchers and educators work to develop technical solutions to waste management problems and to address broader issues of waste generation and composition, waste reduction, risk management, environmental equity, and public decision-making. The focus for such work is on multi-disciplinary projects that integrate research and outreach. Working in collaboration with Cornell faculty and students from many departments and with cooperators in both the public and private sectors, issues ranging from management of sewage sludges to waste-prevention are the focus of on-going programs.

A copy of this report can be downloaded from the CWMI web site
www.cfe.cornell.edu/wmi or by contacting CWMI.

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BACKGROUND

A “Plan to Phase Out The Fresh Kills Landfill” was issued by a Task Force established by New York State Governor George Pataki and New York City Mayor Rudolph Giuliani during November of 1996. Central to this plan are strategies intended to maximize the amount of New York City waste that is prevented and recycled, in order to minimize the need to export waste when the Fresh Kills landfill on Staten Island closes at the end of 2001.

The Fresh Kills landfill has long been an inexpensive solid waste disposal option for the City. However, the City’s reliance on this landfill is being dramatically reduced in anticipation of the scheduled closure. Concurrently, New York City is increasing its reliance on waste reduction initiatives, recycling, composting, and out-of-City disposal.

The US Environmental Protection Agency (EPA) participated in the Task Force established by the Governor and Mayor. In the Task Force Plan, EPA offered to fund Roundtable meetings with the City to address waste reduction issues. The Task Force recommended and the City agreed that the Roundtable meetings would include representatives of various City, State, local, and private organizations who have studied or implemented waste reduction strategies and who could share information and experiences at these meetings.

The New York City Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling (BWPRR) proposed to EPA Region 2 that Roundtables be convened to discuss various waste reduction strategies. DOS provided EPA Region 2 with a proposal setting forth the respective roles of the two agencies. EPA agreed to this arrangement, and subsequently provided funding for the Cornell Waste Management Institute (CWMI) to provide the needed services. These included providing input regarding agendas and selection of invited participants, sending out invitations and following up as necessary to recruit participants, providing meeting space and refreshments, moderating the sessions, writing summary reports, and related services. CWMI and DOS worked closely together in developing agendas and selecting participants.

The first Roundtable was held November 14, 1997 at the offices of Cornell Cooperative Extension in New York City. The “New York City Materials Exchange Roundtable” provided a forum for materials exchange program sponsors from throughout the nation, including New York City program operators and interested parties. The purpose was to discuss issues critical to the success of materials exchange operations that were also being tackled by the new NY Wa\$teMatch Program launched by DOS in April of 1997. A report is available from the Cornell Waste Management Institute which summarizes the findings of that Roundtable (access is available through the World Wide Web at www.cfe.cornell.edu/wmi/WastRed/MatlExch.html).

The second Roundtable, “The Potential for Composting Collected Wastes to Reduce the NYC Solid Waste Stream,” was convened April 3, 1998 in New York City. This Roundtable gathered experts from the United States, Canada, Germany, and the Netherlands along with representatives of local organizations, to explore the possibilities of

composting collected wastes. The focus was on large-scale composting and the constraints and issues surrounding composting in a dense urban setting. A report is available from the Cornell Waste Management Institute which summarizes the findings (access is available through the World Wide Web at www.cfe.cornell.edu/wmi/WastRed/NYCRT2.html).

The third Roundtable, “Packaging Waste: Who’s Responsibility is it Anyway?,” was convened on November 6, 1998 at EPA Region 2 in New York City. This Roundtable, upon which this summary report is based, was held to consider extended producer responsibility and how that might apply to reducing packaging wastes in New York City. Experts from government, business and organizations in the United States, the United Kingdom, Germany, Canada and the Netherlands were convened to participate. Invitees included New York State agency representatives as well as representatives from the Citywide Recycling Advisory Board and the Solid Waste Advisory Boards from each Borough of the city. A list of invitees and attendees can be found in the appendices to this report.

INTRODUCTION

The session began with welcoming remarks by Lorraine Graves on behalf of US EPA Region 2 and David Kleckner from the New York City Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling. The contributions were recognized of Colton Seale and Carole Bell from Science Applications International Corporation (SAIC) who, in their capacity as consultants to DOS, provided assistance in developing the Roundtable.

DOS Deputy Commissioner Martha Hirst provided an introduction to the waste management issues facing the City with the closing of Fresh Kills. She noted that the Roundtable was helping DOS fulfill its role in bringing together diverse groups in non-adversarial forums to discuss options to reduce and manage the waste generated in the City. She reminded participants that DOS is responsible for managing the materials generated. It is the City Council and others in the political arena that determine policy.

Packaging is a large and visible component of the municipal waste stream and was therefore selected as the topic of this Roundtable. Over one third of the municipal solid wastes managed by municipalities is comprised of packaging and there appear to be opportunities for reduction. Packaging is also a significant cost to consumers. Packaging costs on a \$5 item generally range from 20 to 50 cents. However, packaging serves many functions including efficient and safe transportation, protection of product and integrity, product delivery and dosing, and product information. Producers operate in an economic marketplace in which they must meet consumer demands for quality and low cost, while competing against other brand names for product recognition and shelf space.

The questions which the Roundtable addressed are:

- How can U.S. industry, government, NGOs, and other interested parties work together to use the European, Canadian and Asian extended producer responsibility (EPR) regulations and programs to influence packaging waste generation and management in New York City and the U.S.?
- What lessons can we learn from their experiences to apply the concepts of EPR in the U.S. to minimize packaging waste and increase the recycling and recyclability of packaging?

Ellen Harrison, Director of the Cornell Waste Management Institute (CWMI), continued the introduction. In NYC and many locales, the municipal government is responsible for the management of residentially generated solid wastes. In this system, little incentive exists for manufacturers or consumers to reduce packaging waste. The purpose of the Roundtable is to focus on packaging waste and the balance of responsibilities among manufacturers, distributors, retailers, consumers and government. The goal of such efforts is to reduce the amount of packaging waste that is generated and to increase the amounts recycled and the recycled content. Internalizing waste management costs is seen as a key element in design and distribution choices.

What is Extended Producer Responsibility?

EPR is the principle that producers bear a degree of responsibility for the environmental impacts of their products throughout the products' life cycles, including upstream impacts arising from the choice of materials, and from the manufacturing process and downstream impacts from the use and disposal of the products.¹

EPR covers an array of concepts, from general environmental stewardship to mandatory takeback programs. Moreover, the general concept of EPR can be used to cover almost any product, from chemicals, to packaging, to consumer products.

For the purposes of the Roundtable, EPR includes voluntary or government mandated or government/industry shared responsibility programs through which industry pays for a portion of the collection and recycling of packaging materials and which in some way seek to encourage the reduction of packaging waste.

The goals of EPR packaging programs are to reduce the quantity and/or toxicity of packaging while maintaining economic efficiency.

New York City Packaging Waste Management

As part of an effort to reduce waste generation, New York City, through its DOS Bureau of Waste Prevention, Reuse and Recycling, has undertaken initiatives focused on packaging wastes. Source reduction is the preferred option since it reduces not only ultimate disposal,

¹ Davis, Gary and Cynthia Wilt, 1995. "Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention." Center for Clean Products and Clean Technologies, U. Tenn.

but also avoids transportation and management costs associated with recycling. Marjorie Clarke, Center for Applied Studies of the Environment of the City University of New York, pointed out that source reduction makes great economic sense to the City. The Department of Sanitation oversees waste prevention initiatives that include promoting packaging reduction in the private sector (i.e., NYC WasteLe\$\$ technical assistance and outreach to businesses and institutions, and NY Wa\$teMatch materials exchange program), the public sector (i.e., NY CitySen\$e technical assistance and outreach to City government agencies), and the general public (i.e., by working through the business community, and through distribution of public education materials).

Recycling is mandatory in New York City for all residents, businesses, and institutions including government agencies. Businesses are required to recycle through their private carters. The Department of Sanitation collects recyclables from all households, including apartment buildings, and from non-profit institutions and public agencies. The materials collected by Sanitation include newspaper, magazines, catalogs, corrugated cardboard, phone books and other mixed paper, metal cans and foil, glass bottles and jars, plastic bottles and jugs, milk and juice cartons, drink boxes, and household metal (items made of more than 50% metal such as appliances and furniture). These collected materials are delivered to private contractors who are required to process and market them for recycling. Edward Campbell, Empire State Development, indicated that increasing recycling in NYC will be very difficult at this stage as more of the major waste management companies are actually getting out of the recycling business and focusing on hauling and disposal.

EPR PROGRAMS IN OTHER COUNTRIES

An overview of the status of EPR programs in Europe and Asia and their applicability to the development of extended producer responsibility in the U.S. was presented to the Roundtable by DOS consultant Colton Seale of SAIC. Attendees were provided with a copy of the EPR report prepared by SAIC for DOS.

In 1991, Germany issued the Directive on the Prevention of Packaging Waste also called the Packaging Ordinance which began the movement to apply EPR to packaging waste. In 1994, the European Union (EU) adopted the Directive on Packaging and Packaging Waste. The essential goal of the Directive was to harmonize national measures concerning the management of packaging and packaging waste, to prevent or reduce the environmental impact of packaging and packaging waste, and to provide a high level of environmental protection within member states, and in other countries. In response to the Directive, nearly all of Europe has adopted some form of packaging legislation. The approaches have been different, however, in different countries. These approaches can be divided into three categories: 1) a basic recycling approach; 2) a waste prevention approach; and 3) a market driven approach. Shared Responsibility, which represents a somewhat different approach, also is an up and coming trend.

Recycling Approach

In reality, all of the European countries have focused primarily on recycling, following the initial German model (see Appendix “Packaging Waste Management in Germany - Key Elements”). In Germany, manufacturers can either take responsibility for recycling their packaging themselves or they can join a Third Party Organization which will take over the responsibility of recycling in return for fees based on the packaging materials. Germany, and most of the other countries, have established material-specific recycling targets. Fees and quotas are material specific, based on the recyclability of a material. For example, lower fees are placed on a material such as glass where sufficient recycling infrastructure exists and higher fees are placed on plastics and composites. Conversely, lower collection and recycling quotas are set for the harder to recycle materials and higher quotas for the more traditionally recycled materials. The responsible party pays fees to a certified Producer Responsibility Organization, or Third Party Organization, which in turn guarantees recycling of a certain percent of the waste stream by contracting with recycling companies or, if necessary, funding the development of collection and recycling infrastructure. This approach appears to be working in Germany. The recycling targets are very close to being met, but the economic efficiency of the system is questioned by some.

Paul Gally, NYS DEC, asked whether the countries that have implemented EPR legislation have had to invest in recycling technologies. Ulf Jaekel, German Ministry for the Environment, noted that the license fees from the German Duales System Deutschland (DSD) or Green Dot system have been used to create new technologies, especially for sorting and management. He also noted that with these fees, the cost to the consumer has increased somewhat, but it wasn't clear yet whether, overall, the investment had paid for itself.

The recycling-based approach also has a waste prevention impacts in that most of the fee systems are weight based, thus providing an incentive for manufacturers to reduce the overall weight of their packaging. In Germany this had the initial effect of moving packaging to lighter, yet more difficult to recycle composites. As the fee structure was revised, higher fees were placed on these materials to offset this unintended trend. Once this was compensated for, according to DSD, the result has been a substantial reduction in the overall consumption of all packaging materials in Germany. For example, glass consumption decreased almost 16 percent between 1991 and 1995 while composite consumption decreased just over five percent over the same period.

Cost allocation in the German system was described by Bette Fishbein from INFORM. In Germany, DSD pays the cost of collection, sorting, and delivery to recyclers. DSD takes the total cost and divides it among the materials, based on the cost associated with managing each material, and then applies the relevant fees to each material. This encourages source reduction within a particular material, but not necessarily among different materials since for some applications it has encouraged a shift away from plastic packaging to heavier more easily recycled materials. Gary Davis, the Center for Clean Products and Clean Technologies at the University of Tennessee, commented that this

system makes producers responsible for paying fees, but that there also are national recycling quotas. A key issue in assessing the impact of EPR on recycling is the definition of recycling. In Germany recycling includes incineration/energy recovery.

Waste Prevention Approach

Several countries have taken further steps towards encouraging waste prevention. Notably, Belgium requires all producers placing more than 10 tonnes of packaging a year on the Belgian market to prepare pollution prevention, or source reduction, plans. Also in Belgium, the primary industry organization, FOST-PLUS, operated on a voluntary basis for several years before receiving final approval. During this period it focused on waste prevention, soliciting and publishing voluntary Packaging Optimization Dossiers from its members. The majority of those published, 66, dealt with reductions in packaging weight. Other categories included moving toward more recyclable materials, moving toward mono materials, increasing reuse, and partial or total removal of packaging from the product. Several other countries have published similar reports and it appears that this method of industry encouragement and publication of waste prevention measures may be having an impact in Belgium and throughout Europe.

Taiwan appears to be moving in the same direction of requiring manufacturers to prepare waste prevention plans and also toward requiring that manufacturers record their use of virgin and recycled materials. While preparation of plans is not a guarantee of reduction, companies become aware of materials use and potential cost savings through reduction.

Denmark and several other countries have pursued waste prevention objectives by giving preferential treatment to refillables, allowing for the exclusion of refillable containers from fee systems. Portugal has gone further with regard to refillable containers, requiring that all soft drinks, beer, table wine, and mineral and spring water sold in hotels, restaurants and cafeterias be in refillable containers and that refillable containers must be available for purchase at all other outlets.

Market Driven Approach

A third approach to EPR that is worth noting is the market driven approach. The initial German model exemplified a command-and-control approach. Several countries have explored options to move toward more market-based approaches to increasing recycling rates and efficiencies.

The market approach can be looked at in voluntary systems and mandatory systems. The voluntary approach was initially taken by the Netherlands with the Packaging Covenant of 1991. The Covenant was an agreement between participating industries and governmental bodies that Dutch industry would guarantee the recovery of a certain percentage of packaging materials, reduce by 10 percent the quantity of packaging on the market, and pursue more environmentally friendly packaging. How this would be accomplished was left to industry, rather than having a system prescribed by legislation. Becoming a member

of the Covenant was voluntary, but once a company joined, participation was obligatory. To avoid the threat of mandatory legislation, industry was motivated to join. The requirements of the EU Directive and the success of the Covenant led to a binding piece of legislation, Covenant II, in 1997. Though now binding legislation, the framework for the legislation was developed based on the voluntary system pursued by industry. The Dutch system is further discussed below.

Evolving economies, such as Poland, are hoping to use this type of framework as a model for developing EPR programs to conform to the EU directive in their countries.

Taiwan also has taken a market-based approach, although notably different from the voluntary approach initially pursued by the Netherlands. Taiwan has purposefully set low recycling targets and higher fees. As recycling targets are met, fees will be lowered. The hope is that this will provide a realistic mechanism to help markets adjust gradually to the influx of new materials and will provide industry with an incentive to increase the recyclability of materials or to invest in the development of recycling infrastructure.

The U.K. also has adopted a more market based approach with the inclusion in its packaging scheme of Packaging Recovery Notes or PRNs. In the U.K. a recovery/recycling operation can seek registration as an accredited reprocessor and issue PRNs for the quantities of packaging waste reprocessed. These documents prove that a given tonnage of reprocessing has taken place and can replace all or part of a company's fee for recycling and recovery. In addition, PRNs are a marketable commodity in the U.K.

Shared Responsibility

The term "shared responsibility" has two meanings as clarified by Fishbein. One is the government-industry sharing of responsibility and a second is shared responsibilities among the businesses serving various functions in the packaging chain. She noted that France is the original model for the government-industry version of shared responsibility and that Japan has essentially copied this model. In France, the municipality collects recyclables and industry pays the incremental costs above what collection/disposal would have cost, absent recycling. In 1997, Japan began phasing in a program that is based on shared responsibility. Municipalities collect the material and sell it as before, but if no markets exist, industry must come in and provide a market.

The U.K.'s packaging program is much more of a system of Shared Responsibility than other systems. In most countries, the fee is placed at one point in the packaging chain, such as on the product manufacturer or on the wholesaler. The U.K. system is designed to be more equitable with the monetary responsibility for packaging divided among the raw material manufacturers, material converters, packer/fillers, and sellers. Jane Bickerstaffe, Industry Council for Packaging and the Environment (INCPEN), suggested that this system has caused significant confusion (see Appendix J for INCPEN position statement). A similar approach is being pursued in Canada, although the Canadian version of Shared Responsibility may have a stronger governmental component than that in the U.K.

EPR in Canada was further discussed by Duncan Bury, Environment Canada. He noted that EPR has been on the agenda in Canada for about ten years, although most of this has been at a fairly academic level. The conversation has recently changed to how much exactly industry will pay and when. There are full EPR schemes in place in some Canadian provinces, notably for used motor oil. Regarding EPR for packaging, Canada is developing a scheme of Shared Responsibility. In 1989, industry in Canada made a voluntary commitment to change. They committed to a 50 percent target for reduction in packaging, which was achieved. The greatest change came in transport packaging. There has been a long history in Canada of local municipalities implementing and running diversion programs, but pressure is increasing for a legislated system of Shared Responsibility. Overall, the Provinces are moving independently, with the Federal government trying to provide some structure. In Manitoba, industry will pay 80 percent of waste management costs and the government will pay 20 percent, with most of the municipal costs covered through a 2 cent levy on all beverages. Beverage containers in Canada must be either recyclable or refillable. A study conducted in Ontario found a net cost of C\$90 (US\$60) per ton for recovery through recycling, above the cost of landfilling. The government is seeking recovery of that cost difference from industry. (See Appendix C for more on EPR in Canada.)

An overview of the Packaging Covenants in the Netherlands and the approach taken to EPR in the Netherlands was provided by van Bochove, of Coca-Cola Beverages Nederland B.V. and formerly of SVM, the industry packaging organization in the Netherlands. He noted that the Netherlands is a relatively small country of 15.5 million people, with a serious lack of landfill space. The Netherlands, he said, is essentially a “consensus society” with a history of active environmental and consumer organizations. The Netherlands has banned landfill disposal of combustible wastes and eleven incinerators handle waste disposal in the country. To facilitate recycling and combustion, organics are collected separately at curbside.

To avoid legislation like that enacted in Germany in the early 1990s, industry in the Netherlands formed Stichting Verpakking en Milieu/Organization for Packaging and the Environment (SVM-Pact), which included manufacturers, retailers, recyclers, etc., *i.e.*, everyone involved in the manufacture, selling, and management of packaging. The goal of SVM Pact was to see whether the goals of recycling and waste prevention stated in the German legislation could be achieved in the Netherlands without legislation. The framework, which was put into action with the Packaging Covenant (Covenant I), was essentially to leave it to industry to determine how to reach the agreed upon goals. Covenant I included 250 manufacturers accounting for 55 percent of the packaging placed on the Dutch market. With the adoption of the EU Directive, the Netherlands was forced to adopt Covenant II, which now includes almost 4,000 companies, representing about 90 percent of the packaging on the market. Whether EPR need apply to all companies, or can be applied more efficiently by involving only the larger companies that represent a majority of the packaging on the market, is an open question.

Covenant II contains clear obligations for government and industry and government is an integral player in the whole responsibility chain relative to packaging. There are agreed upon targets for 2001 to allow only 940 kilotonnes for landfill or incineration. The current figure is approximately 2,400 kilotonnes. The overall recycling goal is 65 percent by 2001. The Netherlands is not trying to recycle all materials, just those that are economically useful; most plastics are sent to incineration for energy recovery. The Dutch current approach to achieving these goals is to leave waste prevention to packer/fillers and leave recycling to the municipality with the assistance of subcovenants with materials organizations to guarantee markets for materials when value drops to zero or below. van Bochove also noted that the Netherlands has taken the approach of talking not about specific types of packaging, but about materials, *e.g.*, paper rather than corrugated cardboard or newsprint. He noted that, overall, the approach has been successful, in that economic growth has outpaced the growth of packaging placed on the market.

Municipalities and ultimately consumers are responsible for separating compostables from the dry fraction of the waste at curbside in the Netherlands. Paper and cardboard also are collected curbside. Glass is placed by consumers in community bottle banks. There is one bottle bank for every 600 people. The municipality is responsible for placing the bottle banks and collecting the glass. Legally, industry takes responsibility for the glass once the bottle bank is lifted off the ground for emptying. After these are removed, you have the “rest fraction.” This is primarily plastics. Seventy-five percent of this is sent to incinerators, 25 percent of which have integral separators to remove tinplate and aluminum. By 2015, all of the incinerators will have integral separators. Incineration is paid for by the government.

The key to Covenant II is that industry has agreed always to take recyclable materials from the municipalities at a price of no less than zero if the market price for the materials falls below zero and the materials meet a certain standard. The guarantees, van Bochove said, make the cost for municipalities about \$35 per ton of material collected, where it would otherwise be between \$120 to \$200 per ton if the municipalities had to pay for landfill or incineration when they couldn't market the materials. Industry also guarantees a certain recycling percentage for materials: 90 percent for glass, 85 percent for paper, 80 percent for metals, and 35 percent for plastic. In short, there is no subsidy for collection, but there are guaranteed markets for the materials collected.

Packer/fillers in the Netherlands are required to maximize use of recycled content, to use refillables whenever feasible, and to help with material recycling by separating all of their commercial wastes. He also noted that material organizations have signed subcovenants saying that they will work in cooperation with the government to further consumer education. The balance of all partners is very sensitive and very important. Another part of the subcovenants is that every existing package type will have been studied within five years for lightweighting or other source reduction opportunities and new products must go through this same process. In response to a question about how the new contour Coke can, which increases materials use over previous cans, was approved in the Netherlands, van Bochove explained that industry must demonstrate only that it is the lightest contour

Coke can they can make, not the lightest Coke can. He also added that industry is given leeway so that they can successfully market products.

According to van Bockhove, Covenant I met the targets that had been set for 1994. Covenant II targets are established for 2001. He said that the incentive for companies to be doing their share to meet the targets is that if they are found not to be doing so, *e.g.*, during annual review of required waste prevention reports, they may be kicked out of the Covenant, in which case they would become individually responsible for collecting and recycling their own packaging. Davis also noted that the Dutch government can impose takeback obligations on all Covenant members if the 2001 goals are not met.

ROLES OF THE PLAYERS

Many actors play a role in the design, production, marketing, use and management of packaging. Various approaches to EPR impact these actors differently. In sharing an overview of the U.K. system of EPR, Bickerstaffe noted that responsibility is placed on all actors in the packaging chain, which makes it very complex and difficult to administer. It also results in a serious commitment of staff time for manufacturers that serve a multiplicity of functions in the chain.

In the Netherlands, van Bochove noted that to overcome some of the problems discussed in 1991 at the first meeting of SVM-Pact in preparation for Covenant I, the retailers were adamant that wholesalers and importers also be part of the process so that all could work together to address the issues. In the Netherlands there are only five or six major retail chains, so it is easier for them to provide direction to packer/fillers.

Bickerstaffe suggested that collection of recyclables is an appropriate municipal role and that industry should be responsible for looking at market development, since that is what they know. She also said that it is important to raise funds where it is least costly to do so. Harrison expanded on this idea, emphasizing that the goal is to send the appropriate signals to the point at which it is cheapest to change the system; put cost closest to where you want the impact.

Role of Manufacturers

Company-internal strategies, such as adopting environmental management systems (EMAS) or ISO 140000 certification, have had the biggest impact on companies, especially on the transport side, according to Bickerstaffe. She suggested also that the two issues that need to be addressed are 1) design of a good, comprehensive packaging system and 2) making best use of the waste management system. These two issues, she contended, should be considered separately.

The role of producers in influencing consumer choice in regard to packaging was raised. For example, consumers in the U. S. appear reluctant to purchase concentrated laundry products and advertising to overcome that barrier was suggested. However,

companies are not in the business to market packaging but rather products, stressed Keith Zook of Procter & Gamble. P&G markets clean clothes, clean hair, etc. and not packages. Thus, they are not prepared to use advertising to influence consumer choice in regard to packaging.

Role of Consumer

Responding to a question regarding the perceived increase in size of P&G's laundry detergent packaging, Zook indicated that P&G is still concentrating the detergent, but that consumer perceptions made it difficult to sell the concentrated detergent in a smaller bottle so they had to go to larger bottles of concentrated detergent, which actually is more efficient in terms of product to packaging ratio. He also noted that P&G had tried to concentrate house cleaning products, but because of perceived consumer reluctance to buy these, they decided to abandon these lines. In Europe there is a "Green Gauge" that studies the level of environmental attributes people will accept or that people desire. (This deals with a range of environmental issues well beyond packaging and not necessarily related to packaging. See www.roper.inter.net/research/syndicated/green.htm)

Mandated requirements to post unit prices can actually hinder consumer acceptance of concentrates. Shelf-posted unit prices based on the volume or weight of the product rather than on the number of uses show the cost of concentrates as higher than the diluted product, when the actual price per use would favor concentrates. NYC has a shelf labeling law and Steve Simon, NY City Council staffer, indicated interest in investigating possible changes to that law to deal with this issue.

Other types of labeling such as "eco" labels in use in Germany and elsewhere may help consumers identify more environmentally sound products or packages. Generally packaging is not the primary focus of such labeling programs.

Role of Retailer

In the U.S., the Nature Conservancy completed research that confirms that supermarket retailer acceptance of packaging plays a major role in the packaging decisions of manufacturers and that it may actually outweigh the demands of consumers. The complexity of the issue was pointed out by Tom Terracino, M&M Mars. For example, Kudos candies are rather small, but M&M Mars could not market them in a small box because retailers were concerned that the product got lost on the shelf and didn't sell. Harrison noted that it is interesting that the retailer is perhaps the actual customer that is driving packaging, rather than the consumer who traditionally is thought of as the customer.

In Germany, Jaeckel noted, there was no requirement for producers to remove, for example, the boxes from toothpaste, but there was a requirement that retailers provide collection bins for consumers who wished to leave this packaging at the store. The retailers then pressured manufacturers to get rid of this type of packaging. Davis noted that in

Germany the original onus was on the retailer and they were able to put pressure backward on manufacturers. In Sweden, three main retailers came together to create their own environmental label that they put on environmentally preferable packaging. He asked why this pressure didn't exist in the U.S.

Role of Municipalities

As pointed out by Bury, there are many social reasons why people want recycling, and municipalities are left to cover the costs. There is increasing demand for more materials to be added to recycling programs, which will further escalate costs. Municipal recycling programs must compete with other services for funding. Hence, municipalities are looking to industry to fund some of the recycling costs.

The U.S. Conference of Mayors (USCM) passed a resolution supporting investigation of the development of an American version of Manufacturers Responsibility (see Appendix H). Michael Gagliardo, USCM, reported that not much happened regarding the resolution until 1996 or 1997 when financial concerns raised due to the overturning of flow control and other factors caused municipalities to become more concerned with determining who pays for what and who bears what financial risks. A dialogue was started with consumer products associations, Grocery Manufacturers of America, American Plastics Council, and other groups. A panel discussion was held by USCM to give cities a perspective on packaging. Another panel is planned that will give local governments the opportunity to talk with producers about their concerns.

Municipalities now have cheap landfill capacity so recycling isn't likely to expand significantly. While solid waste staff like the idea of source reduction, their job is generally managing waste, with little incentive or funding to implement source reduction ideas. Cost effectiveness for municipalities is a key. The potential for large municipalities to pressure Congress for action was recognized. Pressure applied to Congress by the mayors of ten major cities could be effective in moving EPR forward in the U.S.

EPR GOALS

EPR programs must be designed with specific goals in mind. Bickerstaffe said that the overriding goal should be global climate change, *i.e.*, the cumulative impact of our actions on the environment, and then we should evaluate the potential of source reduction or recycling to achieve the goal of reducing greenhouse gas emissions. It is likely that source reduction will be determined to be the most effective approach, but source reduction within the broader environmental context. Ed Boisson, Northeast Recycling Council, agreed that it is very important to look at the big picture at the national level. Environmental concerns and economic efficiency, as well as achieving required functionality, all must be taken into consideration.

Waste Prevention vs. Recycling

Most EPR programs target recycling, but waste prevention has more lifecycle benefits. Clarke suggested that to maximize waste prevention we should look at measures that target waste prevention, such as Advance Disposal Fees. She also said that perhaps we should set state-level waste prevention targets. Fishbein responded that it is more important to have economic incentives than targets. She said that, for example, if you have a weight-based fee, it works to reduce waste, but if you have targets, you spend considerable time measuring and figuring out how to measure to see if you've met the targets.

Considering where you put your signals is key, according to Davis, as this will greatly influence success in source reduction or recycling. If you use takeback programs, this puts a direct link to the designer/producer and you get source reduction, but the more this link is separated from the producer, the more the incentive to source reduce is decreased.

Zook pointed out that the effect of changing packaging will have impacts throughout the whole manufacturing/transport system; hence items such as toothpaste without a box may actually cost more. Bickerstaffe indicated that she believed eliminating the box had increased transport packaging. Swedish environmental label requirement may have led to increased material use according to Zook. Due to the myriad of unintended impacts of a decision, he favors leaving the decisions to manufacturers who understand and are able to judge the potential results.

There is an increasing tension between recycling and source reduction and there is an infrastructure supporting recycling, noted Boisson. For example, changing beer from glass bottles to lighter PET bottles could jeopardize the glass recycling infrastructure and put on the market a very hard to recycle replacement, all in the name of source reduction. Jaeckel agreed that in many cases going to a lighter plastic may have more impacts than a heavier material such as glass.

An alternative view was offered by Zook who suggested that waste management fees in Germany are sometimes contradictory. The fees on a paperboard carton are five cents and fees on a lighter plastic bag that would fulfill the same role are ten cents. According to Zook, a Life Cycle Assessment performed on these two packages found that the bag is environmentally preferable overall, but said that this is inconsistent with the market incentive created by Germany's fee structure.

According to Bickerstaffe, the EU Packaging Directive is very narrow, focusing on recycling and recycling targets. This she said has caused companies to focus on the recyclability of packaging, which often does not actually further the goals of waste prevention. For example, a study in Germany found that a change in packaging from composites (which have higher fees because of lower recyclability) to steel or glass (which have lower fees) would increase the quantity of material disposed. The composite packaging would result in 11,000 tons of material to dispose, while the steel packaging would require 12 times that amount and glass would require 40 times more material. Assuming maximum currently achievable recycling rates for the glass and steel, you still

end up with more material to dispose. This increases disposal costs and transportation costs and the latter materials have a lower BTU value if the material is incinerated.

Davis raised the question of whether it would be possible to have EPR without recycling quotas or recycling quotas without EPR. Bickerstaffe responded that EPR could be focused on such things as changing the design of the total transport system. She noted that Germany has had EPR in effect the longest, yet they still have a higher per capita packaging rate than does the U.K.

Good packaging reduction strategies require clear targets according to Jaeckel. Source reduction and recycling he noted are at different ends of the spectrum and it must be clear to participants what the goals are. He noted that the Packaging Ordinance in Germany has of course gone through a lot of trial and error to get the emphasis in the right place. Packaging may have become lighter and harder to recycle, yet packaging has also decreased dramatically. He noted that there has been a general change from plastic to paper and to reusable (refillable) transport packaging from corrugated cardboard. He noted that it is important to understand transport and packaging logistics.

Commenting on the unintended results of focusing on recycling in EPR, Fishbein noted that with some products you will indeed come up with “perverse” results, but overall the record does show that even with a focus on recycling, the overall quantity of packaging has gone down in countries such as Germany. Jaeckel expanded on this, noting that in Germany, where the program is driven by DSD’s license fees, there has been a decrease in packaging. He indicated that household packaging has decreased by about 900,000 tonnes and overall packaging, including transport packaging, has decreased by 1.7 million tonnes, in Germany, since the advent of DSD. He also noted that 80 percent of consumer packaging is recycled.

Boisson noted that in the U.S., most emphasis has been on industry participation in market development, but abroad it seems to have been on collection. What, he asked, has been the impact of the EPR legislation on recycled content in products? According to Jaeckel, the biggest change has been in glass and perhaps paper. He said that not so much has changed with metals because so little metal packaging is used in Europe. It has also been difficult to increase recycled content of plastic due to health and food contact issues. He noted that Johnson Controls is working on the issue of using recycled plastics in contact with food. Bury added that the real driver in Canada has been finding stable markets for collected materials. Bickerstaffe noted that there has been a strong “Buy Recycled” campaign in the U.K., primarily looking at alternative uses for recovered materials other than packaging. The big recycled content push in the U.K. has been newsprint.

The potential for EPR to impact recent changes in packaging in the U.S. that have been counter to waste prevention and recycling goals was raised by Fishbein. Examples include the contour can by Coke, which increased material use by 20 percent (2 grams per can), the use of pigmented HDPE by Hood Dairy, the proliferation of multi-resin packaging, and the increased use of adhesives in packaging.

In response to this and further questioning, van Bochove noted that in the Netherlands companies are allowed to put packaging on the market that furthers their business interests. They are encouraged to pursue waste prevention and must file waste prevention reports with SVM-Pact and are required to explain any reasons for increased packaging being placed on the market. He also suggested that there is a difference between quantitative and qualitative waste prevention. You have to look at where the packaging will go. If it will be incinerated, perhaps a high BTU multi-material package is acceptable, but if it will be recycled, then it is most important that it is a mono-material. Jaekel added that regarding the contour Coke can, since material use increased 20 percent, DSD license fees will also increase 20 percent in Germany. He noted that something like the Hood milk jug could be a problem. The pigment wouldn't change the license fees since they don't distinguish between types of plastics. He said that DSD may have the power to intervene in such a case, but such intervention would be unlikely.

Bickerstaffe noted that the E.U. has not only stressed recycling, but has issued the Essential Requirements for packaging design. Although the Essential Requirements are very broad, they will to some extent drive reductions in packaging, although the marketing function of packaging will never disappear. In the U.K., she said, they are looking at pan-sector agreements to spur packaging reduction. The purpose of this is for all companies within a sector to agree to the same reduction, such as removing boxes from tooth paste. If only one company removes the box they may lose their marketing position, but if all companies agree to take the same step this concern is eliminated. You have to get past antitrust problems, however. She noted that computer games are a classic example of over packaging, where the only solution would be a pan-sector agreement.

Municipal Costs

In Bickerstaffe's perspective, the intended purpose of EPR legislation is to decrease costs for municipalities and to decrease labor and energy costs. In fact, the costs for municipalities have not decreased because they still have to perform the same collection services for refuse whether there is more or less of it. Jaekel responded, saying that without the Packaging Ordinance, costs in Germany would have increased more because of increased incineration and other associated disposal costs. Municipal curbside collection has decreased, he said, or is now contracted by DSD, so costs have decreased.

Financial risk to municipalities is a key issue according to Davis. Cities essentially need an insurance system. When market prices for recyclables fall below a certain level, municipalities need a guaranteed minimum price. Industry would assume the risk by ensuring that municipalities would not have to pay more than some specified amount to get rid of materials collected for recycling. Thus, they would not be at risk for increased costs to manage recyclables.

HOW DOES ALL OF THIS APPLY TO THE U.S.?

Differences between European countries and the U.S. in both geography and culture are important to recognize. Eric Friedman, Massachusetts Environmental Purchasing Coordinator, noted that many of the programs in Europe have been implemented on a national level. Given the size and diversity of the U.S., he suggested analyzing regional programs which have worked and which might be applicable in the U.S. Bickerstaffe agreed that different waste management structures are valid in different contexts, so that countrywide mandates may not be the best option. Janet Matthews, NYS Legislative Commission, suggested that the best option for state and local government impact on packaging is to select discrete targets, focusing on only a portion of the packaging stream or on one industry (*e.g.*, toy or computer software manufacturers, whose products tend to be overpacked in relation to the product they convey). When broader initiatives are attempted they become more contentious, fears of increased costs and job loss are raised, and no progress is made. She also noted that there is not much grassroots support for EPR in the U.S. and that packaging reduction legislation has generally failed at the state level.

The Center for Clean Products and Clean Technologies at The University of Tennessee is looking at EPR on the local level as part of an ongoing study and the results should be available in 1999. Davis has found that from a legal standpoint, there are not significant obstacles in the way of local or regional EPR. In addition, from a financial point-of-view, local governments have the most at stake. He agreed that it is important to make strategic decisions and not target the whole waste stream. For example, some local governments were concerned about Ni-Cd batteries and targeted these. Ultimately this led to national action because manufacturers were concerned about the potential for differing mandates across the country. Programs directed at products (like batteries or electronics) seem to be easier to develop than those directed at packaging.

Globalization

Given that EPR is now a fact of life for manufacturers throughout much of the world, and that it has been approached in so many ways, U.S. companies are impacted by these programs. They face a complex set of requirements that may be different in each country in which they distribute their products.

Some companies such as Procter & Gamble, view the market globally and are reorganizing to locate business leadership centers all around the globe. Zook noted that several major products are packaged in the exact same materials worldwide, *e.g.*, diapers in polybags. For other products, *e.g.*, detergents, there are some differences. For shampoo they are working to find a single bottle that can be purchased and marketed worldwide.

Jaeckel, however, pointed out that there are differences in packaging of the same product between countries, even within Europe. For example, 60 percent of the bottles Coca-Cola markets in Germany are refillable, while virtually none of the bottles they market in France or the U.S. are refillable. Why is this the case? van Bochove answered that refillable

bottles are more expensive to the company than disposable bottles so they only use them where they are required to do so. He added that Coke is attempting to move to nonrefillable bottles in the Netherlands, but that they are required to prepare a comprehensive Life Cycle Analysis (LCA) to do so. Zook concurred that the situation is different in every way in each country and that many decisions, such as P&G's decision where to use refillable juice bottles, are based on country legislation. Davis noted that P&G has a source reduced plastic film bag for detergent in Sweden, but it is not available in the U.S. According to Zook, this 80 percent source reduced bag, when compared to cardboard, has been marketed in the U.S., but with no success. Terracino also suggested that to be successful a company must address specific market needs and desires. For example, in some countries, he said, consumers want pet food in PET containers, while in others they want it in bimetal cans.

When asked about difference in marketing between the U.S. and Europe, Terracino said that although they are about the same, the European market is more seasonal for confections, *i.e.*, M&M Mars sells lots of large, specially packaged candy items during holidays such as Easter. The major difference, however, is transport packaging. While others had noted increased use of reusable shipping containers, Terracino noted that the differences between pallets between each country can cause shipping problems and he noted that its much easier to slipsheet goods in the U.S. (Slipsheeting involves placing modules of products on a sheet of cardboard or plastic so that they can be combined into larger modules for shipping in trucks, trains, container ships, etc. The rationale for slipsheeting over use of pallets is that you can fit more product into a space with less weight, while still being able to move blocks out for distribution. Apparently the shipping system, taken as a whole, is more amenable to slipsheeting in the U.S.)

DISCUSSION OF ISSUES

Voluntary vs. Mandatory

Free riders (companies that do not participate) are a major problem in implementing EPR. They are the primary reason that voluntary schemes are difficult to implement and EPR may require a regulatory net to be sure that all of the covered companies participate.

Legal Challenges and the Role of Life Cycle Assessments (LCA)

Legal issues related to EPR were raised by Anne Marie Santangelo, NYC DOS Legal Affairs, who asked whether any countries in which EPR had been adopted had experienced legal challenges, particularly in regard to the use of environmental impact assessments and LCAs. The potential for LCAs to arrive at clear results versus being ambiguous and influenced by the sponsor was discussed. Bickerstaffe said that the LCA for paper versus plastic bags was ambiguous, while Jaeckel said that an LCA for carbonated beverage packaging was clearly in favor of refillables. In regard to legal issues, Denmark's beverage restrictions relating to banning cans and requiring refillables is being challenged

in the European Court on the basis that these are a restraint of trade. In Ontario, Canada, a levy on non-refillable bottles was upheld by the World Trade Organization, which found that it was not a restraint of trade as long as U.S. (foreign) beer still had access to the market. Fishbein noted that there had been no challenges based on antitrust issues to bottle bills in the U.S. A decade ago, Suffolk County, N.Y. passed a law banning retailer added plastic packaging. The law was not implemented for a number of years and rules were in place for only several months. Objections and legal challenges were raised by numerous interests which resulted in a revision to the law which eliminated the ban and instead emphasized recycling.

WHAT CAN NYC DO?

Packaging in the municipal solid waste stream can be reduced in two ways: 1) consumers can choose to buy products with the least packaging and, once purchased, can participate in recycling programs; and 2) producers can design packaging to reduce the amount used and to facilitate recycling. Boisson suggests that municipalities like New York City continue to develop and expand programs targeting the first strategy, such as providing convenient, efficient recycling collection services, enacting environmental procurement policies, adopting pay-as-you-throw pricing, providing public education and developing local secondary material markets.

In contrast, a municipality's options for influencing producers, the second strategy, are very few. Municipalities can help to promote change, but cannot single-handedly effect change. Working to influence Congress by joining with other municipalities and organizations to urge adoption of a manufacturer responsibility scheme tailored to the U.S. is one possible avenue. Legislation requiring specified packaging reductions could also be adopted at the city level and advocated at the state level. Recognizing the difficulty of implementation and enforcement of such a local action and its limited ability to influence the market place in a significant way, the goal would be to build a groundswell of support for legislation at the national level, with the intent of drawing industry to the table to discuss voluntary initiatives.

Davis suggested that the City of New York can act as a driver for more environmental products on three levels: 1) by establishing procurement requirements for agencies; 2) by educating the City's large consumer base; or 3) by using the legal power of the City. On a national level, Boisson suggested a partnership among groups such as the Conference of Mayors, regional state recycling organizations like the Northeast Recycling Council, the Mid-Atlantic Council of Recycling Economic Development Officials and the Mid-America Council of Recycling Officials, and major cities from throughout the nation. These groups could work in tandem, adopting resolutions to formally and publicly send a message, and inviting industry to the table in a spirit of voluntary cooperation. He also discussed public/private voluntary partnerships and the EPA-funded Plastic Redesign Project being undertaken by the Association of Postconsumer Plastic Recyclers to redesign plastic bottles. Manufacturers, he said, should be encouraged to adopt the design policy.

Packaging Tax

Enactment of a tax on packaging is a legally available option for NYC. The NYS legislature adopted revisions to the NYS Tax Law (section 1201 of Article 29) which allow NYC to enact a tax on the sale of containers. The tax can be levied on retailers or on suppliers of the packaging. The law establishes maximum fees based on the material used and reduces the rates for packaging containing specified amounts of recycled materials. (See Appendix G for copy of the law).

This law has not been used by New York City to date. While this is a legally available option, the impact of the City Council enacting such a tax within the City would have significant political and economic implications.

Purchase Preference - Procurement

Using the purchasing power of the City to further packaging waste reduction was discussed. A number of ideas were mentioned, however the practicality of implementing such measures is a concern. Among those ideas mentioned were:

- Requiring vendors to take back shipping containers or use reusable shipping containers.
- Adopting lifetime costing for purchasing decisions to encourage durable and reusable products.
- Adopting a purchase preference with allowed cost differential for packaging that is reduced, recyclable or has recycled content.
- Requiring vendors to file packaging reduction plans or meet a particular packaging waste reduction target.

The problem with a local level approach is that even with a city the size of New York, the market does not respond. For example, New York City enacted a law requiring the use of a certain percent of alternative fuel vehicles. They hoped that this law would drive the market to provide these vehicles. However, the market did not respond and now the city has a law requiring them to have vehicles that they can't obtain. The Federal government needs to take the lead in setting procurement requirements and specifications since manufacturers will tend to ignore the requirements of a single or even several municipalities or states.

Friedman expanded on this by noting that there is an inherent problem in dealing with bid specifications and packaging because of the long established process of writing bids that focus on the product's price, quality, availability, end user needs etc., not on the packaging. He noted that in Massachusetts points can be given for source reduction and recycled content, but that this just doesn't add up to enough for most bidders to change their practices just to get these points.

Incorporating environmental packaging requirements into bid specifications, however, may be counter productive to the primary goal of cost effectiveness. As more requirements are incorporated into a bid, the potential number of respondents decreases and many smaller respondents are eliminated. This is especially problematic at the local level, where the bid pool is small to begin with.

In response to a question about the extent of coordination between procurement officials in different cities, it was noted that a purchasing cooperative among cities had been started in New York State, but that there were many legal problems in doing this. The result has been that other cities are simply using New York City's contracts. Some states have come together to bid on items such as recycled content traffic cones, so there is a precedent in this area. If the governments could really coordinate, there is a lot of purchasing power in New York State and the region.

The positive impact of state actions to increase recycled content for newsprint was mentioned by Boisson. Six of the 10 states that are part of the Northeast Recycling Council have voluntary agreements between the newspaper industry and the State and two states have laws requiring 40 percent recycled content in newsprint. While sometimes the percentages specified in the agreements could not be met, this, he said, isn't as important as keeping the dialogue going and continuing to expand capacity. The important thing is to maintain an eye on the real goal rather than specific, short-term numerical targets.