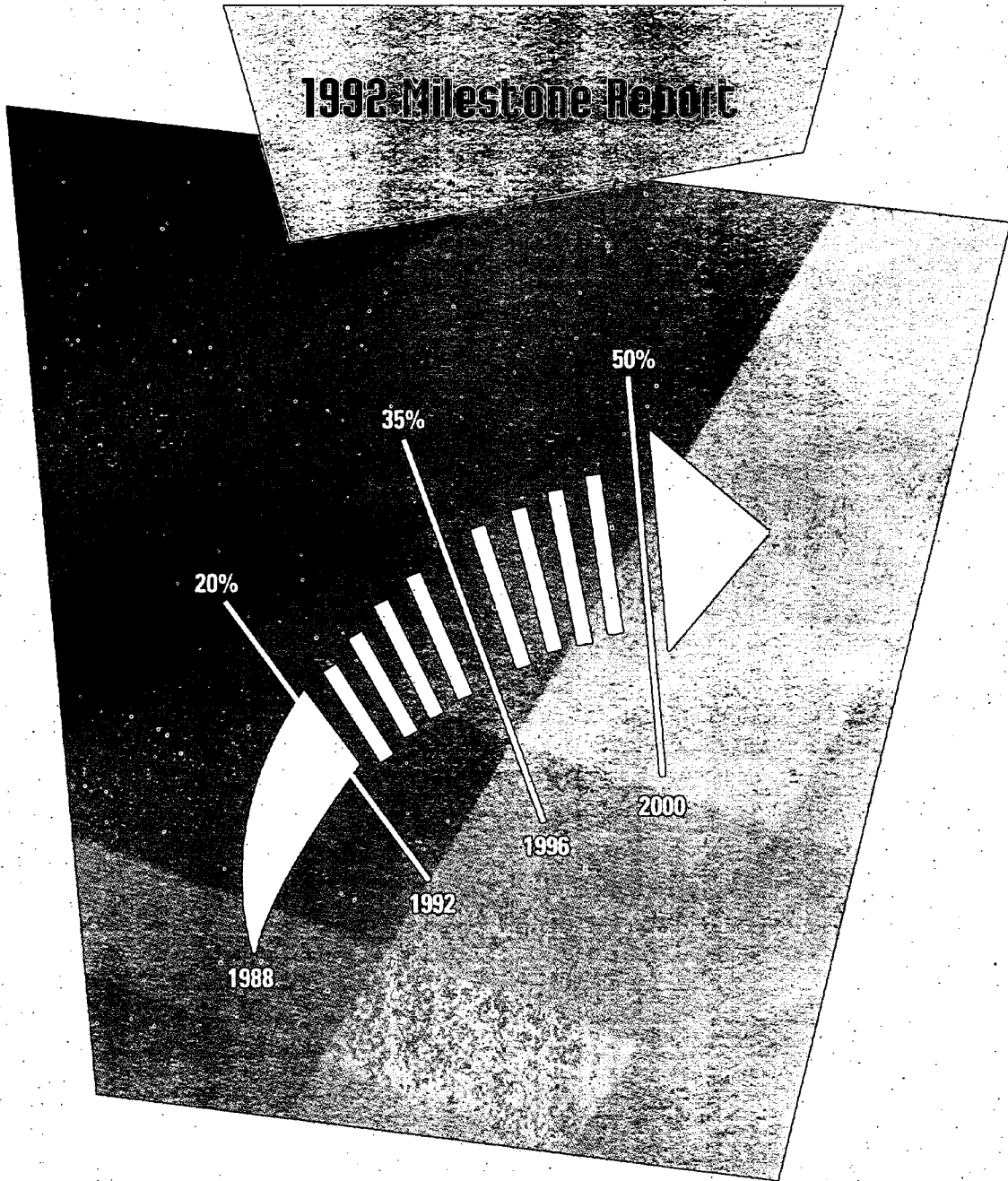


NATIONAL PACKAGING PROTOCOL

1992 Milestone Report



CCME

Canadian Council of Ministers of the Environment / Le Conseil canadien des ministres de l'environnement

The Canadian Council of Ministers of the Environment (CCME) is the major intergovernmental forum in Canada for discussion and joint action on environmental issues of national, international and global concern. The 13 member governments work as partners in developing nationally consistent environmental standards, practices and legislation.

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National Packaging Protocol 1992 Milestone Report

Canadian Council of Ministers of the Environment (CCME)

Report CCME-EPC-NAPP-81E
June 1994

This report has been prepared by the Chairman of the National Task Force on Packaging with input from its membership. Packaging statistics were developed from the National Packaging Monitoring System using Statistics Canada surveys.

The report and its recommendations were presented to the Canadian Council of Ministers of the Environment at their November 16, 1993 meeting. In its communiqué, the council referenced the 1992 National Packaging Protocol target and *"acknowledged the voluntary efforts of industry in helping achieve this interim goal. However, since progress has been uneven by industry sector and by material, the council directed its National Packaging Task Force to further analyze recent data to determine the sectors where improved performance should be encouraged. The council confirmed the need to work together with industry to share responsibility for managing packaging waste, to harmonize packaging stewardship initiatives across Canada, and to jointly identify actions required to achieve the 1996 and year 2000 reduction targets of 35 percent and 50 percent respectively."*

EXECUTIVE SUMMARY

In 1990, the Canadian Council of Ministers of the Environment (CCME) endorsed the National Packaging Protocol, a commitment to six policies and three milestone targets for the reduction of packaging waste from 1988 levels: 20% by 1992; 35% by 1996, and; 50% by the year 2000. Since then, the National Task Force on Packaging, under the chairmanship of Environment Canada, has been leading work towards the Protocol's implementation and the monitoring of progress. This summary describes progress in achieving the goals of the Protocol and the first packaging reduction milestone target.

Based on the data from the 1992 survey, a 21% reduction in the amount of packaging waste sent for disposal was achieved, relative to 1988. This exceeds the National Packaging Protocol first milestone target of 20%.

The data used to assess this progress was gathered by Statistics Canada for the National Packaging Monitoring System and is based on responses from approximately 10,000 establishments in 32 industry sectors from all provinces and territories reporting on the production, use, reuse, and recycling of 32 packaging material types. Packaging consumption and disposal were estimated based on this data, and on imports and exports of in-use packaging reported to Customs Canada. The variability of the estimates is discussed.

Although there has been a decline in the domestic production of packaging materials and containers of 13% since 1988, consumption of new packaging increased by approximately 3%. Higher levels of imported empty and in-use packaging as well as population increases can explain why this trend is occurring. Thirty-six percent of all packaging consumed in 1992 was reused, making reuse the largest contributor to the diversion of packaging waste. On the other hand, 23% of packaging consumed went on to be recycled, while the remaining 41% went to disposal.

Progress since 1988 among material types varied. The first assessment of survey information suggests that further analysis is required to identify specific areas where efforts should be pursued according to each industry sector's relative contribution of packaging to the waste stream and the efforts expended to date. Focussed efforts and a balanced approach between industrial and consumer packaging is desirable to effectively meet the Protocol's future reduction milestones.

The National Task Force on Packaging recognizes that while the first milestone target has been met on a national basis, work must continue to meet the full set of commitments and other packaging waste reduction milestones for 1996 and the year 2000. The role of the multi-stakeholder group in overseeing progress, guiding initiatives in selected industry sectors and promoting the development of stewardship programs will be an asset to Canada's efforts to reduce packaging waste.

NATIONAL PACKAGING PROTOCOL

1992 Milestone Report

CONTENTS

	Page
EXECUTIVE SUMMARY	iii
1.0 BACKGROUND	1
1.1 Purpose of the Report	1
1.2 Review of the History of the Protocol and the Mandate of the Task Force	1
1.3 Overview of International Activities	2
2.0 PROGRESS IN IMPLEMENTING THE PROTOCOL	5
2.1 Task Force Initiatives	5
2.2 Industry Initiatives	6
2.3 Government Initiatives	7
2.4 Public Interest Group Initiatives	8
2.5 Assessment of Performance Related to Actions and Policies Contained in the Protocol	8
3.0 ASSESSMENT OF PACKAGING REDUCTION	15
3.1 Monitoring System Methodology	15
3.2 1988 Benchmark	16
3.3 Evaluation of 1992 Packaging Statistics	17
3.4 Other Analysis	22
3.5 Summary of Findings	24
4.0 RECOMMENDATIONS FROM THE TASK FORCE ON PACKAGING	25
APPENDIX A: National Packaging Monitoring System Industry Sectors	27

1.0 BACKGROUND

1.1 Purpose of the Report

This first milestone report, prepared by the National Task Force on Packaging, reviews the progress in achieving the goals and objectives set out in the National Packaging Protocol. 1992 was the first milestone identified in the Protocol for an interim packaging waste reduction target of 20%. According to the data available from the National Packaging Monitoring System (NPMS) survey, this target has been met.

The National Packaging Protocol identified specific actions to be undertaken by various stakeholders as a means of achieving stated objectives. The report contains a review of the status as well as the importance of these action items in increasing awareness and maintaining the impetus for packaging reduction nationally.

Although the Protocol outlines national targets only, a more detailed assessment of progress by material, and a brief overview is presented of additional analysis required in order to better understand in what areas packaging reductions have been achieved and where opportunities for future reductions exist. Finally, based on this first milestone assessment, the Task Force formulated recommendations for consideration by the Canadian Council of Ministers of the Environment.

1.2 Review of the History of the Protocol and the Mandate of the Task Force

In April 1989, the then Canadian Council of Resource and Environment Ministers (CCREM) - now the Canadian Council of Ministers of the Environment (CCME) - stated:

"Waste management is an urgent and pressing national problem. Some jurisdictions are already running out of landfill sites, in part because Canada is one of the most wasteful nations. For this purpose, Ministers have instructed the Waste Management Committee of CCREM to develop a packaging policy for Canada within a broad review of solid waste management opportunities including government purchasing and recycling policies. It was agreed that targets and schedules for waste minimization be established, including a fifty percent (50%) reduction in waste generation by the year 2000."

The National Task Force on Packaging, comprised of representatives from the various levels of government, industry sectors, consumer and environmental groups, was established by the Canadian Council of Ministers of the Environment in 1989 with a mandate to develop a packaging policy for Canada. Through a consultation process carried out across Canada, the Task Force developed a National Packaging Protocol containing six policies aimed at minimizing the environmental effects of packaging and achieving a significant reduction in the amount of packaging waste sent for disposal.

Specific milestone targets were established for the diversion of packaging from the waste stream. These targets are: 20% by December 1992; 35% by December 1996, and 50% by December 2000, compared to packaging disposal in 1988. These goals are to be achieved through the use of the hierarchy of the **3R's**, with **Source Reduction** being the preferred option, followed by **Reuse**, and then by **Recycling**.

The Protocol was endorsed by the Canadian Council of Ministers of the Environment in 1990 and, since then, the National Task Force on Packaging, under the chairmanship of Environment Canada, has coordinated a variety of activities aimed at the implementation of the Protocol. These activities are described in section 2.0.

1.3 Overview of International Activities

Waste, including packaging waste, has become an important issue not only in Canada but also in many other industrialized countries in the world. Canada, because of its size and widely dispersed population, differs greatly from most other jurisdictions and has some unique problems; however, it is important to follow developments and trends in other countries and to monitor new initiatives and developing technologies. Because of the proximity of the U.S. to Canada and the volume of trade between the two countries, it is especially important to be aware of packaging-related initiatives in that country.

In general, waste collection and disposal in most developed countries are traditionally managed by public waste management systems. While landfill capacity is an issue in all countries, the acceptability of incineration, as a waste management option, varies according to jurisdiction.

Packaging has been identified in many countries as a significant component in the total waste stream and a variety of programs have been introduced, or are being developed, aimed at reducing packaging waste and returning recycled materials to the packaging manufacturers. All of the programs reviewed were initiated by government or resulted from government action. Many of the programs are supported by a regulatory framework, although most acknowledge that time is needed to develop the appropriate infrastructures and new technologies before regulations can be introduced.

In the U.S., while no national scheme has been developed to address packaging, various states have introduced bills aimed primarily at encouraging recycling and the use of recycled materials in packaging. The Council of North East Governors (CONEG) has urged voluntary initiatives by industry to reduce packaging waste through a program based on the 3R's hierarchy. A comparable voluntary commitment by industry is contained in the CCME "Canadian Code of Preferred Packaging Practices". A model for legislation covering toxic materials was developed by CONEG and this has been adopted in many states.

In Europe, programs tend to reflect a fundamental shift in responsibility for the management of packaging waste to industry, which is required to establish and fund packaging diversion infrastructures designed to achieve the program objectives. The shift in funding of collection and recycling operations from a public tax-based source to a consumer-based source is the basis for several of these programs. The change in policy derives from the premise that if industry is responsible for funding such programs, there will be more incentive to reduce packaging, institute reuse systems and develop more efficient infrastructures and markets for recycled materials.

Some of the issues that have emerged in Europe during the last few years are as follows:

Recycling Infrastructure: As in Canada, the development of appropriate infrastructure to sort, recycle and re-introduce packaging waste into the packaging stream is a relatively slow and often uncertain process. Difficulties with some plastic materials and composite materials are recognized as major challenges, while limited recycling capacities, high costs and adverse economic impacts are concerns. In addition, there are some restrictions on the use of recycled materials in packaging which comes into direct contact with food and health care products.

Environmental Considerations: Although the management of waste is the dominant force driving the majority of the programs, consideration is being given to the environmental impact of the various options and work is being carried out to develop appropriate tools to assist government in setting policies which will result in the lowest environmental impact possible.

Transboundary Movement of Recyclables: Due to limited markets for collected recyclable materials, some of these materials are being shipped across national borders to be landfilled or incinerated. In some cases, there have been reports of local paper and plastics recyclers having their efforts undermined by cheaper recyclable stock from other countries.

Importation of Foreign Products: Where industry-based funding schemes are in place, domestic products and foreign imports are expected to contribute to the fund on an equitable basis.

Labelling: Many environmental labelling schemes are in effect around the world, conveying a range of messages to the consumer. Attempts to standardize labelling requirements are being made by the European Commission and the International Standards Organization (ISO).

Industry Stewardship and Regulatory Options: Some governments have challenged industry to set up systems and infrastructures as well as develop the

technologies to meet specific targets according to clearly defined criteria. Failure by industry to meet the targets will, in most cases, result in more stringent restrictions on packaging and specific directives on industry involvement.

Measurement of Progress: Monitoring the progress in achieving packaging waste reduction targets is extremely complex. In most countries having waste reduction programs in place, this area has been the least addressed; there are no programs similar to the Canadian National Packaging Monitoring System.

A summary of some of the specific initiatives being implemented in other countries was prepared in the Spring 1992 issue of **NAPP News**.

2.0 PROGRESS IN IMPLEMENTING THE PROTOCOL

In addition to assessing the statistical data from the National Packaging Monitoring System survey, it is important to review the work of the National Task Force on Packaging and its members in implementing the actions identified in the Protocol. Several key activities have been successfully carried out since the document was endorsed in 1990. The accomplishments of the Task Force, specific industry sectors, the various levels of government and public interest groups which have contributed to the goals of the Protocol are summarized below.

2.1 Task Force Initiatives

1988 Packaging Estimates were finalized in 1992. The estimates were based on existing data from Statistics Canada's 1988 Census of Canadian Manufacturers, estimates provided by industry on packaging reuse and recycling, and Customs Canada's data on the import and export of empty and in-use packaging. Further details are provided in section 3.1 and 3.2.

Publication of the Canadian Code of Preferred Packaging Practices: The code is intended to promote excellence in packaging as defined by two fundamental and equally important principles: packaging must have a minimum negative effect on the environment while fully preserving the integrity of the products it contains. Guiding principles and packaging practices are described and a comprehensive checklist for packaging practices is included. This document was adopted by all stakeholders and the CCME in November 1991. [CCME publication EPC-NAPP-35E]

1990 National Packaging Survey was conducted by Statistics Canada with questionnaires sent out to over 10,000 establishments in various industrial sectors across Canada. The response rate for this first survey was approximately 60%.

1992 National Packaging Survey: During the early part of 1993, Statistics Canada surveyed over 10,000 establishments to gather packaging statistics for 1992. The results are presented in section 3.3. The response rate was much improved over 1990. About 87% of surveyed establishments responded.

Guidelines for Packaging Audits and Packaging Reduction Workplans were initially developed by the Province of Ontario and subsequently published by the CCME in 1992. The document provides guidance to industry for carrying out packaging audits and for preparing packaging reduction workplans. [CCME publication EPC-NAPP-44E]

Environmental Profiles: A sub-committee of the Task Force has carried out several projects in support of the development of guidance for minimizing the environmental impact of packaging. A national workshop was held in 1991 to examine needs and

benefits for the client group and a report on **Sources of Data for Life-cycle Analyses of Canadian Packaging Products** was released. The final guidance document **Environmental Profiles - Guidelines to Help Industry Meet the Goals of the National Packaging Protocol** should be released in Spring 1994.

Communications: Since the adoption of the Protocol, the National Task Force on Packaging has, through a communications sub-committee, initiated several communication programs designed to inform and update industry and the public.

2.2 Industry Initiatives

A **Packaging Stewardship Model** was developed by the **Canadian Industry Packaging Stewardship Initiative**, whose members include the Grocery Products Manufacturers of Canada (GPMC), the Canadian Council of Grocery Distributors (CCGD), the Canadian Soft Drink Association (CSDA), and the Retail Council of Canada. The model describes a funding mechanism to be used by GPMC members and other packaging users to support municipal waste diversion infrastructure and to assist in developing secondary markets for these materials. Under this proposed program, companies would pay a levy based initially on the weight of packaging used but would then move to a cost based levy in phase 2. This model was agreed to in principle by the Manitoba government in July 1993.

This initiative builds on the programs **Collecte sélective Québec (CSQ)** and **OMMRI: Corporations in Support of Recycling** already in operation in Québec and Ontario, respectively. CSQ and OMMRI promote and support the implementation of municipal systems to collect recyclables through the voluntary financial contributions of companies that put these products in the marketplace.

The Paper and Paperboard Packaging Environmental Council (PPEC) was formed in 1990 as a national umbrella group for four industry associations: the Canadian Pulp and Paper Association; the Canadian Corrugated Case Association; the Canadian Paper Box Manufacturers Association and the Canadian Chapter of the Association of Independent Corrugated Convertors. The main aim of PPEC is to coordinate and facilitate the paperboard packaging industry's efforts to minimize the environmental impact created by the production, use and disposal of its products, and to inform Canadians, on a regular basis, of its progress. Some of its more important achievements are as follows:

A coordinated project by industry to study the feasibility of recycling post-consumer boxboard. The feasibility has been confirmed and PPEC is taking a leading role in promoting the collection, recycling and reuse of this material.

As a result of representations by PPEC to the Railways Association of Canada, changes have been made to "Rule 41", which specifies minimum strengths for

corrugated shippers; this will result in a reduction of between 5% and 10% in the amount of fibers used in corrugated containers shipped by rail.

PPEC has sponsored studies on the composting of waxed corrugated containers and boxboard. Waxed corrugated containers are now being composted on a commercial scale as a result of this work. PPEC has also sponsored studies on the use of boxboard, waxed corrugated containers and non-recyclable kraft bags as a feedstock for the production of ethanol and a heating oil.

The Canadian Glass Container Industry has increased its recycled content from 8% in 1988 to 32% in 1992. About 200,000 tonnes of post-consumer, post-use recycled glass was used in 1992 with 43% of this coming from the Ontario Blue Box Program. This represents a significant reduction in mined natural raw material and energy usage in the production process and an estimated savings of 225,000 cubic metres of landfill across Canada.

The second largest manufacturer of fiberglass insulation in Canada uses 30% post-consumer recycled glass containers in its manufacturing process; as a result, 7,500 tonnes of glass were diverted from Alberta landfill in 1992.

In 1992, **La Societé des Alcools du Québec** reached an agreement to supply 28,000 tonnes of curbside recycled glass collected in Québec to an Italian glass container manufacturer.

The Plastic Film Manufacturers Association of Canada (PFMAC), is sponsoring a test program to evaluate the feasibility of recycling its discarded packaging collected through curbside multi-material collection programs. Starting in four Ontario centres, household plastic film products such as shopping bags, milk pouches, bulk food, fresh fruit, vegetable and frozen vegetable bags, overwraps, etc. will be collected and recycled. Member companies of PFMAC have committed to providing the markets for these recycled materials.

The Canadian Polystyrene Recycling Association - (CPRA) was established in 1989 in Ontario and has invested more than \$5 million to establish collection and recycling capability for polystyrene products. Materials are collected from food service locations, including hospitals, universities and colleges. In the year ending September 1992, CPRA collected in the order of 750 tonnes of polystyrene, saving an estimated 1,700 cubic metres of landfill.

2.3 Government Initiatives

Environment Canada has taken a lead role in coordinating the activities of the National Task Force on Packaging. It also coordinated the input of other federal

departments on the issue of packaging and has made several progress reports to the CCME Ministers.

"Guiding Principles for Environmental Labelling and Advertising" was published in 1991 by Consumer and Corporate Affairs Canada (now **Industry Canada**) in response to a growing concern regarding environmental claims being made by some brand owners regarding their packaging. The National Task Force on Packaging reviewed the document and developed standard definitions which were included in the 1993 revision. This document sets out the legal requirements for environmental labelling.

Provincial Governments have introduced or updated environmental protection legislation which includes provisions to exercise some control over the disposal of packaging. Much of the legislation is aimed at promoting reuse and/or recycling and the use of recycled content. Should the packaging waste diversion targets identified in the National Packaging Protocol not be met, most provinces have nationally consistent legislation in place to enable regulations to be implemented.

The Federation of Canadian Municipalities (FCM) has launched a Municipal Action Plan on Packaging. Also, FCM is working with Governments Incorporating Procurement Policies to Eliminate Refuse (GIPPER), to develop policies which will support markets for recycled materials and will encourage waste reduction. Municipal instruments and packaging stewardship will also be important aspects of these policies.

2.4 Public Interest Groups Initiatives

Environmentally Sound Packaging Coalition has launched a "Green Shopper" program and has published fact sheets aimed at informing consumers about the environmental impact of packaging and identifying ways in which the consumer can play his or her part in reducing this impact. The group also held workshops on "Environmental Labelling" and "Economic Instruments" in both Toronto and Vancouver.

2.5 Assessment of Performance Related to Actions and Policies Contained in the Protocol

The National Packaging Protocol contains six policies and identifies specific actions to be undertaken as a means of achieving the policy objectives. In addition, actions are specified in the sections covering Milestone Targets and Implementation. These actions are listed below under the appropriate policy heading with a brief summary of their status.

Policy #1 - All packaging shall have minimal effects on the environment.

Actions:

- *The federal government, in consultation with a multi-stakeholder group will undertake the development of methodologies and guidelines to be used in conducting environmental profiles of packaging, allowing users to compare packaging choices.*

The development of environmental profiles is an extremely complex process. Several national and international bodies are working towards establishing harmonized standards. A multi-stakeholder workshop was held by the Task Force in Quebec in October 1991 to identify the principal criteria to be considered in preparing profiles. Guidelines for preparing environmental profiles on packaging have been developed and should be released in Spring 1994. Further discussion by the National Task Force on Packaging is required to determine the most appropriate way to proceed with further development of environmental profiles.

- *Industry will undertake environmental profiles of its packaging in accordance with the above federal government guidelines, identifying the environmental impacts generated through the manufacture, use and post-use management of their packaging.*

Individual companies have undertaken environmental profiles on selected packaging materials. More activity is expected once the guidelines are available.

- *Based on profile outcomes, industry will prepare action plans and schedules to minimize environmental impacts and manage packaging through source reduction, reuse and recycling approaches.*

Although environmental profiles have not been carried out on a large scale, there have been significant initiatives by industry, since the adoption of the Protocol, aimed at source reduction, reuse and recycling initiatives. (See Section 2.2).

- *A multi-stakeholder group will be established to:*
 - (a) *identify research and development initiatives and priorities; and*
 - (b) *identify new business opportunities.*

Rather than establishing a multi-stakeholder group, individual sectors have acted independently to identify opportunities for research and development and new

business ventures. A multi-stakeholder group may not have the necessary focus to effectively carry out this activity.

- *Government will work with industry to identify and demonstrate new technologies which minimize the environmental impacts of packaging.*

Various levels of government have worked with industry to identify and demonstrate new technologies. For example, federal funding (Environment and Natural Resources, formerly Energy, Mines and Resources) and provincial funding has assisted with two PPEC projects, one to demonstrate that paper based packaging waste can be converted into ethanol, the second to show that it can also be converted into heating oil.

Policy #2 - Priority will be given to the management of packaging through source reduction, reuse and recycling.

Actions:

- *The federal government, in consultation with industry and the multi-stakeholder group, will establish a "Code of Preferred Canadian Packaging Practices" to guide industry in the design of products and the selection and design of packaging. In the development of the code, consideration will be given to the following hierarchy:*
 - 1) *No packaging*
 - 2) *Minimal packaging*
 - 3) *Reusable packaging*
 - 4) *Recyclable packaging and packaging containing recyclable material.*

The Canadian Code of Preferred Packaging Practices was published by the CCME in November 1991 with the full support of all of the stakeholders on the Task Force.

- *National minimum content standards will be developed by the federal government, in consultation with the multi-stakeholder group, for the inclusion of secondary/post-consumer material in packaging, recognizing health, safety, packaging product performance requirements, and regional limitations.*

The Task Force formed a "Recycled Content Sub-committee" which issued a brief technical report on recycling opportunities and barriers. No further action was taken.

- *Provincial and municipal governments, together with appropriate industry, will develop the infrastructure of their choice to collect and market packaging*

materials for reuse and recycling in order to achieve the targets of these national packaging policies.

There has been considerable activity in this area, including: setting up of curbside collection programs, establishment of recycling depots, legislation requiring minimum levels of refillable containers, deposit programs and taxes on specific containers.

The Canadian Industry Packaging Stewardship Initiative proposed a packaging stewardship model which is designed to provide funding for reuse and recycling initiatives on a provincial basis. The concept of packaging stewardship is being discussed by the Task Force and others.

- *Industry/government partnerships will be formed to develop new and expanded markets for recycled packaging material.*

Packaging material manufacturers and packaging users are working closely with provincial and municipal governments to increase collection for recyclables where markets for these have been established. The main problems in this area include:

- The development of markets for new recyclables.
- Cost sharing arrangements - who pays?
- Municipal collection contracts having penalty clauses covering new materials which are added before the contract expires. Since contracts vary in length from two to four years, industry's ability to meet the Protocol's targets may be adversely impacted.

Policy #3 - A continuing campaign of information and education will be undertaken to make all Canadians aware of the function and environmental impacts of packaging.

Actions:

- *Provincial governments will develop, with the multi-stakeholder group, education programs for use in schools.*
- *A national program will be developed by the multi-stakeholder group, to inform all Canadians of the functions and environmental impacts of packaging and to encourage environmentally sound purchasing practices.*

The Task Force adopted a communication plan focused on disseminating information to two principal audiences - industry and the consumer.

During the first year, the prime target was industry. A targeted program to promote the Canadian Code of Preferred Packaging Practices resulted in over 10,000 copies of this document being distributed to Canadian companies. An information list on Task Force activities was prepared and used by Task Force members during various functions. Also, articles were written and published in special interest journals and magazines.

In the second year of the communications program, the Task Force focused on raising the awareness of consumers and other decision makers of the importance of reducing packaging waste. As part of this strategy, the sub-committee organized the Christmas Campaign. In 1993, a guide to assist municipalities in the promotion of packaging reduction was prepared and released in cooperation with the Federation of Canadian Municipalities.

The publication of "Fact Sheets" and the "NAPP News" has also continued on a regular basis. In addition, a packaging "snapshot", aimed at children and the general public was produced through Environment Canada's Environmental Citizenship Initiative.

Policy #4 - These policies will apply to all packaging used in Canada, including imports.

Actions:

- *The federal, provincial and municipal governments will, with sensitivity to the needs of local industries, establish standards and regulations to apply these policies to all packaging used in Canada, including imports.*

One of the objectives of the Protocol is to provide industry with a consistent set of requirements across Canada which apply to imports as well as domestically produced goods. Uniformity is an important issue to industry since it allows beneficial economies of scale and distribution and therefore contributes significantly to competitiveness. Some of the provincial regulations that now exist, while reflecting the differing issues, priorities and infrastructure in those provinces, may lead to inconsistencies in approaches to managing packaging waste. The Protocol seeks, to the extent possible, to harmonize requirements and regulations affecting packaging waste.

- *The federal government will act as a liaison with other countries to promote the policies contained within this Protocol in relation to international trade.*

All trade missions, embassies and consulates have been briefed regarding the National Packaging Protocol and its goals. Also, there have been meetings between government representatives and counterparts in Germany, France, the Netherlands and the U.S. including a meeting with CONEG.

Policy #5 - Regulations will be implemented as necessary to achieve compliance with these policies.

Action:

- *Federal and provincial governments will, with the participation of the multi-stakeholder group, enact regulations which are compatible across Canada, which specify performance requirements, targets and deadlines for achievement consistent with these policies.*

A Legislative and Regulatory Sub-committee, consisting of all levels of government as well as the various sectors represented on the Task Force, was formed. This sub-committee has identified fourteen recommended elements to be incorporated into enabling packaging legislation. These elements have been used as a basis for amendments to laws in Ontario, British Columbia, Alberta and Newfoundland and proposed amendments in Saskatchewan and Quebec.

Policy #6 - All government policies and practices affecting packaging will be consistent with these national policies.

Actions:

- *Government policies and practices which impede achievement of the objectives of these packaging policies will be identified and where possible removed or modified.*

This process has not been completed. Due to the potential impact of conflicting requirements in some industry sectors, it remains a high priority objective.

- *Government policies and practices such as procurement, will be developed and implemented to support the achievement of the objectives of these policies.*

Most governments have in place, or are developing, procurement policies related to packaging.

Milestone targets

The target of 20% reduction by December 31, 1992 and the degree of achievement, is the main topic of this report. Three activities identified in this section of the protocol require comment.

- *Fifty percent of these diversions shall be achieved through new source reduction and new reuse initiatives. Recycling programs shall make up the remainder of these diversions.*

Although progress for each diversion option has been difficult to quantify, the assessment of packaging waste management in 1992 shows that this objective has been met.

- *Percentage goals will be reviewed annually.*

Although there has been no review of actual percentage targets, the Task Force has reviewed the merits of measuring disposal on a per capita basis versus an absolute measurement. At this time, progress will continue to be measured on an absolute basis.

- *Specific targets will be established for industry sectors in order to achieve these goals. It is incumbent upon those industry sectors unable to meet requirements to provide adequate documentation and alternative targets one year in advance of the prescribed deadline.*

Specific sector targets have not yet been set. Diversion targets being based on absolute numbers, it is unlikely that an industry sector can determine one year in advance that it will not meet a prescribed deadline since annual sales volumes for the sector will significantly contribute to the result.

Implementation

Action:

- *A multi-stakeholder group will be established to adopt a plan of action, develop a monitoring mechanism, track progress and prepare an annual report recommending plan modifications and target revisions.*

The monitoring mechanism has been developed (the National Packaging Monitoring System) and is being administered by Statistics Canada and Environment Canada. The results of the 1992 Packaging Survey are included in this report.

- *The CCME should consider a variety of funding options for multi-stakeholder activities. Among these could be:*
 - *charges for waste sent for disposal;*
 - *industry contributions; and*
 - *federal and provincial funding.*

The CCME funds the work of the Task Force, through its provincial and federal funding, with Environment Canada providing additional staff and support.

3.0 ASSESSMENT OF PACKAGING WASTE REDUCTION

3.1 Monitoring System Methodology

In order to monitor progress towards the achievement of the NAPP goals, the National Packaging Monitoring System was developed and, to date, Statistics Canada has been retained to conduct two annual surveys of packaging in 1990 and 1992 on behalf of CCME. The National Packaging Monitoring System stores and processes this survey information according to 32 specific industry sectors (Appendix A) and 32 different packaging types. The data obtained through these surveys includes the weight of packaging produced, used, reused and recycled as well as the weight of imports and exports of empty and in-use (filled) packaging.

Reliability of the estimates

Reliability of the estimates from surveys of this kind are affected by sampling errors and non-sampling errors. Sampling errors arise because data are obtained from a sample, rather than from a census of the entire population. A coefficient of variability can be used to quantify this error. Non-sampling errors are related to the administration of the survey itself, by respondents and by the survey operations team. These errors are minimized by a rigorous program of quality control on data administration and through follow-up with respondents. To the greatest extent possible, packaging data from the NPMS were discussed with packaging industry sources and inconsistencies corrected wherever possible.

Imports and exports

Customs Canada has provided a constant and reliable source of information on the import and export of packaging for the three years of the NPMS information. Packaging is imported and exported in two forms: empty packaging or packaging materials that are brought in empty or exported empty, and in-use (filled) packages that are imported or exported. In-use imports and exports only are used in the calculation of packaging consumption and disposal in Canada, as discussed below.

National disposal calculation

The amount of packaging which is sent for disposal on a national basis is calculated from the basic statistics according to the following formula:

$$\text{Disposal} = \text{Use} + (\text{Imports} - \text{Exports}) - \text{Reuse} - \text{Recycling}$$

Where:

Use is the reported use of packaging by weight in Canada,
(includes domestic and imported empty packages);

Imports and Exports account for in-use (filled) packaging;

Reuse is the weight of packaging reused in its current form; and
Recycling is the total weight of packaging sent for recycling by all surveyed sectors and the reported amounts prepared for recycling by processors.

Packaging consumption is the amount of packaging opened or removed from its product in Canada. Consumption on a national basis simply represents the total packaging used by domestic industries in 1992, plus the net imports and exports of in-use packaging.

1988 disposal calculation

Since a packaging survey was not conducted for 1988, disposal estimates were derived using a different method than that used for 1990 and 1992. To establish the 1988 benchmark, information from the 1988 Census of Manufacturers was supplemented with best available information from industry. In 1988, consumption of packaging was estimated using packaging production figures, since reported data on use of packaging by the various industry sectors was not available. Quantification of diversion activities (reuse and recycling) was not available from Statistics Canada, but partial estimates were obtained from industry sources.

Approach for assessing the results of the National Packaging Monitoring System

The NPMS presently holds information concerning packaging production, use, reuse, recycling and disposal in Canada for three years - 1988, 1990 and 1992. Recognizing differences in the way in which the estimates for each year were derived, the completeness of the data in each year and the levels of confidence associated with surveys of this type, useful observations can be drawn on the overall trends in packaging management and on diversion activities directed at different types of packaging.

The information from the NPMS is the principal tool to assess progress towards the goals of the National Packaging Protocol and to indicate areas requiring further analysis or increased waste diversion efforts. In this first report of progress, the information will be examined according to two criteria:

- 1. Changes in the management of packaging on a national basis since 1988 by examining overall trends in packaging use, reuse, recycling and disposal; and*
- 2. The contribution of various packaging types to the waste stream.*

Section 3.4 presents a discussion of additional analysis and interpretation which will be undertaken in the future using the information from the NPMS.

3.2 1988 Benchmark

While the Task Force has endorsed the 1988 baseline estimates as the best available information, it is important to note the methodological differences from the 1992 disposal estimates, and recognize that analysis from this baseline is limited.

Key packaging statistics in millions of tonnes for 1988 are the following:

PRODUCTION	NEW USE	IN-USE IMPORTS - IN-USE EXPORTS	REUSE	RECYCLING	DISPOSAL
6.36	6.18	0.23	----*	0.59	5.41

* Reuse data was not available from Statistics Canada. Estimates for only two material types (glass and wood) were available from industry sources for 1988, thus likely understating the total amount of reuse which took place in that year. Information on recycling was also obtained from some industry sectors and does not necessarily give a complete picture of recycling activities in 1988.

3.3 Evaluation of 1992 Packaging Statistics

Packaging data for 1992, in millions of tonnes, are presented in the following table while trends in 1988, 1990 and 1992 are presented in Figure 1:

PRODUCTION	USE	IN-USE IMPORTS - IN-USE EXPORTS	REUSE	RECYCLING	DISPOSAL
5.5	10.5	-0.08	3.8	2.4	4.24

Each packaging statistic is discussed below based on the criteria presented in section 3.1. Some key conclusions may be drawn:

- 21% reduction in disposal from 1988 to 1992;
- 13% decline in packaging production and a 3% increase in new packaging consumption; and
- increase in recycling of over 300%.

1. *National changes in packaging and packaging waste management*

As noted, the NPMS contains national packaging data representing all 32 industry sectors and primary and secondary materials processors and 32 packaging types. The NPMS includes the main packaging indicators for Canada: production, new consumption, reuse, recycling and disposal.

As discussed in section 3.1, there are bounds on the reliability of estimates based on survey results. The reliability of survey results from Statistics Canada for estimates of use and reuse are excellent on a national basis, while data on import and exports of packaging are derived from complete international trade numbers from Customs Canada. National estimates for recycling of packaging are acceptable, though less reliable than other terms in the disposal calculation. Recycling was not as highly reported as other packaging practices in 1992, nor as uniformly adopted, resulting in greater variability in

the data. Efforts were made to validate all estimates using other sources of data. Results to date provide assurance that these estimates are a good indication of national trends.

Disposal: A decrease is seen in the amount of packaging sent for disposal (Figure 1). The national disposal of packaging was 4.24 million tonnes in 1992 compared to 5.41 million tonnes in 1988. This represents a 21% reduction in packaging being sent for disposal, exceeding the National Packaging Protocol's target of 20%. The reliability of the 1992 national disposal estimate is acceptable, having a 95% confidence interval of $\pm 18\%$.

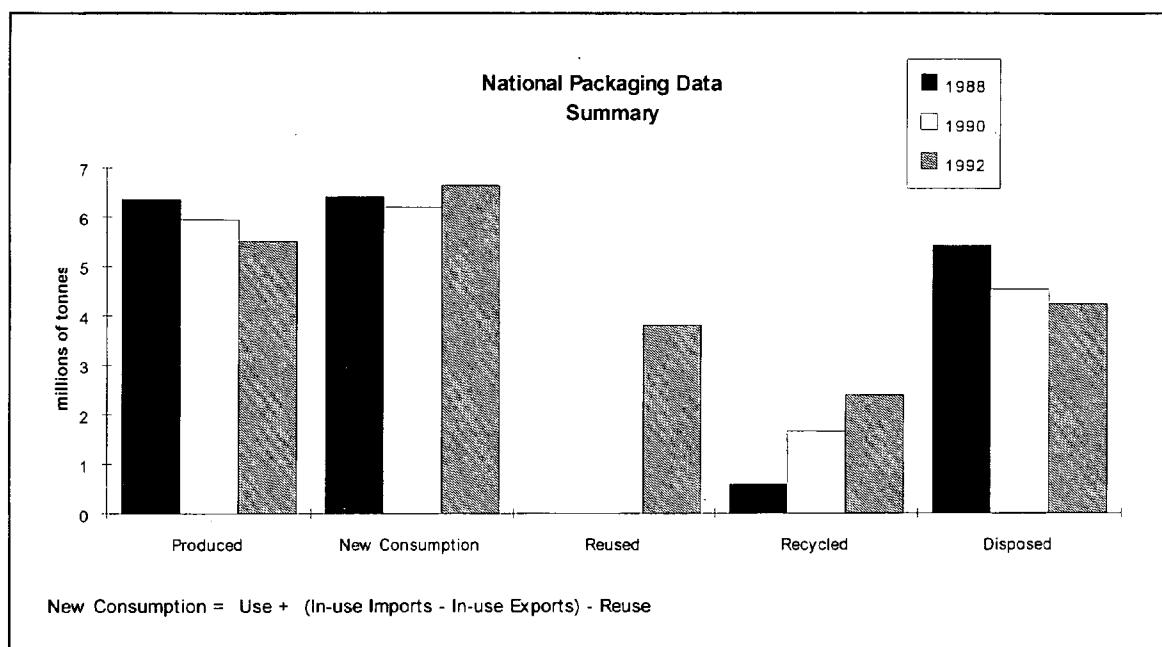


Figure 1 Summary of national packaging statistics 1988, 1990 and 1992

In 1988, the per capita disposal of packaging waste was estimated to be 209 kg/person/year. In the four years between 1988 and 1992, Canada's population increased by 5.8%, while national disposal of packaging decreased by 21%. The 1992 per capita packaging disposal number is now 155 kg/person/year, for a normalized reduction of 26% in packaging disposal per capita between 1988 and 1992.

Production: A constant decline in domestic production of packaging is observed, for a total 13% decrease from 1988 to 1992 (from 6.4 million tonnes to 5.5 million tonnes). This trend holds true for most of the NPMS nine packaging types, except for the multi-material and paper categories (Figure 2).

New Consumption: Packaging use in 1992 includes all packaging, new and reused, reported by each industry sector. Consumption of packaging on the other hand adds the

importation and exportation of in-use packaging to the total reported use. The "New Consumption" data in Figure 1 is based on total consumption less reuse. Since 1988, a net increase in the amount of filled and empty packaging imported into Canada has been recorded. This results in a 3% increase in new packaging consumption during a period of decreasing production.

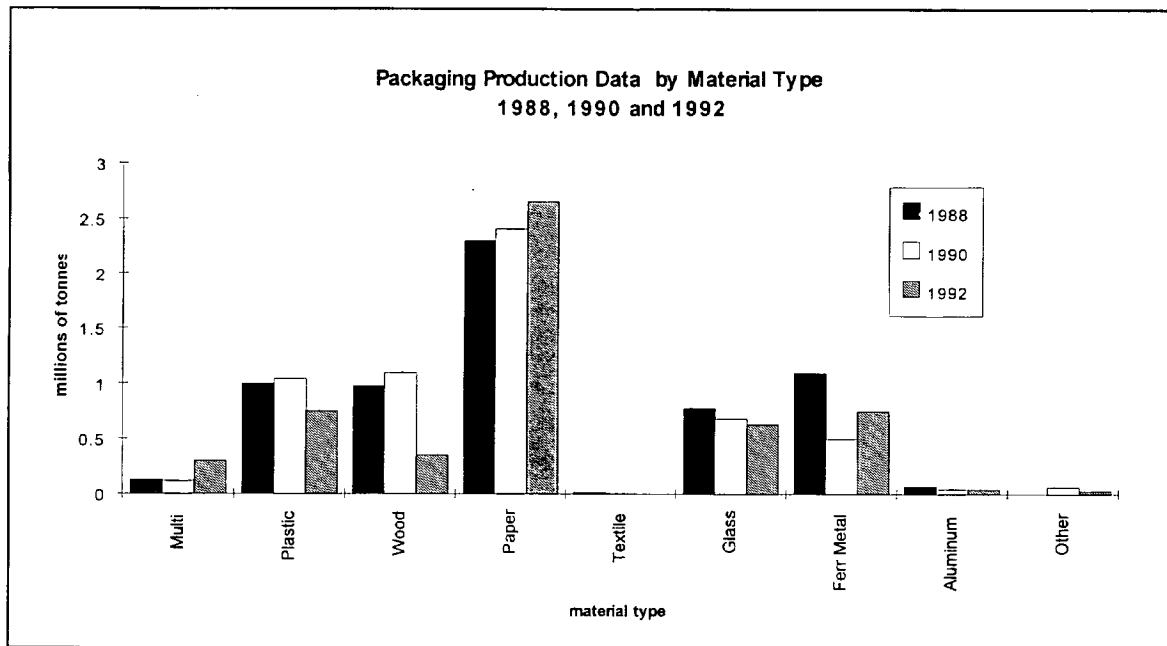


Figure 2 Packaging production by material type for 1988, 1990 and 1992

Reuse: It is difficult to accurately quantify and track reuse activities because of incomplete information at the industry level on this aspect of packaging management and also because of differences in the way in which reuse has been accounted for in the 3 NPMS years. The 1988 baseline did not provide a complete picture of packaging reuse, reporting estimates for only two material types, glass and wood. Furthermore, it is now believed that the first survey of packaging (1990) overestimated the quantity of packaging being reused because respondents more than likely included packaging which was reused within their own plant, as is often the case with pallets. A revision to the survey questionnaire in 1992 sought to clarify this question and reuse estimates for 1992 are markedly lower than in 1990. As a result, reuse data in 1988 and 1990 are not shown in Figure 1, and conclusions have not been drawn about trends in reuse between 1988 and 1992. On a national basis, reuse activities are important to diversion of packaging from disposal, accounting for 36% of the diversion from total consumption.

Recycling: In 1992, 2.4 million tonnes were recycled compared to 0.6 million tonnes in 1988. Recognizing the less complete data for 1988, this represents an increase of over 300%. All major packaging material types-- paper, plastics, multi-material, glass, ferrous

metals, aluminum-- showed an increase in recycling since 1988 (Figure 3). Wood is the one exception. Recycling diverted 23% of consumed packaging from disposal.

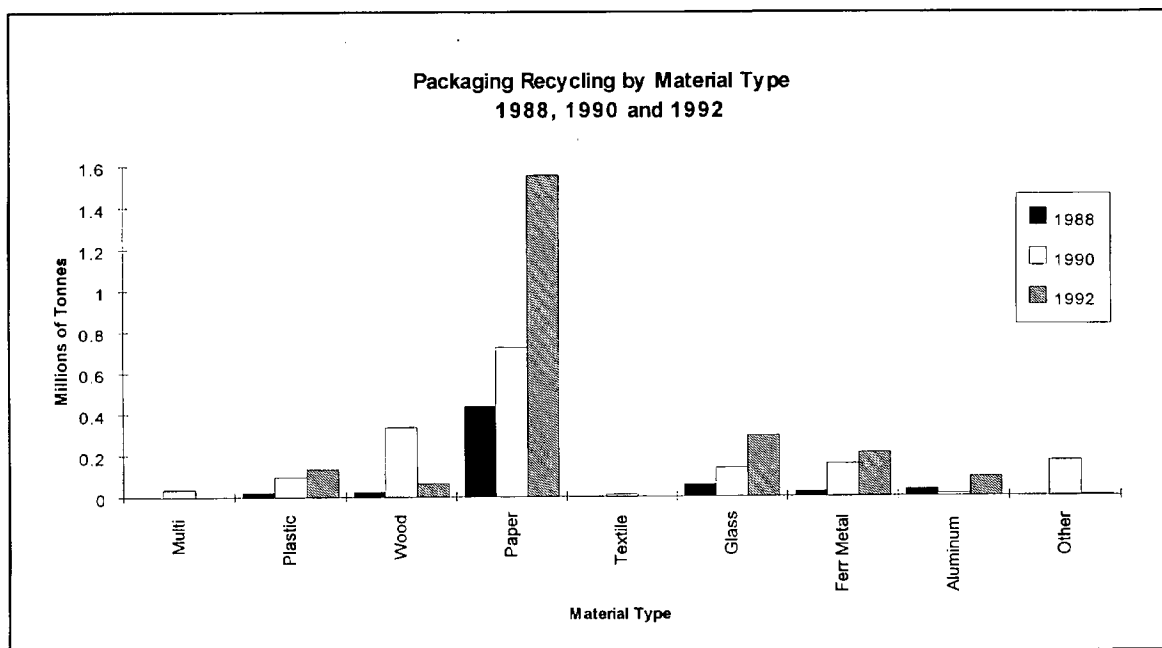


Figure 3 Packaging recycling by material type for 1988, 1990 and 1992

Imports and Exports: The following table displays the international trade data as reported by Customs Canada to Statistics Canada for the years 1988, 1990 and 1992.

	EMPTY PACKAGING '000 TONNES			IN-USE PACKAGING '000 TONNES		
	1988	1990	1992	1988	1990	1992
IMPORTS	500	656	1,102	1,110	1,158	2,820
EXPORTS	680	677	579	870	889	2,902
NET	-180	-21	523	240	269	-82

Almost 4 million tonnes of the packaging used and consumed in Canada in 1992 were imported, while in 1988 the total was less than 2 million tonnes. If these trends continue, imported packaging will play an important role in the Canadian market and in our ability to meet national waste reduction goals. This emphasizes the importance of ensuring that Canada's trading partners are aware of domestic expectations concerning packaging waste diversion, and that Canadian importers of packaging and packaged goods take an active part in achieving the targeted reductions.

Summary: Uncertainties regarding reuse and recycling in 1988, and those associated with the reliability of the survey estimates will influence the interpretation of trends

observed through the NPMS. While this may hamper the precise determination of progress and the more detailed assessment of changes in packaging practices, the trends are clear enough to show that, on a national basis, Canada has achieved the targeted reductions in the amount of packaging sent for disposal.

2. Contributions of packaging materials to the waste stream

Understanding the make-up of the packaging waste stream is key to focusing future diversion efforts and helping to assess whether any changes in the area of packaging design, material selection or infrastructure development have taken place. Figure 4 shows the amounts of packaging consumed in Canada in 1992 by material type, and their respective diversion activity.

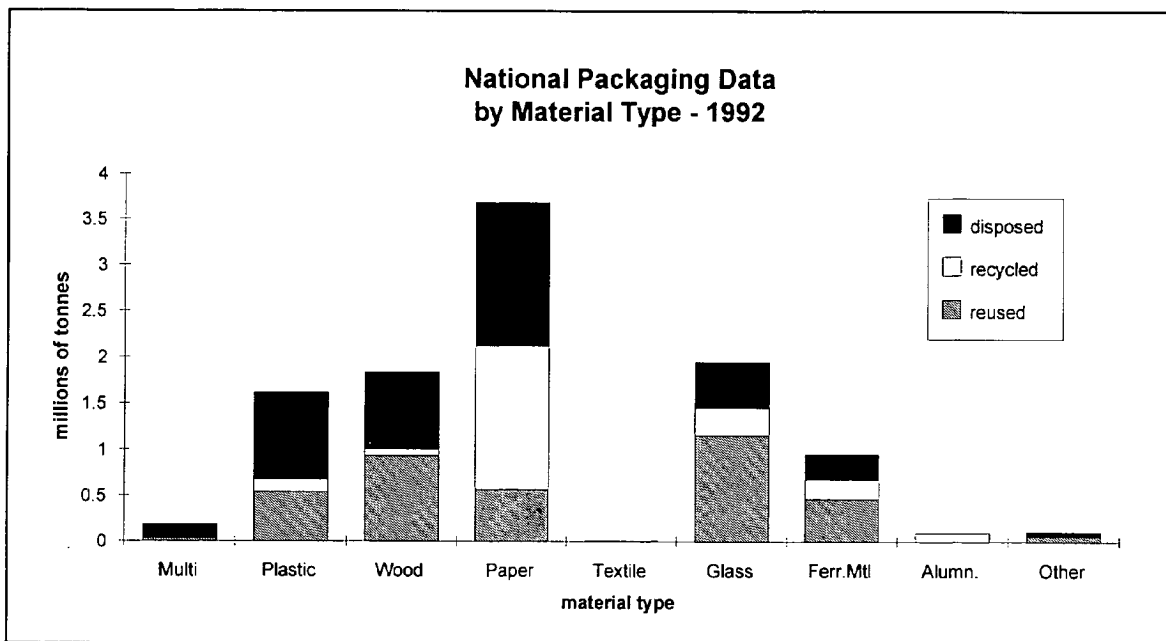


Figure 4 National packaging data by material type 1992

Paper packaging is the largest component of both packaging consumption and of packaging going for disposal. However, important diversions of paper packaging have taken place. Paper packaging includes boxes, cartons, paper sacks and bags, paper tubes & canisters, trays, dishes and cups and finally labels and tags, but the most important component is corrugated cardboard boxes which serve a very broad spectrum of packaging needs.

Efforts to divert glass, ferrous metal and aluminum packaging from disposal have been more modest but nevertheless successful in terms of the amounts diverted, resulting in less than 30% of packaging consumed requiring disposal. Although efforts have been

made to reuse wood, plastic and multi-material packaging, these material sectors have shown less progress in diverting packaging from the waste stream than their counterparts. Consideration should be given to identifying opportunities to increase the diversion of these materials from disposal while also enhancing efforts of the largest contributor to the waste stream-- paper packaging.

At the detailed packaging group level, fourteen packaging groups (45%) contribute to over 90% of packaging waste going to disposal. The contributing packaging groups are equally divided between consumer packaging and industrial packaging which points to the need to adopt balanced diversion strategies which will address the two different streams.

3.4 Other Analysis

As mentioned in the methodology section, the National Packaging Monitoring System also holds information on thirty-two industry sectors (Appendix A) and by province. However, like any survey of its kind, information at the detail level can be less representative and much more variable than the national results presented earlier. In addition, the Statistics Canada protocol concerning the suppression of confidential data affects particularly this detailed level information. Because of these constraints, only general observations on industry sectors and provincial results will be made at this time.

Industry sectors

Each establishment was asked to report how much new packaging it uses (packaging that it fills) and how much it sends for reuse and for recycling of each of the 32 packaging types. Aside from the constraint of suppressed confidential data for some packaging types in some sectors, this information is relatively straightforward to report. However, what is most relevant in terms of measuring progress of each sector towards the Protocol's goals is to determine how much of the packaging that is used--that is which is filled by each sector-- is actually reused or recycled. This is really how the efforts of each sector will be measured.

Each sector has a range of options to reduce packaging waste: reduce at source through changes in materials, packaging design, packaging construction, etc.; in-house or centralized reuse, and; recycling. These options may however be determined or limited by regulatory, health and safety, transport or infrastructure constraints. Early indications show that not all industry sectors have placed emphasis on the same packaging waste management options. The amount sent to disposal of the packaging used by the various sectors varied considerably. This is consistent with the results obtained in 1990.

Source reduction is the most difficult practice to quantify and the NPMS can only hint to progress in that area through figures on consumption and production of packaging. Better insights and more precise indicators on source reduction will have to come from discussions with individual sectors. Once the NPMS information is complemented with

data from other sources, and the effect of data suppression at this level is accounted for, a full report of progress on an industry sector basis will be provided.

An analysis of the change in Gross Domestic Product of industry sectors reporting to NPMS between 1988 and 1992 reveals that, on a national basis, only 1% of the reduction in packaging waste sent for disposal could be attributable to fluctuations in economic activity. However, on a sectoral basis, this fluctuation may be far greater. Gross Domestic Product indicators may assist in evaluating diversion opportunities and interpreting actual progress in each of the sectors.

Provincial analysis

An analysis of progress on a provincial basis faces the constraints noted above in addition to generally smaller samples than for industry sectors on a national basis. With a smaller pool of establishments to draw from than at the national level, the provincial statistics generally are associated with higher levels of uncertainty, and greater care must be taken when interpreting results.

A preliminary assessment of provincial progress indicated that diversion of packaging from the waste stream in each province varied. Several factors may have contributed to the variations: demographic changes in some provinces were greater than in others; fluctuations in level of economic activity, and; the status of secondary materials processing and recycling.

Three important verifications must take place before a final account of progress on a provincial basis can be presented:

1. establish the relative impact of data suppression at the provincial level and work with Statistics Canada to reduce its impact to a minimum;
2. determine the impact of interprovincial movement of recyclable materials on quantities recycled reported in each province; and
3. verify the consumption levels which are calculated for each province on the basis of reported use of packaging nationally.

Although the NAPP packaging waste reduction targets are national, it is the sum of the efforts in each province which leads to national progress. Further trend analysis matching industrial activity, consumption practices and infrastructure development will identify opportunities for additional packaging waste reduction in each province.

These tasks will be undertaken in close cooperation with officials in each province and with industry sector representatives, in order to benefit from their in-depth knowledge of their own packaging practices.

3.5 Summary of Findings

From this preliminary assessment of the 1992 survey of packaging, general conclusions can be drawn on progress and changes on packaging use and disposal since 1988.

- Within the confidence interval of the NPMS survey by Statistics Canada, increases in the amounts of packaging materials being reused and recycled confirm that 21% less packaging was sent for disposal in 1992 than in 1988. Packaging waste diversion initiatives have achieved the NAPP target for 1992. Per capita disposal decreased by 26% from 1988 to 1992.
- Although domestic production is slightly down and total consumption is higher in 1992, the national per capita consumption went down slightly.
- Documentation of source reduction through package elimination and design of smaller, thinner packages has been provided directly by industry. The quantification of these practices is difficult and will require additional analysis. The split observed to date between reduction, reuse and recycling is reasonable, and has maintained the balance the Protocol was seeking. Future efforts should continue in this manner.
- Significant progress has been achieved by the largest contributor to the waste stream, paper packaging, and by glass, ferrous metals and aluminum in diverting packaging waste from disposal. Concerted efforts to inform industry and develop infrastructure have contributed to this progress. Further attention should be paid to plastic and wood packaging which have higher disposal to consumption ratios than other major packaging types.
- It is expected that measures needed to achieve the 1996 and 2000 targets will be more complicated, time-consuming and costly to implement than those to date.

4.0 RECOMMENDATIONS FROM THE NATIONAL TASK FORCE ON PACKAGING

This review of progress since the adoption of the National Packaging Protocol in 1990 evaluates both the efforts of the members of the National Task Force on Packaging in addressing the policies and goals of the Protocol and the response of Canadians, both private citizens and business, to the packaging waste reduction challenges of the Protocol.

Task Force members recognize that while a number of activities have been accomplished and progress has been positive in many areas towards the goals of the Protocol, the work in implementing the National Packaging Protocol is not complete. The Task Force outlined areas of activities which should be pursued in order to maintain the momentum and level of activity established in the past three years. These are:

Completion of the analysis of the 1992 data: A full analysis and interpretation of the 1992 survey information should be completed and conclusions will provide the focus for activities to include in the 1994-1995 workplan.

Industry sector strategies: Observations from this first assessment of the 1992 survey should serve to focus future investigations by the Task Force with the ultimate objective of identifying areas for improvement and developing, in conjunction with industry and other stakeholders, strategies to address these areas.

Monitoring and tracking of progress: Maintenance of the NPMS should be carried out by CCME.

Packaging stewardship: The concept of packaging stewardship which has evolved from implementation of the National Packaging Protocol is an option that has been put forward as a means of achieving the 1996 and 2000 targets. The Task Force supports the notion that the effective life-cycle management of packaging materials can best be achieved through cooperative efforts of government, industry and other interested stakeholders.

Information sharing: The Task Force identified information exchange on packaging issues and related activities between private sector, public sector, and interest group representatives as an essential activity to be maintained. It was identified as key to achieving future goals of the Protocol, and in particular to the objective of a nationally consistent approach. Opportunities to broaden existing networks and provide for consultation and feedback regarding information activities and plans with other stakeholders should be considered.

National policy and trade issues: Questions regarding potential fragmented domestic markets, international trade implications and market development for recycled materials could be brought to the Task Force table for discussion and

recommendation of solutions. Technology development would benefit from linking into existing national networks and technology advancement centres.

Establishment of a workplan for 1994-1995: A workplan outlining specific activities to be undertaken by the Task Force in 1994/95 should be developed and presented to the CCME. In the preparation of a Task Force workplan, resources and expertise required to carry out the selected tasks will have to be identified and come from the full range of stakeholders.

The Task Force may not necessarily play an active role in all these activities. Additional networks or other consultative bodies should also be considered as effective means to fulfill the objectives of the National Packaging Protocol. A full evaluation of the best use of collective Task Force time and resources will be reflected in its 1994/95 workplan. In the interim, subject to a renewal of its mandate, the Task Force is committed to:

1. completing the analysis of the 1992 survey information;
2. preparing a workplan for 1994/95;
3. determining the best format and means by which key areas requiring work can be addressed; and
4. continuing to exchange information and provide feedback regarding packaging stewardship and other relevant activities.

APPENDIX A

National Packaging Monitoring System Industry Sectors

Industry Sector	Description	SIC
1	Agricultural industries (packers):	
	• Poultry and egg farms	0114
	• Honey farms	0121
	• Fruit and vegetable farms	0151 to 0159
	• Horticultural specialties	0161 to 0169
	• Combination farms	0171
Manufacturing Sectors		
2	Meat, poultry and fish products	1011 to 1021
3	Fruit and vegetable products	1031 to 1032
4	Dairy products	1041 to 1049
5	Flour, prepared cereal food and feed	1051 to 1053
6	Bakery products	1071 to 1072
7	Sugar and sugar confectionery	1081 to 1083
8	Other food products	1061, 1091 to 1099
9	Soft drink	1111
10	Brewery products	1131
11	Distillery products and wine	1121 & 1141
12	Tobacco products	1211 to 1221
13	Rubber and plastic products	1511 to 1699
14	Textile products and clothing	1911 to 2499
15	Wood, furniture and fixtures	2511 to 2699
16	Paper and allied products	2711 to 2799
17	Fabricated metal products and machinery	3011 to 3199
18	Transportation equipment	3211 to 3299
19	Electrical and electronic products	3311 to 3399
20	Non-metallic mineral products	3511 to 3599
21	Refined petroleum and coal products	3611 to 3699
22	Soap & Toiletries	3761 to 3771
23	Chemical and chemical products excluding soap and toiletries	3711 to 3799 (excluding 3761 & 3771)

**Manufacturing
Sectors (continued)**

24	Other manufacturing:	
	• Leather and allied products	1711 to 1719
	• Primary textiles	1811 to 1831
	• Printing, publishing and allied	2811 to 2849
	• Primary metal	2911 to 2999
	• Other	3911 to 3999

**Non-manufacturing
Sectors**

25	Transportation (users of food service packaging)	
	• Air	4511 to 4512
	• Railway	4531
	• Water	4541 to 4542
26	Food, beverage, drug and tobacco industries, wholesale	5211 to 5241
27	Other wholesale:	
	• Farm products	5011 to 5019
	• Petroleum products	5111
	• Apparel and dry goods	5311 to 5329
	• Household goods	5411 to 5439
	• Motor vehicle parts and accessories	5511 to 5639
	• Metals, hardware, plumbing, heating and building materials	5611 to 5639
	• Machinery, equipment and supplies	5711 to 5799
	• Other products	5911 to 5999
28	Food, beverage and drug industries, retail	6011 to 6032
29	Other retail industries	6111 to 6921
30	Accommodation, food and beverage, amusement and recreational services	9111 to 9699
31	All other industries	all other industries
32	Primary processors of recyclables	

NOTE: The industry sectors (IS) and codes differed for the 1990 and 1992 Surveys. IS 22 (as defined in 1990) was split into two sectors in 1992 (22 & 23), and the subsequent codes each increase by one, up to IS 29. Also, in 1990, IS 29 was "Hospitals and other institutional health and social services". This industry sector was removed in 1992. The primary processors reported on packaging use, and reuse in 1992, rather than simply on "packaging prepared for recycling", and were assigned to IS 32.