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#151 - January 1975

THE POLITICS OF WASTE MANAGEMENT

"Waste Management" - even the term is an indicator of a certain life style. Can managing waste be a major issue except in an affluent society? Most less-developed countries are concerned with managing want.

Our concern over waste management stems not only from the growing awareness that we are rapidly consuming our limited supply of natural resources, but also from the fact that pollution of our air, land, and water is becoming a primary determinant in the survival of this and future generations.

The purpose of this BMR Comment is to examine the politics behind waste management in Ontario at the provincial and local level. In this regard, we shall look at the response of both the Ontario government and of several municipal governments to this issue, as well as the activities of industry, citizen groups and unorganized citizens. The study is divided into 4 sections:

- I The Need for Reduction- Re-use - Recycling
- II The Provincial Solid Waste Task Force
- III Local Efforts
- IV Possibilities for the Future

I The Need for Reduction - Re-use - Recycling

Much of the world now functions within a "growth" ethic. But there are "limits to growth"^{1.}, as the title of the work published in 1972 by the Club of Rome indicates. Hailed as one of the most important studies of our time, The Limits to Growth shocked world public opinion with its prediction that our social and economic system is doomed to collapse within as few as 70 years unless present growth patterns are curbed:

"If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity."^{2.}

1. Meadows, D.H.; Meadows, D.L.; Randers, J.; Behrens III, W.W.; The Limits to Growth (New York, 1972)
2. Ibid, page 29

The report states that even with possible new sources of resources and technological advances, the world system will, in time, founder.¹ Moreover, within the next century non-renewable resources will be substantially depleted; renewable resources will be too costly to harvest, and threatened by extinction.

Non-Renewable Resources

Non-renewable resources include metals, oil and coal. According to the Club of Rome the present quantities of platinum, gold, zinc and lead are insufficient to meet demands. At the present rate of consumption silver, tin and uranium may be in short supply even at higher prices by the turn of the century. By the year 2050, several more minerals may be exhausted.² One hundred years from now the majority of currently important non-renewable resources will be extremely costly.³

Renewable Resources

Renewable resources include wood (trees), agricultural products, livestock, animals, fish and fowl. The term "renewable" resources sometimes leads people to assume that these resources are in less danger of depletion. Yet it is possible that the rate of harvesting will outstrip the rate of renewal. Further, the cost of harvesting some renewable resources, such as trees, is becoming prohibitive. For example, loggers must go further into forested areas to find suitable strands. This increases harvesting costs substantially.

These factors -- depletion and increase cost -- of renewable and non-renewable resources reinforce the need for action. Three possible means of alleviating this problem are:

1. Reduction in the use of resources
2. Re-use of products already made
3. Recycling or reprocessing of materials and waste.

These three approaches use varying amounts of energy. Alternative #1 is the least energy intensive; alternative #2 is the next least energy intensive; and alternative #3 is more energy intensive but less so than obtaining and using original resources.

1. Meadows, D.H.; Meadows, D.L.; Randers, J.; Behrens III, W.W.; The Limits to Growth (New York, 1972) page 149
2. Ibid, page 68-69. Another example: The world's known reserves of chromium are about 775 million metric tons. At the current rate of use, the known reserves would last 420 years. However, the consumption rate of chromium is increasing. If it continues, it will deplete the resource stock in 95 years.
3. Ibid, page 75. The Club of Rome's predictions have been questioned by those who feel the study neither adequately accounts for the impact of new technologies and new resources, nor deals at all with the possibility of changing attitudes. However, even its critics recognize the need to consider Limits' warnings seriously and to take some action. (See U.S. Department of Health, Education and Welfare, A Report on the Implications for Government Action on Limits to Growth [January, 1973])

Re-use and recycling are interim responses in the total approach to obtaining stabilized growth and in themselves they do not ensure the continuation of our present resources.¹ According to the Club of Rome, no matter how much material is re-used or recycled, there will still be a limit to the earth's resources.² It appears that demand will outstrip supply.³ Ultimately, the solution to reducing the use of natural resources, waste and pollution is to slow the rate of economic growth which would require a fundamental change in our North American life style.

However, re-use and recycling are vital steps, for through public participation in these efforts the following can be accomplished:

- the depletion of resources is forestalled;
- people become aware of the need to conserve resources;
- and, they can begin to seriously consider the need for a change in life style.

Local Pressures for Action

A municipality is, in some ways, a microcosm of the world community. Here, too, the evidence is in favour of re-use, recycling, reclamation and reduction. Several economic and social factors, closer to home, reinforce the global impetus and tend to make these alternatives more politically feasible:

- a) The price of land has increased; landfill areas are less economically attractive.
- b) Air pollution from municipal incinerators raises public concern.
- c) The market for recycled materials has grown.⁴

In Ontario alone the cost of disposing of solid wastes exceeds \$100,000,000 annually and this figure will increase during the next few years. For one thing, in most large Ontario cities nearby landfill sites are full or nearly full. New sites are located farther from city boundaries, so that the price of transporting solid wastes will rise. Secondly, as the distances from collection points to disposal sites increase the process becomes administratively more elaborate and costly.

Sanitary landfill is still considered an economical, easy and reliable means of disposing of solid waste materials. Unlike incineration or heat reclamation plants, a landfill site does not break down, it never requires expensive and time consuming repairs. Nor does it separate recyclable materials such as glass, cans and paper which may be difficult to sell in an unstable marketing environment.

1. Where population is at a replacement level and economic growth is proceeding at a rate sufficient to maintain a viable economy and an adequate growth in the quality of life.
2. For example, if from 1970 onward 100% of the world's supply of chromium (see page 2) were recycled, the demand would exceed supply within 235 years
3. "Supply" here refers to known limits of known resources within an unknown time frame.
4. At the present there is a good market for recycled fine paper. However, the market for recycled newspaper is a volatile one. There has been a glut on the market. Prices have dropped from \$20/ton to \$1/ton.

But suitable landfill sites are in short supply. Evidence of this appears in Toronto where the Thackery and Beare Road landfill sites are nearly full and Toronto has been trying to dispose of its solid waste in Minto Township, North of London, Pickering, and Port Hope. All three communities have energetically objected to large metropolitan areas unloading solid wastes in communities which have not contributed towards the production of the waste. Minto, Port Hope,¹ and Pickering have a large body of ecological data which supports their case. Landfill sites are associated with water pollution, the dangerous methane gas², and other undesirable by-products. Furthermore, the municipalities have argued at the Environmental Board that solid waste is made up of a number of components which can be reclaimed or recycled - or items which should never have become involved in the waste disposal system in the first place.

Yet it is only when landfill becomes politically unacceptable that alternative means of dealing with waste are seriously considered. In the City of Toronto the unacceptability of the Minto and the Port Hope sites has led to the development of considerably improved means of dealing with the 1.6 million tons of solid waste it disposes each year. The Toronto District Heating Study³ is planned to convert heat generated by an incinerator into steam which will heat the University of Toronto, the downtown hospitals and the provincial government buildings. This project should reclaim 1,200 tons of Metro's solid waste per day. Secondly, the "Watts from Waste" project calls for flammable solid waste material collected in Etobicoke, to be separated and shredded at the Horner Avenue plant and then used in combination with coal (10 - 20% waste paper, 80-90% coal) to generate thermal electricity at the Lakeview Generating Plant. Approximately 250,000 tons per year will be disposed in this way.

The third and most exciting response to the solid waste problem is the announcement of the federal-provincial initiative to develop an experimental waste disposal system which will consist of a number of interchangeable modules including separation systems for ferrous and non-ferrous metals, glass of different colours, units which will shred and destroy about 50,000 tons per year.⁴

In the Toronto area, these three plants, as well as older incineration plants produce cinder wastes which must be sold or buried. Additionally, new plants will occasionally break down, particularly at the outset when mechanical "bugs" have not been worked out of their systems. In these initial months of operations they will operate with alternative disposal systems which will require landfill sites.

Furthermore, a projected 430,000 tons of Metro's solid wastes cannot be processed by these new plants and this remainder will go to landfill sites.

1. An OMB inquiry is still pending on the Port Hope site.
2. Methane gas is highly explosive. It is similar to natural gas in its composition.
3. The Toronto District Heating Study was begun in December '69 and released in December '73. It grew out of a desire to reduce pollution from at least six downtown heating systems. The heating system was to be centralized. At the time of this report a site for the system has not been decided.
4. The Ontario government's program for a multi-million dollar waste management and resource program was announced October, 1974. It covers a ten-year period during which reclamation stations and waste processing plants will be built. The program has three main thrusts:
 1. The development of a financial assistance program to help small municipalities implement waste management improvements.
 2. The establishment of a province-wide network of reclamation and waste processing plants.
 3. The appointment of an authority to investigate and advise on the reduction of waste produced.

Foreign Investment in Waste Management

Apart from the shortage of landfill sites described above, a secondary problem is developing. Agglomerate American private waste disposal companies are moving into Canada. Two U.S. companies, Waste Management Inc.^{1.} and Browning-Ferris Industries Inc., moved into Canada two years ago. Today they control 70% of private solid waste disposal business in the Metro area and the two largest companies in the industry in Canada.

At the moment a number of small independent Canadian hauling companies which collect commercial and industrial solid wastes dispose of their materials at the public landfill site on Beare Road. But it is filling up rapidly and Metro is considering closing it to private haulers. Small Canadian haulers will be forced to use the American owned landfill sites. At the moment, Waste Management Inc. owns 80% of the privately licensed landfill sites in the Metro area. This means that the Canadian haulers will be forced to pay whatever price the Waste Management Inc. demands. Several small Canadian firms expect they will be bought out by the American companies. Robert Paul, Waste Management's corporate secretary and Canadian controller has said,

"It's always been our operating philosophy at Waste Management to be in control of our destiny, and the way for our refuse company to control its own destiny is for it to own its own dump sites"^{2.}

"Over the last year and a half traditional land disposal by means of sanitary landfill has been the primary area of growth."^{3.}

Waste companies will enter into recycling and recovery activities as it becomes profitable.^{4.} According to Waste Age, a public relations report put out by the agglomerates:

"5% and 10% of solid waste tonnage is suitable for paper recovery. Some companies are also aggressively pursuing energy recovery from solid wastes while others feel that the value of fibre in the material being used for energy is far higher than that of the energy itself. Which of these two possibilities is more profitable has yet to be determined, but both parties seem to agree that the fibrous portions of the solid

4. continued from page 4. By October, 1974, 16 studies on area waste management were either underway or completed. Four waste processing plants were suggested for London, Kingston, Sudbury, and Metropolitan Toronto. Two additional plants would serve Peel-Halton and Peel-Metropolitan Toronto. The Ministry of the Environment also planned to meet with waste management companies in Ontario and with the recycling industry to discuss their participation in the provincial program. ("Comprehensive Waste Program", a position report by the Honourable Wm.A. Newman, Minister of the Environment, October 24, 1974.)

1. Waste Management Inc. assets were 310 billion dollars as of March 31, 1974 Waste Age Vol. 5, No.5, p.9 Browning-Ferris Inc. assets were 180 billion dollars as of March 31, 1974.

2. The Globe and Mail (April 22, 1974)

3. Paul, Denny. "The Solid Waste Agglomerates: A report on the growth of the major publicly owned companies" p.22 in Waste Age The Voice of Resource Management August 1974 Vol. 5, No.5.

4. Ibid.

waste that are more difficult to recover will continue to increase in value, either as energy or fibre, and will represent a significant revenue increase for the waste management industry. Over the next ten or fifteen years there is probably a potential market of \$2-\$3 billion for construction of energy or resource recovery."¹.

The large waste management companies, while depending on landfill operations at the moment, already participate in paper recovery and are considering more extensive recovery and recycling of metal, glass, and plastics. In the same article, Paul comments:

"With the recent national emphasis on resources recovery and management of solid waste, we believe that many municipalities will make a political decision to fund resource recovery facilities. The operation of these facilities will not be economical on the small scale on which municipalities will want to conduct their efforts...the solid waste management agglomerates appear to be in an outstanding position to capitalize on this future opportunity."².

Not only can we expect that the American organizations will be dominating all possible landfill sites during the next few years, but we can also expect to see their activity in the field of resource recovery increase as it becomes profitable. In other words, it seems as though the metropolitan and provincial governments will be forced to spend enormous sums of money resolving the debate over the relative merits of heat reclamation vs. the recycling of paper, cloth and wood fibres. The waste management companies will capitalize upon their findings and sell waste management packages for collection, disposal, reclamation and recycling to the smaller municipalities when the systems have been properly developed.

II The Provincial Solid Waste Task Force

Recently, the Government of Ontario's Ministry of the Environment turned its attention to the growing problem of solid waste disposal with the establishment of the Solid Waste Task Force in November, 1972. The objectives of the Task Force were to "develop recommendations to the Ministry, designed to produce solutions to the varied problems presented by the constantly increasing generation of solid waste, now exceeding six million tons per year in Ontario."³.

1. Paul, Denny "The Solid Waste Agglomerates: A report on the growth of the major publicly owned companies". p.22 in Waste Age The Voice of Resource Management August 1974 Vol. 5, No.5.
2. Ibid.
3. Solid Waste Task Force, Terms of Reference. Obtainable from the Task Force in the Ministry of the Environment. p.1.

The terms of reference articulated three approaches to dealing with solid wastes which were:

1. Adoption of significant policies providing for salvage of material and energy, and large scale recycling of material,
2. Return and re-use of articles and materials without entry into the disposal system,
3. Reduction of the amount of waste which is generated.

The objectives of the Task Force indicated that the Ministry of the Environment recognized the extent of the problem. It suggested the need for broadly based studies with the power to recommend amendments to existing legislation, or if necessary, to suggest "new measures". The Task Force was requested to report to the Minister of the Environment within nine months of its inception.

Two working groups, the Milk Packaging Group and the Beverage Packaging Group were established by the Task Force. The Milk Packaging Group studied the various forms of milk packaging -- plastic sacs, plastic bottles of various sizes as well as wax paper cartons and returnable bottles.

It was successful in developing a number of constructive recommendations which included:

1. Encouraging the use of the 3-quart returnable plastic jug
2. Continuing to ban the 3-quart non-returnable jug
3. Repealing the sales tax on refillable containers.

The milk packaging group pointed out that milk packaging accounted for only 2.4% of Ontario total solid waste in 1972.¹ The province's solid waste problem was not going to be solved by possible improvements in milk packaging.

The Beverage Packaging Group was given a similar mandate to that of the Milk Packaging Group: "to investigate and make recommendations concerning the environmental implications of the packaging of soft drinks, beer, wine and spirits in Ontario". But the Beverage Packaging Group had a more difficult task. The Group was studying four industries instead of one. The beverage industries were also much more competitive than the milk ones. Their competition was largely based on packaging. Soft drink companies were unwilling to make packaging concessions because they felt their competitors would not comply. The proposing company would be at a disadvantage in sales. The milk packaging group was only dealing with half a dozen container sizes and fewer materials while the beverage group was confronted by industries whose products' marketing identity was related to the shape of its bottle (e.g. the Coca-Cola bottle). The Liquor Control Board of Ontario alone sells 2,000 brands of liquor in more than 1,400 differently shaped and sized bottles.

1. Milk Packaging in Ontario: An Environmental Study by the Solid Waste Task Force. p.33.

The Beverage Packaging Group was immediately confronted with the absence of information on the weight of solid waste produced by the beverage packaging industry (it turned out to be a significant 6.76% of the total municipal solid waste generated in Ontario or 3,575,000 tons per annum)¹. Furthermore, the Group had no information upon which to evaluate the relative environmental impacts of the returnable bottle, the non-returnable bottle and the disposable metal can. The research undertaken by Professor Michael Hare of the University of Toronto and the Secretariat of Solid Waste Task Force was certainly the most useful contribution of the Beverage Working Group to future government activities in the solid waste field. Professor Hare developed models through which he was able to assess the relative merits of the container types in terms of the volume and weight of solid waste generated and the costs of energy expended in manufacturing the containers. The models helped the Beverage Packaging Group accept the fact that the returnable bottle was the soundest packaging form environmentally. In the future, these same models can be used to evaluate the environmental desirability of any other components of solid waste. Hopefully the Ministry of the Environment will take advantage of these models.

Apart from the useful research models and a recommendation that the province establish a "permanent advisory body ...to advise the Minister of the Environment on a variety of problems associated with solid waste, including reduction at source, reclamation and recycling", the Beverage Packaging Group activities were disappointing.²

Unlike the Milk Packaging Group which was able to agree upon the recommended banning of the non-returnable three quart jug, the Beverage Packaging Group did not recommend the banning of environmentally damaging non-returnable bottles. Instead, the Task Force recommended that "all soft drink brand and sizes stocked, displayed and offered for sale in Ontario by a vendor be available in refillable containers",³ and that "soft drink companies and vendors be encouraged to promote the sale of soft drinks in refillable containers".⁴

A recommendation was made that: "After a certain date, no non-refillable metal soft-drink beverage container be produced for sale in Ontario which is equipped with a detachable, self-opening device".⁵ Pull-tab tops are a significant component of litter and a health problem for humans and animals.

1. Report of the Beverage Packaging Group of the Solid Waste Task Force, p.25

2. The advisory body has been tentatively called "The Solid Waste Management Advisory Board". At the time of writing, the composition of the board had not been made public.

3. Report of the Beverage Packaging Group of the Solid Waste Task Force p.51

4. Ibid p.52

5. Ibid p.56 By December 23, 1974, the Continental Can Co. of Canada, introduced an "Envirocan"; the tab stays attached to the can (The Toronto Globe & Mail, December 23, 1974, p.5)

In contrast to the soft drink industry, the beer industry, which has an exemplary record with regard to the environmental desirability of its packaging, was recommended by the Task Force to go ahead with its proposal to increase existing deposit levels on beer containers.¹

The working group was persuaded by the Liquor Control Board that "while containers used by domestic suppliers could be standardized by legislation, the extension of the ruling against out-of-province suppliers (which would be necessary to avoid discrimination) would meet with stiff resistance and possibly result in the withdrawal of the products from the Ontario market".² It, therefore, made no substantive recommendations to deal with the disproportionate mass of solid waste generated by glass bottles.

Composition of Beverage Packaging Group

The Beverage Packaging Group's inability to come to terms with the causes of waste in bottling might be explained by the composition of the group. Seven of the ten members of the committee were representatives with interests in the beverage packaging industry and the remaining three members were representatives of consumers, conservation or environmentalist groups who had opposing opinions on the solid waste problem.³ Notably absent from the task force were labour representatives and officials from the municipal, provincial and federal governments who are concerned with ways and means of reducing the solid waste volume (e.g. representatives of the Metrication Commission or the Liquor Control Board). Also absent were representatives from the public-at-large who would be affected by the decisions of the working groups but had no opportunity to participate in their deliberations. It appears that criteria for membership on the group were not considered. The Ministry of the Environment should ensure that task force members meet specific criteria (e.g. a wide variety of concerns must be represented). It is natural that members of the packaging industry would have certain vested interests which might make it difficult for them to consider the issue objectively.

A second reason for the low level of consensus of the Beverage Packaging Group is the controversy surrounding legislation banning the use of non-returnable bottles. The so-called "Oregon Bottle Bill" introduced in that state in 1972 banned the use of the non-returnable bottle and has been credited with reducing litter by 66%. Despite its success in reducing litter, the energy

1. Report of the Beverage Packaging Group of the Solid Waste Task Force p.63

2. Ibid p.66

3. Composition of the Beverage Packaging Working Group: R.H. Woolvett, Brewers Warehousing Company Limited (Chairman); A.C. Abbott, Retail Council of Canada (Loblaws); Mrs. T.A. Beckett, Consumers' Association of Canada, (Ontario); K.M. Dethune, The Metal Container Manufacturers' Advisory Council; G.E. Crompton, Retail Merchants' Association (Ontario) Inc.; H.E. Dalton, Glass Container Council of Canada; G.M. Douglas, Canadian Secondary Materials Association, Mr. Douglas resigned from active participation with the Working Group but continued to monitor its proceedings on behalf of his industry; C.E. Goodwin, The Conservation Council of Ontario, Mr. Goodwin joined the Working Group after its formation replacing Mrs.T.A. Beckett, who resigned for health reasons; T.P. Gregor, Ontario Soft Drink Association; P.F. Love, Pollution Probe at the University of Toronto.

conserving quality and the high level of consumer cooperation, the bill has come under attack from organized labour and industry which claim that bottle laws raise beverage prices and cause job lay-offs. Grocers and other retailers complain that they are forced to bear an unfair burden because they must collect and store bottles.¹ "Bottle Bills" introduced in Congress and the New York State legislature have encountered powerful industry opposition and have died in committee.

The weak recommendations of the Solid Waste Task Force reflect similar industry opposition in Canada.²

The lack of opportunity for participation by the public is one of the more regrettable omissions of the Solid Waste Task Force. During the last few years, Ontario has experienced a remarkably high level of citizen activity in the field of solid waste recycling, reclamation and reduction. At the moment there are over 55 groups in Ontario municipalities who are operating pilot projects to recycle solid waste materials.

Despite the fact that large numbers of people in Ontario are voluntarily participating in recycling projects, there is very little recognition of the possible contribution of individuals in dealing with the solid waste problem.

III Local Efforts

The following local efforts to recycle waste materials represent degrees of success and failure. Generally, one can say that successful efforts had these components. They:

- a) maximized public concern through the involvement and participation of citizens;
- b) gained the commitment of major producers (newspapers, bottlers) to recycling;
- c) provided, where necessary, tax benefits so that recycling became relatively profitable;
- d) keyed into a market for recycled products.

Since experience shows that legislation alone will not cause change, components a) and b) take on a particular "political" meaning. Garbage disposal habits at home and in industry are changed through the involvement, participation and commitment of people.

1. "Garbage Coalition" Depot list April 1974

2. Although there was information to substantiate increased employment through re-use of bottles, packaging group members appeared to ignore this data. The Secretariat to the Task Force showed that at least 300 more jobs would be created. More people would be employed in the collection and preparation of bottles for re-use (Report from the Solid Waste Task Force, Vol. II [Toronto, December 1974] p.579 and Table IV.II.1) On December 19, 1974 the report of the Solid Waste Task Force was tabled in the House of Commons. The Minister of the Environment, William Newman put forth sixteen recommendations, all with very little teeth. He recommended consultation with soft drink companies to standardize drink containers, and the phasing out of pull-tabs on cans. However, the government did not ban non-refillable containers. This lack of legislation also reflects the ineffective workings of the Beverage Packaging Group (New Release, Pollution Probe [Toronto, December 19, 1974]).

London

Maximizing
Public
Concern

In the City of London, Ontario, there is a very high level of awareness of the possibilities of recycling solid waste materials. Most of the public awareness can be traced to the activities of Pollution Probe - London, which began a volunteer pilot project to recycle glass in the fall of 1971. The London project operates on a very simple basis.¹ The bottles are collected by the Pollution Probe truck at regular intervals and delivered to the bottle crushing plant. The plant is simple in operation and depends heavily on the use of volunteer labour to separate the bottles into colour categories, remove the metal caps and rings and place them on a conveyer belt leading to an electric crusher. The cullet or crushed glass is sold to glass manufacturing companies at a price which fluctuates with market demand, but is about \$20 per ton (at the time of writing).

Visible
Project

Pollution Probe does not see its volunteer glass recycling plant, which operates on a very modest level, as a model for future recycling efforts and a total solution to the problem of disposal of solid wastes. On the contrary, David Ferrence, the former president of Pollution Probe - London, sees the glass recycling project as most useful from the political point of view. He suggests that glass recycling is a visible project in which almost everybody can participate. At a minimal level of participation, people take their bottles to the depot. Those who wish to become more involved collect and process the glass. Pollution Probe has found that the visible and constructive aspects of recycling have given their organization a positive image: a group which takes effective action, consistent with its values. The political success of the glass recycling effort is indicated in the increased influence which Probe - London exercises on the city's Environmental Protective Services Committee. During the last two years, Ferrence says that partially due to Probe efforts, there has been a complete turn around in the attitude of the city towards recycling from "it's a nice idea" to "we've got to do something".

1. Firehalls are frequently selected as recycling depots because people are on duty 24 hours a day to supervise the bottles which can be a safety hazard if they are used mischievously.

Cooperation
of
Producers

The City of London's Newspaper Recycling Program began operating in the Spring of 1974 and was initially a success. At the outset, 110 - 120 tons of newsprint (representing 55-60% of the city's total consumption of 200 tons of newsprint per week) were collected each week. This is a very high level of success when one realizes that the City of Toronto collects less than 200 tons per week or about 20% of its total newspaper production. The public's response to the recycling project can be attributed to their sensitivity to the subject and a \$20,000 promotional campaign launched by the local radio stations and the London Free Press. The newspaper recycling project, operated by the municipality, was made practical by overtures from I.G. Machines and Fibers of Brampton in 1973. This company was interested in operating a shredding and baling operation in the City of London. The company intended to recycle waste paper into felt tiles for residential buildings. In 1973 the price of waste paper was \$20 per ton. It has now dropped to \$7 per ton and continues to fluctuate. The city embarked upon the recycling project with the goal of operating on a break-even basis or perhaps making a profit after the initial months. At the moment, the cost of London's general garbage collection is \$16-\$18 per ton and disposal costs are \$1.60-\$1.80 per ton in sanitary landfill. The newspaper recycling project currently costs the city a considerable amount of money. Collection of newspapers and regular garbage are done on the same day but with separate trucks, meaning that 4-5 trucks must be used solely for recycled paper. London intends to add trailers to the back of the garbage trucks to eliminate the double collections. This will hopefully reduce costs.¹

As well as the domestic newspaper collection project, London has also been operating a highly successful "mixed papers" recycling program. Uncontaminated mixed paper is collected from businesses in the city's commercial sections. The cost of collection of the mixed paper is comparable to the selling price at \$16-\$18 per ton.

Not only is London recycling bottles, newspapers and mixed papers, but the Environmental Protective Services Committee has taken a hard line and has recommended the banning of all non-returnable bottles in the City of London. If this recommendation

1. Since the time of writing, London has suspended its newspaper recycling project because of a shortage of warehouse space and low market price for paper. Hopefully, with large stable supplies of newspapers developing, industry will respond with increasing ways and means of using papers.

is approved by Council, London will encourage other municipalities in the province to support similar recommendations. Up to now the Provincial Ministry of the Environment has refused to pass any effective laws on the banning of non-returnables and it has also refused individual municipalities the authority to enforce their own bans.¹ Yet by petitioning the provincial government, the municipalities may eventually succeed in getting the needed legislation passed.

Market

The Pollution Probe glass recycling project and Probe's participation on the Environmental Protective Services Commission have definitely stirred grass roots interest in recycling. However, the municipality did not seriously consider recycling until it was approached by I.G. Machines and given the opportunity to market the recyclable items.² The London experience would seem to indicate that volunteer recycling projects can have a considerable impact upon the attitudes of a municipality towards recycling of its solid wastes.

Hamilton

Minimal Citizen And Producer Involvement

Hamilton, Ontario's experiences with recycling projects have been somewhat different. A successful newspaper recycling pilot project was operated in the Kirkendale South neighbourhood, in an older section of the city with a wide mixture of income and occupational groups, but the grant for the project was discontinued apparently due to industrial lobbyists on the city council.

Although some municipal officials feel that citizens of Hamilton would cooperate with an in-home separation project, these projects are unlikely to be implemented in the immediate future.

Hamilton has become well known in the Solid Waste field for its SWARU (Solid Waste Reduction Unit) plant, the first of its kind in Ontario. At the SWARU plant, unsorted domestic solid wastes are dumped from garbage trucks into a large pit. Conveyor belts lining the bottom of the pit transport the garbage into a turbine which shred and grinds the materials into fist-sized units. Another set of conveyers removes the shredded material from the grinders and

1. There are good reasons to suggest that laws banning non-returnable bottles should be passed at the provincial or federal levels. Attempts by American cities to ban non-returnables have met with extensive opposition by lobbyists, and threats by soft drink companies to remove their factories from cities banning non-returnables. See the Globe and Mail, July 9, 1974 (p.47) reprint from the New York Times.
2. This marketability of recyclable materials has already been discussed in Recycling: Why, When and How?, a BMR Comment by Lorne Almack, 1973.

subjects it to removal of ferro-magnetic materials such as cans by means of a magnetic belt. The metals are released from the belt and dropped via a chute into a container module outside the plant. The remaining solid wastes, predominantly paper, food wastes and glass are conveyed to a storage unit from which incinerators are fed at regular intervals. The incinerators are equipped with steam generation machinery and at the moment the plant supplies its own energy needs. When the SWARU plant is operating at full capacity, it can dispose of 200,000 lb. of solid waste per day. At the moment, Hamilton generates 150,000 lb. per day of domestic solid wastes and 400,000 lb. per day of industrial solid waste. The SWARU plant disposes 60 to 70% of the domestic solid waste per day, or about half the plant's potential.

SWARU should be credited with the silo storage system which permits a constant mass of waste to be fed into the burners. Thus, if the conveyer or turbine system breaks down, the heat generating system is assured of fuel. Furthermore, SWARU is a remarkably clean system, emitting very low levels of air polluting materials into the atmosphere. Its high environmental characteristics, physical attractiveness and small amount of land area used by the factory makes this method of recycling ideal for urban areas.

The plans for the SWARU plant were begun in 1969, when the City of Hamilton was experiencing a shortage of landfill sites within its borders. The plant was completed in 1972 and to date it has cost the City of Hamilton \$9 million. The project was carried out entirely with municipal backing, without any federal or provincial initiatives or encouragement.

The plant has not been an unqualified success. The mechanical systems have had endless "bugs" which have had to be worked out at considerable expense. (For example, the paper covered metal ties used to fasten green garbage bags became jammed in sections of the conveyer belt.) The plant still does not work at full capacity. There are no nearby markets for the steam which SWARU hoped to sell. The SWARU plant is located in a newly developing industrial area. No doubt there will be purchasers as the SWARU plant's steam production becomes more consistent and the industrial park is developed.

At the moment, the City of Hamilton is awaiting the conclusions of a Proctor-Redfern Engineering Consultants' study. It will probably recommend that the city revert to a transfer station and landfill system for solid waste disposal, now made possible by the implementation of regional government, which attaches to Hamilton a large region with plenty of "suitable" landfill sites for some years to come.

This seems to be a regressive step, unsuitable by today's environmental standards. The lack of 100% success with SWARU would not seem to necessitate the reversion to an environmentally undesirable means of solid waste disposal. A number of the problems associated with the SWARU plant can mostly be attributed to the completely unsorted nature of the domestic wastes it processes. The city collects tractor tires, mattresses, bicycle frames, broken furniture, old appliances such as wringer washers. These large items are manually removed from the solid waste before entering the turbines, but smaller items frequently damage the system. By separating garbage in the home and tightening up on collection policies, some of the mechanical problems associated with SWARU might be reduced.

Municipalities which are in the process of selecting new methods of solid waste disposal should be extremely wary of elaborate separation systems. Not only are they expensive, but this appears to be the most "bug" prone portion of waste disposal systems. As suggested above, there is evidence which indicates that people will voluntarily separate garbage, and this in-home separation is economically advisable.

Ottawa

Citizen Participation

Another series of successful recycling programs operating in Ottawa have their origin in a newspaper recycling project started by Pollution Probe, Kanata.¹ This project has gradually expanded from newspapers to glass. Metals recycling is now being considered. The project has undergone a transition in management from a volunteer project to complete takeover of the program by the municipality. The recycling program in Kanata-March Township is one of the few which has been profitable and is firmly established. The success in Kanata has been attributed to the high level of awareness of the upper middle income people in Kanata, but successful recycling projects are being run almost as effectively in other parts of the city, including the lower income Centre Town area.

The provincial Ministry of the Environment contributed \$2,000 to Pollution Probe, Kanata to write the report describing the steps in the development of the recycling project, the gradual expansion from newspapers to glass as more sophisticated means of disposing of the solid wastes developed along with more stable markets. The Pollution Probe members pointed out, as have Probers

1. Pilsworth, Diana "Municipal Recycling Practises in March Township (Kanata Pollution Probe, December, 1973)

in London and Toronto that people who participate in recycling projects eventually become much more concerned about excessive packaging of food and they become more interested in reducing the volume of garbage generated by the "throw-away society". Environmentalists maintain that only by developing grass roots projects and developing and elaborating the scope of the projects as public awareness increases, will political action be taken to change our solid waste management methods.

Ottawa is also considering the possibility of a \$50 million steam generating plant for heating and cooling the federal government buildings.¹ The plant would consist of several incinerators, one of which would be used to research better ways to recycle and burn garbage.² The plant and reclamation centres would be owned and operated by the federal government.

Before the garbage is burned, a transfer station in Hull, Quebec would separate glass, tin and non-combustibles. Some paper would be eliminated from the incineration process through the method of garbage collection in the City of Ottawa. TRICIL (the city's garbage collector) picks up paper separately from other waste garbage in steel culverts attached to the trucks.³

Burlington

The Burlington Waste Reclamation experiment met with a measure of success and failure. The Ministry of the Environment planned the six-month project in a section of Burlington, Ontario at a cost of \$25,000.

The experiment failed to take into account people's attitudes and habits regarding solid waste disposal. It required participants to:

- separate newspapers, cans and colour sorted bottles
- prepare garbage for collection on dates preceeding the regular pick-up dates.

There was no gradual build up to the separation process, such as starting with one item and expanding to others. The assumption seemed to be that people can quickly change past habits.

1. Jones, W. ed., and Culter, M., Ottawa ed., "Ottawa will turn refuse to steam", Civic: The Public Works Magazine (January 1975, Vol. 27 No.1) p.47.
2. Garbage is proving to be nearly as competitive a fuel as conventional fossil fuels for generating steam, according to Alan Fraser, Chief Design Engineer for the NCC (National Capital Commission, Ottawa). One ton of garbage produces three times as much heat as oil extracted from a ton of Athabasca tar sands.
3. The success of in-home separation of garbage is, again, attributable to citizen involvement as that encouraged by the Kanata Project.

According to one measurement -- that of the number of pounds of solid waste collected per capita, and the extent to which people kept to the pick-up dates -- the project failed.

By another measurement, however, it succeeded. Despite the seemingly overwhelming task of separation, people did, in fact, collect bottles, cans and newspapers, holding these over three week periods until the appropriate pick-up date.

The study of the Burlington project is also a hopeful sign in itself. It represents the Ministry's first attempt to measure the quantity of recyclable materials disposed in domestic solid wastes¹, and to study the technical and behavioural aspects of in-home separation.²

The collection and disposal of in-home separated garbage would simplify the elaborate separation systems proposed for the Experimental Reclamation Plant (see p.4 of this study) and would reduce some of the "bugs" in the SWARU plant in Hamilton.

There is already evidence that people are willing to separate their garbage. In an American study 90% of 1700 housewives interviewed were prepared to separate their garbage.³ The Burlington study which found that 89% of the householders were willing to participate in a pilot project to separate their garbage corroborates this.

Toronto

Since 1972 the City of Toronto has been involved in newspaper recycling. Toronto started monthly city-wide pick-up of newspaper in June 1972 and continued it until May 1973. There have been weekly collections since 1973. But the project has gone through many ups and downs.⁴

Minimal
Citizen
Involvement

Initially the project seemed to lack coordination and planning. The Streets Department⁵ and a citizen and politician sub-committee were to work together on the issue but appeared to pool resources minimally. Attempts at publicity were traditional legal notices in major newspapers. Dates for paper collection were listed but in no readily apparent pattern. The public was poorly

1. Recyclable materials made up 14.5% of the domestic solid wastes.
2. Up until now the possibilities for in-home separation have been little researched. Kilbourn Engineering studies on Solid Waste Management in Toronto, Hamilton and Ottawa and its major Resource Recovery Centre study done for the Ministry of the Environment did not deal with this aspect of solid waste.
3. U.S. Environmental Protection Agency, "The Metropolitan Housewives' Attitudes Towards Solid Wastes" (Washington D.C., September 1972)
4. We have relied heavily on the report by Pollution Probe, Municipal Paper Collection (Toronto, July 1974) for this section of the Comment.
5. The Streets Department is now part of the Public Works Department.

informed as to what paper would be collected and how it was to be stacked.¹ With inadequate and confusing publicity little enthusiasm was generated. Even stalwart supporters tended to give up when they discovered collections were not made on the dates listed, or the newspapers were going in with the regular garbage.

Finally members of the sub-committee joined in a concerted effort to improve the newspaper collection program and to promote recycling of glass and tin. The group they formed was named TRAC (Toronto Recycling Action Committee). It planned a publicity campaign but with no funds or staff little happened. In April 1973 TRAC was granted a \$10,000 budget by Toronto City Council. One-third of this was spent on a public survey of attitudes and knowledge about solid waste disposal. The survey was completed by February 1974. It found that of those interviewed:

- 68% were aware of the weekly newspaper pick-up
- 34% of these could correctly identify the collection day

Publicity
To
Gain
Citizen
Commitment

TRAC then took up a publicity campaign in earnest. Ads were placed on TTC vehicles during the summer, in radio public service announcements, and on T.V. A 60-second telephone message at City Hall informed callers of the now regular Wednesday pick-up and of other numbers to call regarding further information or complaints. Generally the promotional material was aimed at paper collection. T.V. and radio spots were aimed at recycling bottles and tins as well.

Widespread publicity, weekly paper collections, and a full-time staff person to coordinate TRAC's activities had impact on public participation in the project. The average paper collection for 52 weeks (May/73 to May/74) was 66.16 tons per week. This represents a 61% increase over the monthly collections of '72 - '73.

1. Confusion in publicity occurred in several ways:

- a) The dates listed for pick-up were not easy to remember; originally the pick-up day was not every Wednesday as it is now. (See Globe and Mail Wednesday June 14, 1972 [sports section])
- b) City collection days were initially different from Borough collection days, and not all the boroughs participated in the project.
- c) In 1972-73 only newspaper was collected for recycling; magazines, etc. were not. When other printed materials were stacked with newspapers, citizens usually found their newspapers left at the curb. By 1974 all papers were collected on Wednesdays.
- d) Newspapers also had to be bundled together for pick-up. Citizens often did not understand this either.

At the time of writing (January '75) the recycling program in Toronto has reached a lull. This is typical for winter months when people tend to put out the least amount of garbage for collection.¹ However, the situation has been aggravated by depressed waste newspaper markets. Companies that were to continue to buy waste newspaper at \$7.25 per ton² have had to back out of their contracts. Since June '74, 2,678 tons of newspaper have been burned in Metro incinerators.

One response to this situation would be to curtail the separate collection of papers. However, this might have an impact on future citizen participation in garbage separation. It has taken three years to gain citizen commitment to garbage separation and recycling. If the depressed market and lack of warehouse space makes incineration the only alternative at this point in time, the public should be made aware of this but separate paper collection should probably continue. Then when the market picks up, the municipality can easily key into it.

In the meantime, municipalities and governments should explore the factors influencing the waste newspaper market,³ and take the necessary action to ensure steady markets in the future.

IV Possibilities for the Future

To date there has been no study examining the waste disposal habits of housewives and families. Simple questions need to be asked and answered: Which products are most easily separable from garbage? Will people separate cans into 2 categories, bottles into three colour categories, as well as separate newsprint from mixed paper? What kinds of publicity, promotion or educational process are required to encourage people to recycle materials or separate them at source?

It appears sensible to study the possibilities for encouraging people to separate their garbage in the home. Already there seems to be evidence that people will cooperate with volunteer and public recycling projects. Communities which have had successful recycling pilot projects definitely begin to take a more active interest in environmental problems and in specific problems associated with the disposal of solid wastes. Governments could make enormous savings by encouraging people to reduce the quantity of garbage generated and to separate the garbage at source. There is no need for governments to spend millions of dollars on mechanical separation systems when their energies and money could be concentrated in reducing the amount of garbage produced and utilizing the separated wastes through environmentally desirable methods.

1. The Commissioner of Streets reported that the pattern of newspaper collection in 1972 seemed to follow that of the collection of regular garbage. There were highs in the autumn and spring and lows during the summer and winter.
2. The Globe & Mail (January 24, 1975, p.41)
3. For example, current freight policies enable virgin raw materials to be transported at rates less than recycled materials.

RECOMMENDATIONS:

1. The possibilities of incentives and disincentives¹ for in-home separation of garbage should be explored taking the following into account:
 - a) products which are most easily separated from garbage
 - b) citizen willingness to separate garbage
 - c) ways to educate the public as to the advantages of in-home separation (e.g. an educational program in the public schools)
2. The impact of tax incentives to the soft drink, beer and liquor manufacturers who agree to standardize bottle sizes and implement bottle return systems should be tested.
3. If recycling of separated materials is not economical at any given time municipalities should consider:
 - a) warehousing materials until prices rise
 - b) disposing of separated items in separated landfill sites (i.e. one for paper, one for glass, one for metal, etc.) to be mined and re-used in the future; for example, glass and metals can be mined when the need arises. Separation also reduces the polluting effects of mixed material landfill sites.
4. All levels of government should direct their attention towards increasing markets for recyclable materials.
5. Industries should be given tax benefits for using recycled materials.
6. The province should investigate foreign investment in the waste management industries; steps to control the ownership of landfill sites and recycling plants by American companies should be considered.
7. Municipalities should maintain ownership of their sanitary landfill sites and recycling systems to assure economical services for their citizens.
8. Membership on the permanent advisory body to the Ministry of the Environment, the "Solid Waste Management Advisory Board" has not yet been made public. In our opinion, the advisory body should not be heavily weighted with those who have direct financial involvement in the packaging and bottling industries. Care should be taken to ensure the composition of the Board is more representative of public and private interests, and permits the Board to function effectively for the public good.

1. The most obvious, if drastic, disincentive would be a refusal by the local government to collect unseparated domestic garbage.

The final and perhaps most significant recommendation which can be made at this time is to implore every level of government to establish a realistic set of goals and a timeframe for all waste management programs. It is quite nice to announce this pilot project and that new program with millions of dollars committed, but committed to what.

Not one governmental body or agency, to our knowledge, has ever established a goal for how much of a certain resource they want to save in the next 5 or 10 years.

How can the public be expected to actively support programmes that have not established specifically what they want to accomplish. Do we want to reduce paper consumption? How much? By when? At what cost financially and otherwise? Do we want to recycle endangered resources? Which ones? How much? By when? At what cost financially and otherwise?

It is high time that politicians stop playing games with our environment and get on with the real job of setting targets to which citizens can commit their efforts.

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