

## Minnesota Pollution Control Agency

February 2, 1987

Subject: Container Deposit Briefing Papers

These papers are intended to provide background for discussions on the State's proposed deposit legislation. The papers utilized reports and information developed by State agencies, independent consultants, opponents of beverage container deposit legislation and industry journals. Every attempt is made to present the issues fairly.

The Briefing Papers were a collaborative effort of staff from the following agencies.

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# IMPACTS OF CONTAINER DEPOSIT IN MINNESOTA: A SUMMARY

February 2, 1987

## Solid Waste

Studies done in deposit states show that deposit legislation reduces the amount of solid waste that goes to landfills by 3 to 8%, reducing the need for additional landfill space and thereby reducing the overall cost of solid waste disposal in the future.

Container deposit legislation in Minnesota will result in a reduction of approximately 314,000 to 838,000 cubic yards in the total solid waste stream. At a cost of \$7 per cubic yard, this could amount to a savings of \$2 million to \$5.8 million each year. This savings will probably not be passed directly on to the consumer but will generally result in lower future cost increases.

This estimate is based on reported volume and composition of solid waste in Minnesota. Changes and inaccuracies of the waste volumes reported to the MPCA and changes in the compaction of the solid waste stream will impact this estimate.

## Recycling

Container deposit systems help break the myth that recycling is difficult. According to Oregon's largest multi-material recycling organization, "Once citizens learn how simple it is to set aside and return beverage containers, we can easily educate our citizens to recycle other wastes."

Container deposit legislation will help local governments carry out their solid waste management duties. Redemption centers will be required to redeem beverage containers from consumers and can take other recyclables such as newspapers, food glass and cans, so that opportunities to recycle will increase, allowing the counties and municipalities to meet their recycling goals. Recycling bottles and cans helps to increase the operation and combustion efficiency of waste-to-energy facilities, leading to reduced air emissions and smaller amounts of ash that have to be landfilled.

Curbside recycling programs that are associated with redemption centers will benefit from container deposit legislation. Those that are not associated with redemption centers will not receive beverage containers from the curb anymore, but they may benefit from increased awareness and participation from people who did not recycle before. Activity at drop-off centers and redemption centers will most likely increase, providing them a stable supply of materials.

Under a container deposit system, the 30 existing attended and unattended drop-off recycling centers, the 100 redemption centers and nine curbside programs associated with drop-off or redemption centers could experience increased volumes of beverage container materials, additional income through the recycling/handling fee and the scrap value of the containers, and additional volumes of other recycled materials.



The four curbside programs which are not associated with redemption centers or drop-offs could lose up to 12 percent of their total volume and 24 percent of their revenue from the change in the mix of recyclables following deposit legislation. In addition, the cities managing those programs could receive increased bid prices of approximately \$8 per ton or withdrawal of bids from local recycling contractors. Under the deposit legislation proposal, these losses or costs could be offset if these programs elected to open a redemption center. Funding for redemption centers, on-going support of curbside recycling, and public education can enhance the opportunities for these types of programs under deposit legislation.

The total amount of recycling in Minnesota should increase by at least 80 percent, based on the recycling rates of deposit states, resulting in approximately 195,000 additional tons of materials being recycled.

The amount of recycling accomplished under deposit legislation must be counted and added to other recycling efforts to give appropriate credit to counties and cities in meeting the recycling standards set by the Metropolitan Council and the MPCA's statewide goals. Actions to stabilize and develop recycled materials markets will also support the State's recycling structure by providing a steady demand for recycled materials.

#### Litter Reduction

Container deposit legislation in Minnesota could reduce beverage litter by a minimum of 70 percent, resulting in approximately 980 to 1,500 tons less litter and at least a \$200,000 to \$300,000 savings in litter pickup costs. However, the cost savings are difficult to quantify accurately, because of a variety of factors (crew size, pickup timing, authorities) that influence cost. Minnesota can expect a 34 percent reduction in total litter, which would reduce the amount of litter by 2,400 tons.

The reduction in litter will also result in a cleaner, more attractive State for tourists, the benefits of which are difficult to quantify. Container deposit legislation can help the State maintain or increase its tourist industry, and it requires litterers to pay for what they dispose of carelessly.

#### Jobs

The number of jobs has increased in every deposit state but Connecticut, which stayed the same. The net gain in jobs in these states ranges from 400 in Iowa to 4700 in Michigan. Minnesota can expect gains in employment, particularly in the non-packaging beverage industry and recycling sectors. In Minnesota, plastic beverage bottles have captured 17% of the soft drink market, and that has resulted in job loss in the glass industry (Brockway Glass closed, resulting in the loss of 450 jobs.) Container deposit legislation will help to stop the trend toward plastic by placing a deposit on plastic and glass alike, leaving the consumer the choice of which container to manage.



### Impacts on Consumers

Consumer support for mandatory deposit, despite inconvenience of returning containers, is strong. Container deposit states report increased citizen awareness of the costs of using throw-away containers and an increased awareness and use of recycling as a part of consumer behavior. They realize that what they buy is not completely paid for until it is disposed of properly.

Container deposit legislation affects the consuming public in a variety of ways. Consumers who purchase refillables will experience cost savings because refillables currently cost less than throwaway containers. Minnesotans currently purchase refillable beverage containers at the highest rate in the nation, therefore unfamiliarity with deposit systems and confusion among consumers, the prime indicators of inconvenience, should be very low. There may be fewer brands for the consumer to choose from, but less than five percent of the consumers in deposit states indicate this is a concern. Consumers who purchase beverages in throwaway containers can expect higher prices as the cost of pickup and recycling is incorporated into the cost of the product.

Aesthetically, consumers will find less litter particularly in recreational areas. Specifically, a reduction in glass lacerations in public parks and beaches should be experienced. Tax-related losses from tourism dollars (lost due to injuries), litter pickup and pollution should be reduced.

Consumers support container deposit both in what they say (opinion polls) and what they do (return containers for recycling). The data in deposit states indicates, and Minnesota polls support, consumers in the State favor container deposit legislation and will return containers for recycling.

### Impacts on Retailers

The impacts of container deposit on retailers depends on the redemption system established. Impacts can be largely avoided, given proper in-store handling system design, use of reverse vending technology, or use of outside handlers and redemption centers. Labor costs and capital investments experienced by retailers are about two cents per container, which is Minnesota's proposed reimbursement to the retailer for beverage container redemption.

As noted in Beverage World, "enterprising retailers have used the 'bottle bill' to increase traffic in their stores by encouraging shoppers to bring in their returns, even if the product was not bought at the store, or even if the store does not carry a particular brand" (9). Similarly, a Maine retailer noted that "the first principle of marketing is to get people into the place of business. The bottle bill does that" (10).

### Impacts on Distributors

Under deposit legislation distributors have experienced new costs through increased handling of containers (warehouse, transaction time, labor) and capital investment (machinery). These costs are somewhat offset by the recycling income (scrap value) of the containers and the investment income (float) from deposits.

Distributors in Minnesota, based on the costs of other deposit states, could experience increased costs of 1.2 cents per container to 1.8 cents per container. This estimate is slightly lower than the average increase in costs to distributors located in other deposit states of 2.2 cents per container.

The experience in deposit states indicates that the industry can survive container deposit legislation and continue to profit. The consumer, as always, will bear the final cost.

#### Administrative Procedures and Costs

It is assumed for purposes of these estimates that the state intends to keep the administrative and overhead costs of the new deposit system to a minimum by building on existing agency infrastructures. However, to be conservative, "worst case" projections of costs are used to estimate maximum impacts on government.

Maximum one-time costs to the state are estimated at \$172,700. This cost includes development of State rules, the studies needed to report on the impact of the law, development of the system to collect unredeemed deposits and for start-up publicity. The maximum ongoing costs to State government are \$147,400 per year. The ongoing costs include administration of the dedicated fund for unredeemed deposits and program administration by MPCA. The maximum costs to counties could be \$123,100 per year or an average of \$1,400 per county depending on the amount of licensing and inspections of local redemption centers.

The State costs should be compared to the estimated total revenue through unredeemed deposits, of about \$10.5 million per year. The county costs should be compared to the costs of each county implementing the recycling programs needed to achieve an amount of recycling produced by deposit legislation.

#### Unredeemed Deposits

The proposal for container deposit law in Minnesota suggests using unredeemed deposits for a variety of resource conservation priorities including recyclable market development, public education, support of recycling activities, and household hazardous waste collection.

Minnesota can expect \$10.5 million annually in unredeemed deposits if 95 percent of the containers are returned with a ten cent deposit on beer and wine coolers, carbonated and other soft drinks, and bottled water products. This money does not belong to brewers and bottlers. Those deposits were paid by the consumers. Since a broken or unreturned bottle can't be traced to its rightful owner the money should collectively belong to all the citizens of the state.

# RESULTS OF CONTAINER DEPOSIT LEGISLATION

STATE	RECOVERY RATE (Recycled)	(Per Cent)		PUBLIC SUPPORT **	(Number)	
		LITTER REDUCTION Beverage Containers	Total Litter		Created	JOBS Lost
Oregon	91	83	26	90	530-592	165-227
Vermont	90	76	35	97	450	0
Michigan	90	81	41	85	4,888	105
Maine	93	78	32	84	626	0
Iowa	93	79	38	56	400	0
Connecticut	91			64	700	NA *
Massachusetts	85(est)		35	71	450-500	30
New York	80	70		80	3,800	NA *
California (effective 9/29/86)						

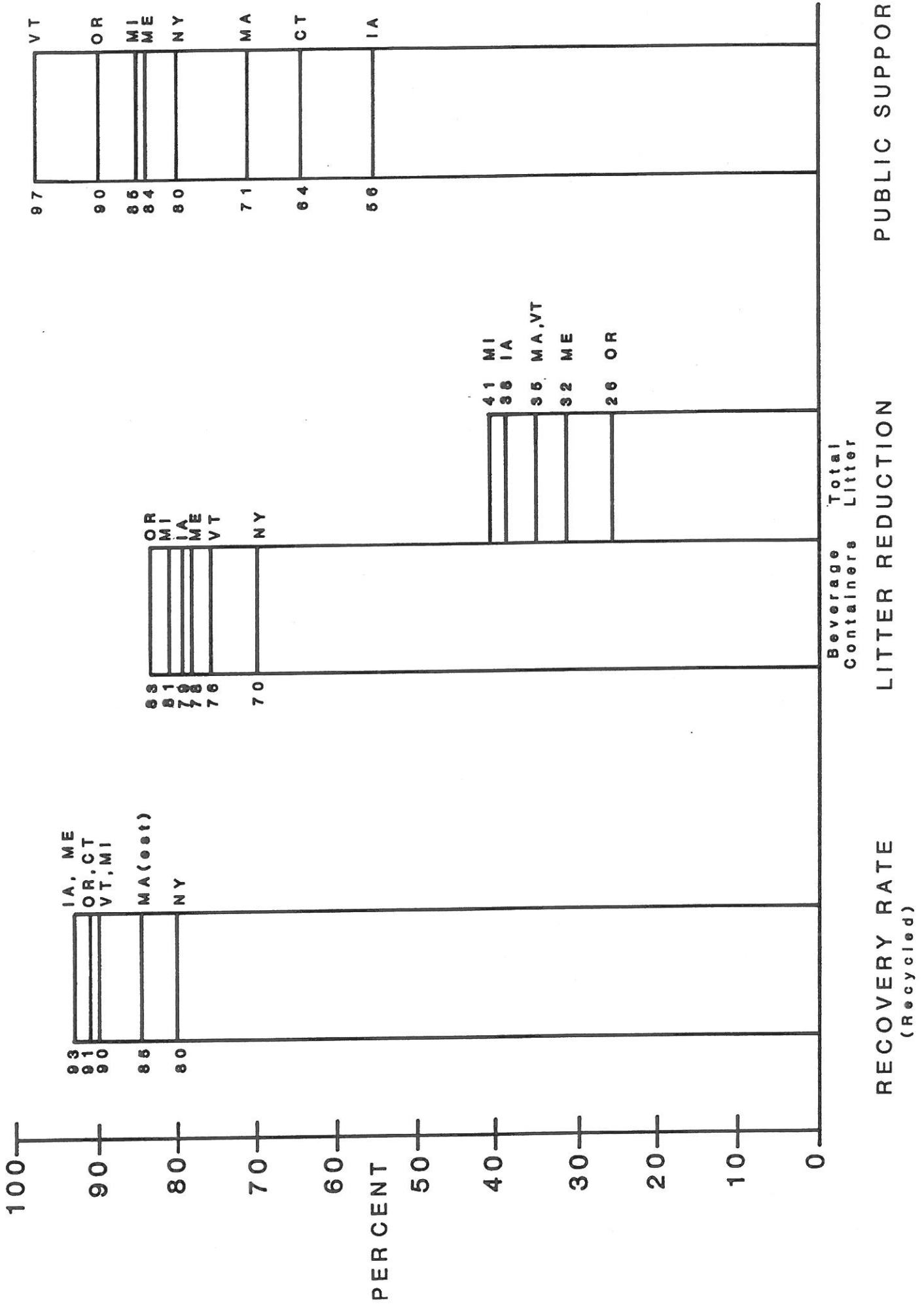
Total solid waste reduction due to recycling in these states is 6-8%.

\* NA - figures not available

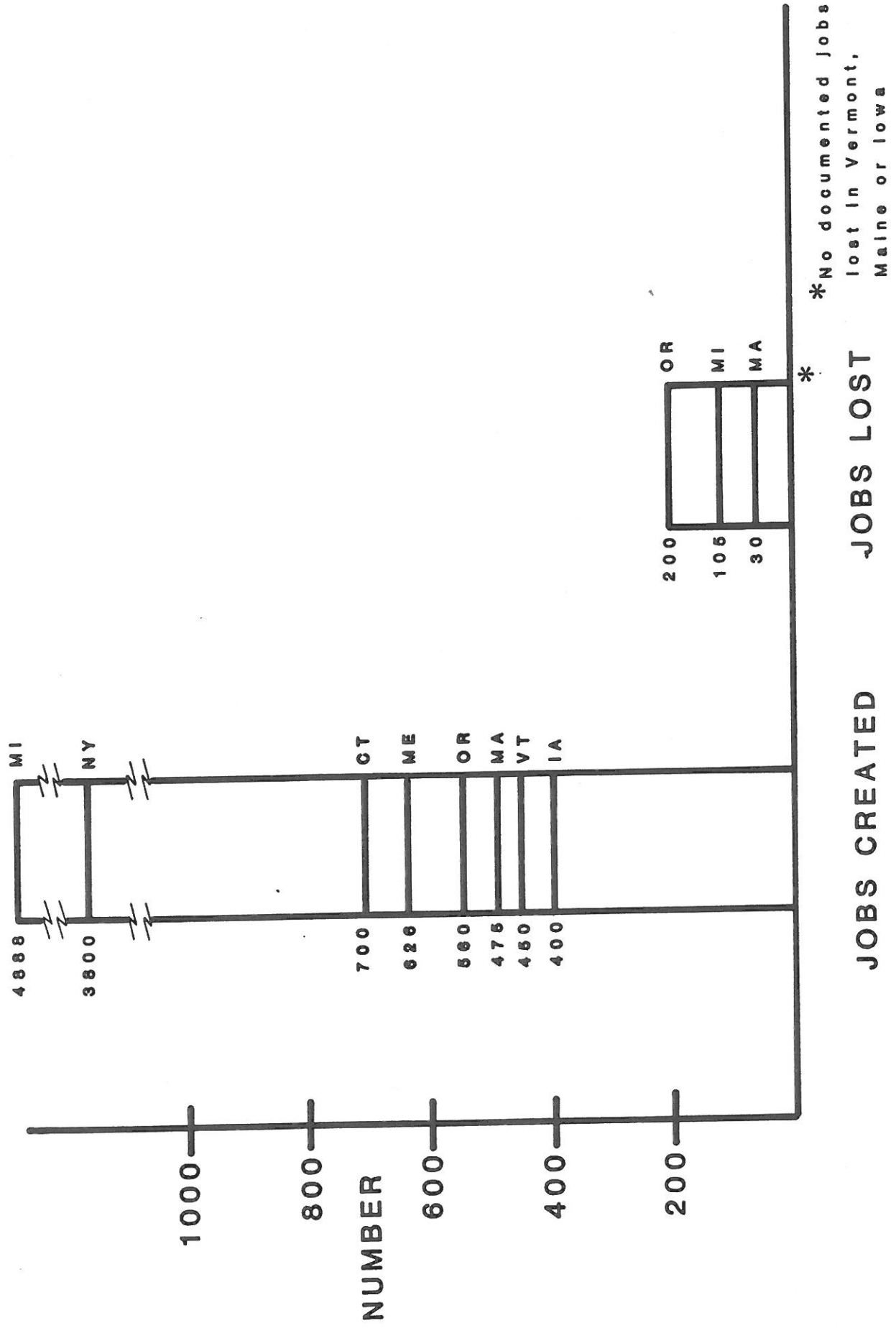
\*\* Public support was determined by surveys and/or voter referenda



# RESULTS OF CONTAINER DEPOSIT LEGISLATION



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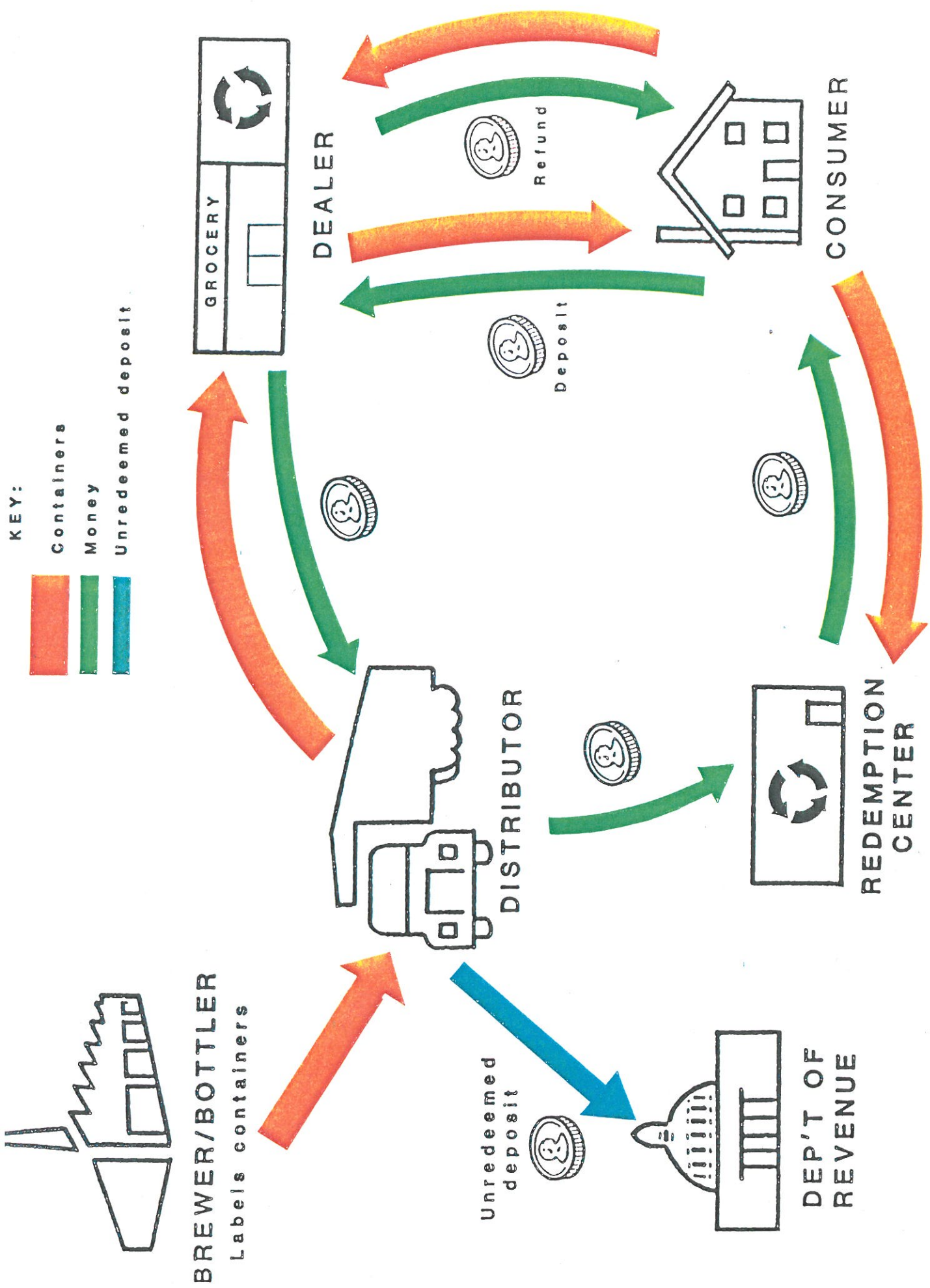


## CONTAINER DEPOSIT LEGISLATION

The attached illustration shows how a container deposit would work. The bold orange arrows show the transfer of containers from bottler to distributor to dealer to consumer. The consumer pays a deposit for the containers to the dealer, who passes the deposit on to the distributor. After the consumer has emptied the container, he or she returns it either to the dealer or to a redemption center and collects the refund from the deposit. This transfer of money is shown by the thinner green arrows.

After a redemption center has collected beverage containers, it bills the distributor for the number of deposits it has refunded. The distributor then reimburses the redemption center. Any unredeemed deposits go from the distributor to the Minnesota Department of Revenue. This is shown by the blue arrow.







Container Deposit Legislation: Solid Waste Stream Impacts

BACKGROUND

The implementation of a container deposit legislation in Minnesota would reduce the amount of solid waste entering land disposal or processing facilities. It is difficult to assess any changes in the solid waste stream due to variations in the solid waste stream on a month-to-month and year-to-year basis affecting both volume and composition. This is complicated by the fact that not all solid waste collection or disposal facilities weigh solid waste and, at those that do, there may be variations in the accuracy of the scales.

For the purpose of this report, all beverage containers are assumed to be recycled. Minnesota's container deposit proposal, like the other deposit states, does not prohibit landfilling of beverage containers. Therefore, it may be difficult to draw conclusions about redeemed beverage containers and the corresponding reduction in the solid waste stream because all redeemed containers may not be recycled or reused. However, midwest markets for glass and aluminum have the capability of absorbing the increase in beverage containers and PET plastic markets primarily purchase from deposit states (see Recycling Briefing Paper).

DISCUSSION

In looking at the composition of the total waste stream, Franklin Associates indicated in a study done in 1980 that 7.2 percent of the total waste stream by weight is made up of potentially regulated beverage containers. This includes aluminum beverage containers (0.6 percent), steel (bimetal) beverage containers (0.4 percent), glass beverage containers (4.8 percent) and plastic beverage containers (1.4 percent).

In Michigan, after seven months of implementation of the container deposit legislation, the staff at the Resource Recovery Division of the Michigan Department of Natural Resources estimated a reduction of six percent by weight or eight percent by volume of the solid waste handled by two incinerator authorities and five public collection agencies. This translates into a similar reduction in landfill space needed. They estimated that the solid waste management cost savings due to container deposit is \$18 million, assuming 600,000 tons of solid waste are kept out of landfills at an average statewide cost for collection and disposal of \$30 per ton.

The report done by the Nelson A. Rockefeller Institute of Government on the first year of the New York Returnable Beverage Container Law indicated a three to five percent per month reduction in municipal solid waste by weight (five to eight percent reduction by volume) in New York State. While the report did not translate this reduction into savings in solid waste management costs, it did indicate that the most widespread effect is the impact on the reduction of landfill space needed. A study done by Long Island University for the New York Beer Wholesalers estimated a reduction of 650,000 tons of solid waste a year by deposit legislation, resulting in savings of \$19 million a year.

The MPCA reported that in 1985, 10,474,223 cubic yards of solid waste were landfilled in the State. Using the results from Michigan and New York and a range of three to eight percent reduction in the total waste stream following the implementation of container deposit legislation, the State of Minnesota



might see reductions of from approximately 314,000 cubic yards to 838,000 cubic yards per year in the amount of solid waste landfilled. At a cost of \$7 per cubic yard for disposal alone, this could amount to a savings of \$2 million to \$5.8 million annually. This savings would probably not be passed directly on to the consumer, but will generally result in lower future cost increases.

#### CONCLUSION

Container deposit legislation in Minnesota will result in a reduction of approximately 314,000 to 838,000 cubic yards in the total solid waste stream. At a cost of \$7 per cubic yard, this could amount to a savings of \$2 million to \$5.8 million each year. This savings would probably not be passed directly on to the consumer, but will generally result in lower future cost increases.

This estimate is based on reported volume and composition of solid waste in Minnesota. Changes and inaccuracies of the waste volumes reported to the MPCA and changes in the compaction of the solid waste stream will impact this estimate.

## SOURCES

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Excerpts from Michigan Department of Transportation Report on Litter Survey, October 1979

MPCA Waste Volume Tables. Memorandum dated October 21, 1986





Container Deposit Legislation: Recycling ImpactsBACKGROUND

The affect of container deposit on recycling is based on the following factors:

- the existing recycling structure
- the existing container mix
- the percentage of beverage containers being recycled currently
- the use of redemption centers and the requirement of the proposed legislation that redemption centers accept newspapers and food glass and cans in addition to beverage containers
- the use of automated reverse vending machines (RVM's)
- the recycling or handling fee

Minnesota's organized recycling structure has 13 curbside programs, ten of which are located in the metropolitan area (1); 30 full service recycling drop-off programs which accept two or more materials; and approximately 100 beverage redemption sites, 60 of which redeem only aluminum containers (in the greater Minnesota area). This structure serves about 16 percent of Minnesota's cities. Of those, only eight percent of the communities have the opportunity to recycle more than two materials; only five percent have the opportunity to recycle glass, metal and paper.

MPCA estimated in 1981 that approximately eight percent of the beverage containers were recycled. Staff believe that estimate is still true today because growth in recycling has been easily matched, perhaps outpaced, by growth of beverage sales and packaging.

DISCUSSION

The recycling (recovery) rates for beverage containers is illustrated in Table 1. Nationally, recovery rates for beverage containers range from two percent for plastic to 56.3 percent for aluminum (2).

Table 1. Recycling Rates (3). 1986 Data

	<u>U.S.*</u>	<u>Minnesota(4)</u>	<u>States with Deposit Laws</u>
Aluminum Cans	56.3%	55-60%	88-97%
Steel Cans	4%	included above	88-93%
Plastic Bottles	2%	.5%	85%
Glass Bottles	6%	6%	91-96%

\* Includes container deposit states

Minnesota currently uses refillable bottles at the highest rate in the nation, at 16 percent for beer and approximately 25 percent for soft drinks (soft drink industry will not provide information). Cans hold 52 percent of the market for beer and approximately 42 percent for soft drinks. Nonrefillable glass bottles hold 14 percent of the beer and soft drink market and PET plastic holds 17 percent of the soft drink market. Although industry estimates are not available, MPCA staff estimate 90 percent of other beverages including wine and

wine coolers, bottled water and juices are bottled in nonrefillable glass, with five percent in PET and five percent in cans (5). Minnesota, as in other states, is experiencing a decline in the amount of beer and soft drink beverage glass available for recycling, as nonrefillable beverage bottles lose market shares to PET plastic and aluminum cans.

The high return rate in container deposit states for beverage containers creates a large and dependable volume of material for recycling. The amount of beverage container material available for recycling in Minnesota at a 90 percent return rate would be approximately 195,000 tons. Table 2 below illustrates the estimated quantity of recyclable materials.

Table 2. Projected Recycling Tonnages in Minnesota Under Deposit Legislation (based on 1985 container mix and sales)\*

<u>Material</u>	<u>Tons Recycled (rounded)</u>
Glass	143,200
Aluminum/bi-metal cans	21,200
PET Plastic	30,600
Total	195,000 Tons

\*90 percent return rate assumed

#### Markets

The market situation in Minnesota, and the midwest, is not as expansive as the other areas of the nation. Minnesota markets for beverage containers include one glass company; other materials are processed here and shipped out-of-state. A 1986 Market Report completed by Metropolitan Council (6) indicates that the glass plant has the capability of tripling the amount of glass used (up to approximately 54,000 tons annually) without capital investments of modification to the plant or process. Up to 50 percent cullet can be used per batch with investment in additional equipment. Although used beverage container aluminum is processed in Minnesota, the markets are in the midwest and overseas; specifically Iowa (deposit state), Michigan (deposit state), Ohio, Missouri and Wisconsin, with exports to Japan, Asia and other third-world countries (7). It appears that the markets can absorb the increased supply of beverage containers. The impact of increased supply of recyclables on markets is difficult to quantify. There are factors other than supply which impact market prices, including changes in technology and the general economy. Changes in these areas cannot be anticipated.

The proposed deposit legislation can be enhanced by increased activities by Metropolitan Council and State agencies in the area of market development. Activities such as increasing Minnesota's use of regional, national and global markets should be pursued, including development of cooperative transportation and marketing networks. This aspect is particularly important in the Greater Minnesota area. Academia and private industry should be encouraged to research and demonstrate projects which increase the use of recycled materials or projects. Actions to stabilize and develop recycled materials markets will also support the State's recycling structure for other materials by providing a steady demand for recycled materials.

### Impacts on Recycling Centers and Programs

An initial assumption of the impact of the proposed container deposit legislation on four recycling alternatives follows. The first scenario is an unattended drop-off recycling center which under the proposed container deposit system remains unattended. Under this scenario, the center would already have a structure which is used to collect recyclable materials: glass, cans and paper. Under the proposed container deposit, the unattended center would need to keep track of (count) the redeemed containers, distribute refunds and securely store materials. Automated reverse redemption machines (RVM's) would fulfill these requirements. Additional capital expense would be required for the automated RVM's, at approximately \$8,700 each. For each container handled the recycler would receive two cents from the distributor; 435,000 cans would have to be handled by the machine for the handling fee to pay for the machine. Kansmacker, one producer of RVM's, estimates the machine will pay for itself in the first year. Additional operating expense would be incurred for handling of the increased volume of materials, servicing the RVM's and completing paperwork to be reimbursed by the distributor.

The second scenario is a attended drop-off recycling center which is usually open for periods of time to accept or purchase recyclables from local residents. To become a redemption center under deposit legislation, this type of recycling operation would need to increase its operating hours, handle additional volumes and types of materials and need a secure (usually fenced and locked) area for redeemed containers.

Under container deposit legislation, according to one California recycler, Gary Peterson of Ecolo-Haul, consumers are able to redeem containers at drop-off centers operated by companies like his, instead of bringing them back to the grocery store. He believes, "This activity will stimulate activity at our centers, and lead to the recycling of other materials." Under the proposed container deposit system recycling firms would also have an opportunity to increase their material volumes by serving the recycling needs of local beverage firms. The recycling operators offer the distributors experience in the handling and marketing of materials and have the equipment (such as crushers and balers) necessary for container recycling. In many of the states with deposit legislation, some recycling firms have specialized in beverage container recycling. In addition to the glass, plastic, aluminum and steel beverage containers, these firms recycle the cardboard carriers. For example, in the State of Maine, such firms employ 70 people.

In Minnesota there are 30 attended or unattended drop-off recycling centers which could be impacted by deposit legislation. These centers could become local redemption centers under a deposit scenario. This additional activity could be accelerated by use of grants and loans to develop redemption centers. The amount of beverage containers collected by redemption centers and retail outlets should be eligible for Metropolitan Council tonnage rebates. In addition, the amount of beverage containers recycled should be counted directly as tonnages recycled for purposes of county abatement goals, the standards established in Metropolitan Council's Policy Plan/Development Guide, and MPCA's statewide abatement goals.

The third scenario is a curbside recycling operation which does NOT have an associated drop-off center/processing facility. In Minnesota there are potentially four programs of this type. The curbside programs can expect to receive a limited amount of beverage containers, usually from those residents who have one or two containers and do not want to redeem them. This type of curbside program will experience a reduction only in the amount of beverage glass and cans put out per stop. The curbside program should not experience a reduction in any other materials, such as newspaper and food glass and cans if these materials are collected. According to the Northern California Recycling Association (an association of municipal and nonprofit multi-material and curbside recycling groups) "many public opinion surveys indicate a much higher level of support for recycling than is demonstrated by actual participation. Container deposit systems help break the myths that contribute to this disparity. The ease of participation in beverage container recycling can transfer to the recycling of other materials." As noted by the manager of Oregon's largest multi-material recycling organization, "once citizens learn how simple it is to set aside and return beverage containers, we can easily educate our citizens to recycle other wastes." (8)

The current recycling "mix" in Minnesota curbside recycling programs compared with that in one deposit state, Michigan, is illustrated below.

Table 3. Recovered Materials and Associated Revenues  
for Curbside Recycling. 1985 Data

	<u>Ann Arbor (MI)</u>	<u>St. Cloud (MN)</u>	<u>SuperCycle (MN)**</u>
Paper	75% (75%)*	70% (67%)	70% (33%)
Glass	15% (15%)	28% (17%)	25% (33%)
Metal	5% (5%)	1% (17%)	5% (33%)
(Aluminum/ bi metal)	.1%	1% (100% of metal revenue)	4% (99% of metal revenue)

\* Percentage of total revenue provided by the particular material is provided in parenthesis. Totals may not add due to rounding, and/or additional materials recycled but not reported here.

\*\* Minnesota Soft Drink Association estimates (includes market price for glass which is \$30 higher than the price paid by Anchor Glass, MN). It is important to note that these figures do not include curbside alone. SuperCycle has an associated buy-back facility and voluntary drop-off at their processing site. Therefore, the figures for aluminum in particular, and the revenues associated with that material, do not represent the revenue of a typical curbside program.

Beverage glass constitutes 20-40 percent of the glass picked up by curbside programs (9). If we assume 40 percent of glass is beverage containers (a worst case scenario) then Minnesota curbside programs can expect to lose ten percent



of the current volume of glass under a deposit scenario. This figure is within one to two percentage points of the reported volumes of curbside programs in container deposit states. The loss of ten percent of the current volume of glass will result in a seven percent reduction in total revenue, using St. Cloud as the example. Aluminum and bi-metal materials constitute the only metal materials picked up by St. Cloud and represent all of the revenue from sales of metal recyclables (10). This volume and revenue would be lost under a scenario for a curbside recycling program that is not associated with a drop-off or redemption program and chooses not to become a redemption center under deposit legislation.

The total effect on the volumes and revenues on the St. Cloud curbside program (which is not associated with a drop-off or redemption center), would be a loss of 12 percent of total volume and a loss of 24 percent of the total revenue. This is a worst case scenario including loss of all aluminum and 40 percent of the glass picked up by curbside recycling.

The four communities which manage curbside programs in Minnesota that are not associated with a drop-off or redemption site would also face increased bid prices from local contractors. The recycling contractors would base their bid price, in part, on the expected volume of materials recovered and the scrap value of the materials. Any reduction in material volume and revenue could result in an increased bid price or withdrawal of bids, resulting in increased costs for those programs. If the high bid price is \$35 per ton from the recycling contractor to the city, and a 12 percent loss in volume would result in a 24 percent decrease in revenue, then the price increase per ton would be around \$8, resulting in \$43 per ton to be paid to the recyclers.

The impact on this system of recycling can be mitigated if cities with curbside services develop neighborhood redemption centers. Further, organized collection of solid waste in which the fee for service is based on the amount of waste produced, will help strengthen the economics of curbside programs, which must reach the optimal point of charging for their service (as waste haulers currently do). Until this action occurs, direct subsidies for these types of curbside programs could be appropriate. Metropolitan Council could administer such funds in the metropolitan area; the Waste Management Board in the non-metropolitan area. Again, redemption of beverage containers should be eligible for Metropolitan Council's tonnage rebates and should be counted as recyclables for the purposes of meeting the recycling goals set by counties, Metropolitan Council and the MPCA.

Unlike the scenario above, the nine curbside programs which also have a drop-off center or redemption site will not totally lose the volumes or revenues associated with beverage containers. In fact, an associated drop-off/redemption site can increase the quantities of beverage containers handled as demonstrated by the volumes of aluminum currently handled by St. Cloud versus SuperCycle in Table 3. The proposed container deposit legislation would provide a base price support of two cents per container in addition to the sales of materials and could provide additional support for curbside recycling programs associated with redemption centers/drop-off sites.

The fourth current recycling scenario, which utilizes redemption centers, would not be negatively impacted by container deposit legislation. Redemption centers currently redeem beverage containers (aluminum and sometimes glass) and occasionally newspaper from residents. The prices they pay are based on the market value of the material they redeem. In addition to the market value of the recyclable material they now redeem, under the proposed container deposit legislation, the redemption centers would have a base revenue from processing the containers for the distributors (two cents per container). Those revenues will provide a basis for acquiring land, improvements and equipment to allow them to also recycle other materials, including newspapers and food glass and cans (as required under the Minnesota scenario).

The high return/recycling rate of beverage containers in states with deposit laws creates a large and dependable volume of high quality material for recycling. The deposit eliminates the uncertainty of public participation in recycling and makes it possible for the manufacturers to count on using the material. This can reduce market fluctuations. Container deposit can also help get the collected materials to markets. Deposit laws can motivate the formulation of a viable transportation network for beverage containers, as well as all other recyclable materials statewide.

Often a new packaging material is either nonrecyclable or problematic for recycling operators, such as PET plastic bottles. The quantity of material in deposit states allowed and forced the development of methods to handle and recycle the containers. Even now, there is little PET beverage container recycling - except in states with deposit laws.

Publicity on container deposit legislation should also stress the use of existing curbside and drop-off recycling facilities to enhance the recycling of other materials across the State.

#### CONCLUSION

Under a container deposit system, the 30 existing attended and unattended drop-off recycling centers, the 100 redemption centers and nine curbside programs associated with drop-off or redemption centers could experience increased volumes of beverage container materials, additional income through the recycling/handling fee and the scrap value of the containers, and additional volumes of other recycled materials.

The four curbside programs which are not associated with redemption centers or drop-offs could lose up to 12 percent of their total volume and 24 percent of their revenue from the change in the mix of recyclables following deposit legislation. In addition, the cities managing those programs could receive increased bid prices of approximately \$8 per ton or withdrawal of bids from local recycling contractors. Under the deposit legislation proposal, these losses or costs could be offset if these programs elected to open a redemption center. Funding for redemption centers, on-going support of curbside recycling, and public education can enhance the opportunities for these types of programs under deposit legislation.



The total amount of recycling in Minnesota should increase by at least 80 percent, based on the recycling rates of deposit states, resulting in approximately 195,000 additional tons of materials being recycled.

The amount of recycling accomplished under deposit legislation must be counted and added to other recycling efforts to give appropriate credit to counties and cities in meeting the recycling standards set by the Metropolitan Council and the MPCA's statewide goals. Actions to stabilize and develop recycled materials markets will also support the State's recycling structure by providing a steady demand for recycled materials.

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## Container Deposit Legislation: Litter Impacts

### BACKGROUND

The implementation of a container deposit system in Minnesota would likely have an impact on beverage container litter in the State. Bottles and cans are a very visible component of roadside litter. It is estimated containers for carbonated soft drinks, beer and other malt beverages constitute approximately 20-30 percent of all roadside litter, although concentrations may often appear to be higher in recreation areas. Studies which count litter by piece (one bottle or can equals one gum wrapper or cigarette butt) estimate beverage containers as 15-30 percent of the total litter stream. Using that assessment - litter by piece - deposit legislation would only "put a small dent in a complex problem" (Glass Manufacturers Institute 1981). Studies by the Departments of Transportation of other states are done by volume or weight, potentially a more accurate assessment of visible roadside litter. Under such studies, beverage containers usually comprise 30-60 percent of the litter stream. One of the often mentioned positive aspects of deposit legislation is that deposit containers discarded as litter will eventually be picked up by someone for the return deposit. This is supported by a study reported in the October 1986 issue of the American Journal of Public Health on "The Impact of 'Bottle Bill' Legislation on the Incidence of Lacerations in Childhood." The doctors' conclusion was "that the reduction in glass related injuries was associated with implementation of beverage container recycling legislation. By providing incentives for the return of empty containers, this conservational policy has apparently been beneficial to urban children by reducing their exposure to broken glass in the environment."

Deposit legislation places a financial penalty on the person who chooses to litter. This impact is restricted only to deposit containers which are littered. The deposit, for those who return the containers, is an investment in the recycling collection system. For those who throw cans and bottles in rivers, lakes, along roadsides, and in the garbage, that deposit becomes a fine. This forgone money can then be used to develop positive programs in recycling, market development, public education, community beautification and other elements of a comprehensive solid waste management system.

### DISCUSSION

In 1985, the Nelson Rockefeller Institute on Government issued a report on the first year of the New York Returnable Beverage Container Law. A major objective of that law was to remove the hazards and other problems caused by beverage container litter. A litter analysis was done for New York and Pennsylvania, two comparable states, with and without deposit legislation, respectively. The analysis showed a 70 percent reduction in beverage container litter (based on accumulated items per mile) in New York as compared to Pennsylvania, while the total litter in New York was 3.4 percent higher. It is unknown whether the total litter in New York was higher than Pennsylvania before deposit legislation was enacted. The resident engineers of the New York Highway Maintenance Division in any case, estimated a 25 percent reduction in the amount of litter and trash needing to be picked up. They also reported an 80 percent reduction in the number of lawn mower flat tires due to broken glass.

The 70 percent reduction figure compares favorably with other studies done in Oregon (1972-73, 67.5 percent reduction), Vermont (1973-74, 76.1 percent reduction), Maine (1977-78, 60.4 percent reduction, 1977-79, 65.2 percent reduction), Michigan-DOT (1978-80, 83 percent reduction, 1978-79, 85 percent reduction).

As part of an attitudes survey also done in New York, it was reported that 78 percent of respondents perceived all litter to be reduced in the first year of the law, suggesting that individuals may consider beverage containers to be the most significant component of visible litter regardless of their measured relationship to total litter. As table 1 illustrates, the documented reduction in beverage litter and total litter is significant, in part because the new awareness about littering that deposit legislation creates spills over to other behavior.

Table 1: Litter Reduction in Deposit States  
(percentage)

<u>State</u>	<u>Beverage Container Litter Reduction</u>	<u>Total Litter Reduction</u>
Oregon	83	26
Vermont	76	35
Michigan	83	48
Maine	78	32
Iowa	79	38
Massachusetts	NA	35
New York	70	30
California	effective September 1, 1987	

Deposits on beverage containers became mandatory in Michigan in 1978. In October 1979, the Michigan Department of Transportation reported on the results of the litter survey done in August 1979. The total amount of litter (measured in litter items per mile) had decreased 22.4 percent from 1977 to 1979. Beverage containers per mile had decreased 71.8 percent from 133 in 1977 to 37.5 containers in 1979. In 1981, the Transportation Department reported a 48 percent decrease in total litter and an 83 percent decrease in beverage litter from 1978 to 1980. Governor William A. Milliken indicated that these results underscore the need for a national beverage container deposit law because almost 70 percent of the beverage containers picked up in the survey were throwaways brought in from other states.

In the State of Minnesota, the Minnesota Department of Transportation (MnDOT) spent approximately \$5 million in Fiscal Year 1986 to carry out debris cleanup which includes litter, sand and accident debris. MnDOT staff estimate that \$1 million to \$1.5 million was spent to clean up 7,200 tons of litter. Based on the lowest estimates of beverage containers (and therefore worst case) approximately 20-30 percent of litter is carbonated beverages and beer and malt beverage containers. Minnesota would then create approximately 1,400-2,100 tons of beverage container litter. Applying a 70 percent reduction in beverage container litter would yield a 980-1,500 ton reduction in beverage container litter from Minnesota per year with deposit legislation and at least a \$200,000 to \$300,000 litter pickup cost saving each year. In addition, Minnesota could expect a 34 percent reduction in total litter (based on the average reported by deposit states) which would result in approximately 2,400 tons less litter in Minnesota. Inherent in the assumption that deposit legislation will reduce litter is the belief that a reduction in beverage container litter will mean a reduction in the cost of roadside litter pickup. Carl L. Figliola, Dean of the School of Business and Public Administration, Long Island University, stated "(Litter reduction) on the state's highways and streets will probably decline as much as 30 percent saving the taxpayer approximately \$50 million annually" in a 1984 report to the New York State Beer Wholesalers Association on New York's deposit law. Because of the variety of factors influencing those costs, including crew size, pickup timing, and multiple local authorities, this information may be difficult to gather in Minnesota.

A reduction in litter can result in a cleaner, more attractive State for tourists. These benefits cannot be quantified. In 1985, a survey of State Directors of Tourism in container deposit states was undertaken by the Environmental Action Coalition. All of the Directors believed container deposit resulted in a cleaner, more attractive state for travelers and mentioned that tourists often remark on how clean and near litter-free the state is. Container deposit legislation helped the state maintain a "clean, wholesome image" according to the Iowa Tourism Director.

#### CONCLUSION

Container deposit legislation in Minnesota could reduce beverage litter by a minimum of 70 percent, resulting in approximately 980 to 1,500 tons less litter and at least a \$200,000 to \$300,000 savings in litter pickup costs. However, the cost savings are difficult to quantify accurately, because of the variety of factors (crew size, pickup timing, authorities) that influence cost. Minnesota can expect a 34 percent reduction in total litter, which would reduce the amount of litter by 2,400 tons.

The reduction in litter will also result in a cleaner, more attractive State for tourists, the benefits of which are difficult to quantify. Container deposit legislation can help the State maintain or increase its tourist industry.

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## Container Deposit Legislation: Job Impacts

### BACKGROUND

The negative impact that container deposit legislation has had on employment is limited to two areas: container manufacture and beverage sales. There are many related issues that impact employment, including potential loss of high paying jobs and creation of low paying jobs, the "firing of father and hiring the son" issue; and creation of new industries and opportunities. The purpose of this paper is to illustrate the experiences of other states and predict what might happen in Minnesota.

Minnesota has two beverage container manufacturing plants which employ a total of 477 production employees who produce non-refillable glass and metal beverage containers (1). There is no manufacturer making plastic beverage bottles (1). In addition Minnesota has 4,150 people employed in the non-packaging end of the beverage industry (2). This would include truck drivers, bottle handlers, warehouse workers, etc. employed with distributors and bottlers.

### DISCUSSION

The impact on jobs from implementation of container deposit legislation is obscured by the reporting practices of the affected industries and general market trends related to container mix. Nationally, non-refillable and refillable glass have lost large market shares to cans and plastic as illustrated in the table below. This national trend has resulted in closure of 32 domestic glass container plants from 1980 to 1984. Owens-Illinois stated in a 1982 full-page ad that "We've reduced employment by 19% or 15,000" to assure potential investors that the company was "moving ahead in rough water" (3).

#### Historical Container Mix by Percentage of Market Share (4)

<u>Soft Drinks</u>	<u>Refillable Bottles</u>	<u>Non-Refillable Bottles</u>	<u>Cans</u>	<u>Plastic Bottles</u>
1975	38	29	33	--
1979	38	15	38	9
1980	32	15	36	17
1981	34	15	35	17
1982	26	16	37	21
1983	25	16	36	23
1984	24	15	37	24
1985	23	14	40	25
1986E	21	13	40	25
<u>Beer</u>				
1978	13	28	59	--
1980	13	30	57	--
1981	12	29	59	--
1982	12	27	61	--
1983	6	28	65	--
1984	6	26	68	--
1985	5	25	71	--
1986E	4	24	73	--

Minnesota's container mix is somewhat different than the national average, as illustrated below. The accuracy of the soft drink numbers are debatable, because the Soft Drink Association (State and National) refuse to provide data to State agencies.

Container Mix by Percentage of Market Share (5)

<u>Soft Drink</u>	<u>Refillable Bottles</u>	<u>Non-Refillable Bottles</u>	<u>Cans</u>	<u>Plastic Bottles</u>	
1979	35	9	50	7	
1985	25	14	44	17	
<u>Beer</u>					<u>Draft</u>
1985	16	14	52	--	18

In general, it seems that Minnesotans purchase more beverage product in refillable containers (with a deposit) than the rest of the nation, on the average. However, Minnesota is not insulated from general market trends. For example, in 1984 Minnesota had two manufacturing plants producing non-refillable glass bottles. Brockway Glass, Inc. closed suddenly in Minnesota, putting 450 people out of work. In explaining the sudden closing of the plant, Brockway, Inc. stated "industry's conversion to plastic bottles have eroded [their] market" (6).

There is a direct correlation between the mix of containers in the beverage marketplace and the number of jobs in the container manufacturing industry. Container deposit may change the container mix, but predictions are difficult to make. The change of container mix is made at the discretion of the beverage firms (7).

The package mix before and after deposits is available in five states (Oregon, Michigan, Vermont, Iowa and Connecticut) (8). The article illustrates that nonrefillable and refillable glass bottles held their market share or slightly increased their market share in deposit states. The exceptions were Connecticut, which lost four percent in non-refillables from 1979 to 1981 and Oregon which lost two percent in non-refillables from 1979 to 1981. According to Brewers Digest (August 1983) "In seven states, one-ways (nonrefillable glass) outsell cans, often by a wide margin. Three of these states are deposit states." The assistance that container deposit can provide in maintaining the shares that refillable and non-refillable bottles hold in Minnesota's marketplace could be an important factor in creating an edge over the plastic container which presently threatens the glass industry.

The Federal Resource Conservation Committee, in 1978, developed a "worst case" scenario for job loss due to national container deposit legislation. The worst case is the most extreme shift in container mix possible, shifting to refillable

bottles (60 percent) because this causes the largest reductions in the production of metal and glass containers. The worst case scenario estimated a 13 percent reduction in container manufacturing (9). In Minnesota, this "worst case" would result in a potential job loss in container manufacturing of 62 jobs. For the glass container manufacturer, there will not be a direct correlation between only shift from nonrefillables and job loss in Minnesota because their market for non-refillable containers extends for a 400-mile radius around the Twin Cities; 95 percent of their product is shipped within that zone.

Retraining of dislocated workers will be necessary to enable them to find new jobs. The most highest cost of retraining workers is \$3,000 per person according to the Human Services Department of the State Planning Agency, for a total worst case cost of \$186,000.

The non-packaging sector of the beverage industry would only be impacted by changes in total sales of beverages. Four deposit states have collected data which can be used to determine the impact of container deposit on beverage sales: Oregon, Maine, Michigan and Vermont. These states experienced declining or stagnating beer sales in the first year after their respective laws were implemented. Thereafter, these states regained their previous growth patterns. (See Attachment 1). Soft drink sales seem to have exhibited similar patterns, but reliable data is not available. The General Accounting Office concluded in their report that "there might be a transitory effect in the first year.... Probably some familiarization effect operates after the law's implementation, and when the new situation has been adjusted to, other variables that affect beverage sales continue to operate as before" (7). This slight decline in sales may not occur in Minnesota which already purchases refillables (which carry a deposit) at the highest rate in the country. In a survey of the literature, there has been no reported loss of jobs in the non-packaging sector of the deposit law states. The literature does show job gains in this sector, however, particularly in recycling, production lines, washing and inspection, distribution and warehousing (7). In Michigan, the average wage was \$10.25 (in 1979 dollars) for the non-packaging beverage industry. The total number of jobs gained in this section, in Michigan for example, was 600 (7). According to the General Accounting Office Report, jobs in beverage industry distribution increased by 10 to 40 percent in container deposit states (7). In Minnesota 4,150 people are employed by 92 soft drink distributors and 138 beer, wine and spirits distributors (10). Container deposit legislation could therefore mean an employment increase of between 400 to 1,600 jobs in this sector.

The major gain in jobs in container deposit states seems to be in the retail sector where employees receive, sort, count and pack the redeemed beverage containers. The most conservative number of containers handled annually by one employee is 850,000 (7). In Minnesota, this could mean an employment increase of approximately 2,700 in the retail sector. The number of jobs created in the retail sector in Minnesota would be shifted to a number of smaller redemption/recycling centers, if recycling centers are the point of redemption for consumers.

The data from deposit states on job impacts (including container manufacturing and non-packaging beverage industry) is illustrated in the table below.

<u>State</u>	<u>Public Support %</u>	<u>Jobs Created</u>	<u>Jobs Lost</u>	<u>Net Jobs Created</u>
Oregon	90	925	560	365
Vermont	93	450	0	450
Michigan	85	4,888	105-240	4,648-4,783
Maine	84	626	0	626
Iowa (est)	56	400	0	400
Connecticut (est)*	64	100	100	0
Massachusetts (est)	71	450-500	30	420-570

\* Beverage Industry - supplied information

#### CONCLUSION

If container deposit legislation is enacted and if the share of the market that non-refillable cans and bottles changes, there could be job dislocation in Minnesota within the container manufacture sector. A worst case job loss scenario assumes a major shift to refillables and corresponding reductions in production of non-refillables. The shift would result in a loss of 62 jobs in Minnesota. Early retraining and assistance can assist in minimizing dislocation of labor.

As with other deposit states, the net impact in Minnesota should be gains in employment, particularly in the non-packaging beverage industry, and the retailing and recycling sectors which could expect to add between 400-1,600 jobs and 3,700 jobs respectively.

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Per Capita Beer Sales\* 1972-1985

	<u>Connecticut</u>	<u>Iowa</u>	<u>Maine</u>	<u>Michigan</u>	<u>New York</u>	<u>Oregon</u>	<u>Vermont</u>
1972						<u>20.9</u>	<u>24.9</u>
1973						<u>20.8</u>	<u>24.0</u>
1974						21.7	<u>23.0</u>
1975						22.1	24.0
1976			24.4	24.2		23.1	24.6
1977			<u>24.2**</u>	24.7		23.4	24.4
1978			<u>22.7</u>	24.6		23.7	26.2
1979		NA	23.4	<u>23.7**</u>		24.4	26.8
1980	15.6	24.2	NA	<u>23.2</u>	22.0	NA	26.6
1981	15.5	24.8	22.9	23.0	22.9	24.4	25.5
1982	16.0	24.5	23.1	23.2	<u>22.5</u>	23.7	28.2
1983	17.0	24.4	23.0	23.0	<u>22.5</u>	23.3	27.2
1984	17.0	24.4	22.8	22.7	21.1	22.9	28.4
1985	18.0	24.0	23.5	22.6	20.7	22.5	27.7

\* Year in which deposit legislation took effect is underlined

\*\* Drinking age raised

Source: State Liquor Control Commissions



## Container Deposit Legislation: Impact on Consumers

### BACKGROUND

Container deposit legislation affects the consuming public in a variety of ways: price changes; level of inconvenience experienced; safety; taxes; and consumer awareness of recycling. These are all important factors to review, along with consumer reaction to container deposit.

The debate surrounding container deposit legislation always includes a number of claims related to the adverse versus positive impacts on a state's consumers. This particular portion of the debate tends to be muddled by claims and counter claims, all of which may sound reasonable. This paper in an attempt to assist decision-makers in obtaining a clear view of the facts, tries to point out where some of the common difficulties arise.

### DISCUSSION

#### Price Changes

Short-term consumer price information can be very misleading when discussing the states' experience with container deposit laws. Every state with a container deposit law experienced a short-term rise in beer and soft drink prices in the months immediately prior to passage of the legislation, and/or within a few months following the legislation. However, many reports use examples of larger consumer price increases. Therefore, it is important for policymakers to ask when cost data was collected. If it was collected within a few months of the bill's passage, it is not a true reflection of long-term, stable consumer cost impact. A cost of 2.2 cents per container and less seems to be a "worst case" estimate of price increases to consumers.

It is clear that deposit legislation has imposed additional costs on the state industries affected; it is equally clear that the law results in certain cost reductions for industry. All of these factors must be reviewed to understand the full impact of deposit laws on the beverage industry, and thus the consumer (who will pay any increased costs).

Some factors in this cost increase area: initial investments in recycling systems, increased handling costs, etc. Indeed, there are costs to the consumer based solely on the handling and recycling costs of container deposit laws. New York estimates that the consumer would pay an additional \$186 - 194 million per year for beverages due to container deposit. This is approximately \$10.50 per year per person (2). Other states have discovered factors unrelated to container deposit which were responsible for post-bottle-bill price increases. Oregon cited runaway sugar prices and inflation rates at the time the bill passed (1972) as major factors in price increases (neighboring states Washington and California [without deposit laws] also experienced similar increases at that time). One year after implementation of the deposit law, Oregon beer prices were about three percent higher than in Washington State, and soft drink prices were about four percent lower. Despite inflation for beer and soft drinks, Oregon consumers actually paid \$75,000 less in 1973 for the same quantity of beverage they purchased in 1972, because of the shift to drinks in refillable bottles which were cheaper than their nonrefillable counterparts both before and after the deposit law.

Within a year, prices in states with deposit laws edge downward, and ultimately stabilize to reflect the true cost of additional handling involved (.01 to 2.3 cents per container in Vermont after one year). It appears that a conservative estimate for costs of additional handling due to mandatory container deposit is 2 to 2.5 cents per container. Estimates above this amount suggest other factors, not related to true deposit bill costs. For example, a state study of Michigan's container deposit bill reports that due to industry price increases, the per container cost to consumers was six cents. Because of the high pricing after the deposit bill passed, the governor asked Michigan's Attorney General to investigate the possibility of artificial price increasing on the part of the industry in opposition to the new law. (The study discovered many factors in the high price of beer in Michigan, many of which were unrelated to container deposit.)

Despite the increased handling costs, most of the states with container deposit laws report that there is a significant overall savings. Consumers who switch to glass refillables (which have always cost less than the non-returnables) experience substantial savings. Vermont reported that consumers who purchase beverages in refillable containers saved \$60 per year in 1977. Massachusetts reports that, considering the price increases for throwaways and the increased availability of refillables, the average decrease in consumer price will be about five percent because of a shift to refillables. Total Massachusetts consumer savings were estimated at about \$35 million per year.

A final, and minor affect is lost interest. Branch (4) reports that consumers will lose dollars in interest and spending power due to a delay in the use of their deposit until the containers are returned and the deposit refunded. He estimates that, at a six percent interest rate, Vermont and Oregon consumers will lose \$45,000 and \$48,000 respectively. This is not a significant impact. This means Vermont consumers lose less than eight cents per person per year, and Oregon consumers lose less than two cents per person per year.

#### Level of inconvenience

There is a certain amount of consumer inconvenience present in a returnable system, and consumers initially tend to complain about the nuisance involved. Much has been implied regarding the added inconvenience a deposit requirement would have on the consumer. None of the materials researched could quantify this inconvenience. A consumer will purchase groceries on a regular basis, and it seems likely that the consumer would simply bring along the empty containers for a refund on the next trip to the store. A study in Oregon asserts that "consumer inconvenience may be ignored because it is so small a factor for each individual that its inclusion would not affect" an impact analysis. A study of the New York system disclosed that residents found the deposit law to be inconvenient, but that there is overwhelming support for the law across all constituencies.

However, Branch (4) estimates that inconvenience costs the consumer at least one cent per container. He based that assumption on the fact that consumers preferred non-returnables to refillables despite a one cent differential during

the switchover years. One may question that assumption because it was an industry-wide decision to switch to non-returnables, and some stores did not carry the returnables at all, leaving the consumer with no choice.

Currently, in Minnesota, without a mandatory container deposit law, consumers purchase refillables/returnable bottled products at a rate which is one of the highest in the nation, despite the past national trend away from returnables. Therefore, many citizens already are experienced with a deposit system and inconvenience to Minnesota citizens should be minimized.

#### Consumer purchasing in border states

Michigan reported significant numbers of residents were crossing state lines to purchase soft drinks and beer, after passage of the deposit legislation. Beer, in particular was a large proportion of the lost sales. However, concurrently with the deposit bill, the state passed an increase in the drinking age. Additionally, Michigan has had higher beer prices than its neighboring states traditionally, even long before deposit legislation and so it is likely consumers were seeking the overall price benefits, as opposed to seeking to avoid a deposit on the containers.

A report by Branch (1976) states that "Since Vermont is a small state with a significant part of its population concentrated along its borders, this [people going out of state to purchase beverages] is a serious problem." A 1977 report by the State of Vermont reports no significant post-deposit bill consumer shopping migration to neighboring states from border communities.

#### Safety

Prior to passage of deposit legislation, states with current deposit legislation reported a significant threat to the health of individuals and animals due to broken glass, pull tabs and cans. After the deposit legislation was implemented, this the danger was largely removed. Michigan's Bald Mountain Recreation Area reports that lacerations caused by glass and tab tops were nearly eliminated since the bill passed, and accidents declined nearly 75 percent. A 1986 report in the American Journal of Public Health states that there has been a 60 percent reduction in child glass lacerations occurring in public parks and beaches of Massachusetts since the advent of that state's container deposit law.

Branch (4) also adds that small children collecting bottles by the side of the road may be struck by passing motorists. Additionally, Branch points out that injuries can occur due to glass bottles exploding, while plastic coating prevents the "grenading" when they explode. These are examples of the many diverse, misleading arguments used in this debate.

#### Tax costs to consumers

• \$350 million in tax dollars were spent nationwide in 1969 to dispose of throwaway containers and to clean up beverage container litter. Further taxpayers costs are associated with air pollution from the manufacture of one-way containers, and with loss of tourism dollars due to injury and reduced aesthetics from discarded containers.

The claims relating to tax impact of container deposit are diverse: A 1982 report by the Glass Packaging Institute predicted that a Massachusetts deposit bill would cost consumers nearly \$100 million a year in higher beverage prices. In reality, a Massachusetts state-sponsored analysis of the effects of the bill showed that state taxpayers benefited from mandatory deposit. Consumers paid \$45 million in lost excise tax, job loss, and non-refillable price increases. However, consumers saved \$138 million a year through reduced litter and resource conservation, solid waste reduction, development of new industries, as well as from 2,300 new jobs created and savings by shifting to cheaper refillables.

Policy analysts and decision makers would be wise to look carefully at the experiences of the states which have had container deposit legislation on the books to see the true picture of tax impacts on the state. Predictions of potential tax impacts cannot be as meaningful as the analysis of those states with first-hand knowledge.

#### Consumer reaction to container deposit

In each of the deposit law states (excluding California, for which data is not yet available), consumers have adjusted rapidly to the new system and are overwhelmingly in favor of the law after they have experienced it for awhile. Oregon reported 91 percent approval rating for its deposit bill. Two Vermont public opinion polls found 78 percent and 83 percent to be in favor of deposit legislation and after more rigid requirements were added to the original bill, the public approval rate was believed to be 85-90 percent in Vermont. (93 percent of Vermonters like the law well enough to believe it should be implemented nationally (13).) In Maine, 84 percent of the voters rejected an attempt to repeal the deposit law that had been implemented almost two years earlier. The State of Iowa had a poll taken eight months after implementation, 56 percent favored the law and 35 percent opposed it. Even in Michigan, where higher beverage prices have resulted, polls indicate that if the law were again put to a vote, voters would still approve it by a two-to-one margin as they did in 1976 (5).

Deposit states have exhibited less choice in brands and types of containers for the consumer, but a survey of Oregon consumers revealed that only four percent expressed negative sentiments toward the limitation (5).

Above all, container deposit states report increased citizen awareness of the costs of using throw-away containers, and an increased awareness and use of recycling (of all materials) as a part of consumer behavior. Container deposit is a blend of private and public incentives for reducing litter and increased recycling.

## CONCLUSION

Container deposit legislation affects the consuming public in a variety of ways. Consumers who purchase refillables will experience cost savings because refillables currently cost less than throwaway containers. Minnesotan's currently purchase refillable beverage containers at the highest rate in the nation, therefore unfamiliarity with deposit systems and confusion among consumers the prime indicators of inconvenience, should be very low. There may be fewer brands for the consumer to choose from, but less than five percent of the consumers in deposit states indicate this is a concern. Consumers who purchase beverages in throwaway containers can expect higher prices as the cost of pickup and recycling is incorporated into the cost of the product.

Aesthetically, consumers will find less litter particularly in recreational areas. Specifically, a reduction in glass lacerations in public parks and beaches should be experienced. Tax-related losses from tourism dollars (lost due to injuries), litter pickup and pollution should be reduced.

Consumers support container deposit both in what they say (opinion polls) and what they do (return containers for recycling). Container deposit states report tourism benefits, fewer injuries, and a willingness of consumers to put up with the minor inconvenience of the legislation because they realize there are many more positive aspects of it.



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## Container Deposit Legislation: Retailer Impacts

### BACKGROUND

Impacts of container deposit legislation are probably most recognizable at the retail level, due to the multitude and variety of retail establishments and the importance of beverage sales to their operations. Retailers are required to pay deposits to distributors and charge deposits to consumers. Their involvement may also extend to providing for consumer redemption of empty containers, sorting the containers and returning them to the distributors.

While some retailers do not offer beverages in returnable containers, many more retailers do carry returnables and are currently involved in deposit operations. Potential problems associated with increasing or adding on these operations center on increased labor costs, space constraints, sanitation and health impacts and decreases in business or revenues.

### DISCUSSION

Container deposit has been initiated in several states, affording the opportunity to evaluate actual experiences and approaches to addressing problems. In many cases, initial opposition by retailers in deposit states has given way to cooperation and support, as more efficient methods of handling have emerged.

#### Labor costs

A primary area of concern cited is the increased labor required at the retail level for container handling. The manner in which redemptions have been handled varies with the size and type of operation, from the small operation where containers are returned at the checkout counter with no added staff to the larger operations where specific redemption areas are established with specific personnel assigned. Container handling involves checking returned items for acceptability; refunding the deposit to the consumer; sorting the containers by type, brand and size; storing each distributors' containers until time of pickup; and, keeping detailed accounting records.

Labor requirements at the retail level are largely dependent upon the portion of the handling operations that the retailer wishes to undertake and the type of system established. The following figures are for labor costs in deposit systems based on high beverage sales in summer months only; in winter months, labor costs would decrease (8). Labor costs involved in accepting, handling, sorting and refunding for returnables have been estimated at \$258 per week (69 hours of labor) for super markets and \$169 (50 hours of labor) for smaller stores. These costs have been shown to be offset by the handling allowances reimbursed to retailers, leading to marginally profitable or minor loss situations. In Massachusetts and Vermont, capital and labor costs were estimated at \$.02 per container, which is equivalent to Minnesota's proposed reimbursement (5,6). One Burlington, Vermont supermarket which kept detailed records has shown a net of \$35 to \$40 per week (5).

Overall employment gains at the retail, distribution and recycling center level for container handling have also been noted. The Retail Store Employees Union has attributed 1,000 new jobs in the Detroit area and 1,000 more throughout the lower peninsula to Michigan's container deposit bill (3).

Retailer labor costs can be reduced through the use of reverse vending technology. With this technology, consumers place containers directly into reverse vending machines which are programmed to read and recognize brands, determine whether the container condition is acceptable, issue cash receipts, crush containers (in the case of cans), bag containers, and keep an accounting of containers redeemed.

The cost of one brand of a reverse vending machine was listed at \$8,699, and was estimated to have a pay back of less than one year. In addition, in Michigan, three aluminum recycling operations have opened which supply distributors with can crushing machines and 40-foot trailers for transport at no cost (4).

Clear and obvious markings on containers are required for reverse vending technology. These markings can lead to shortened sorting time at recycling centers because computerized operations rather than manual methods can be used, as has been suggested based on Vermont's experiences.

Retailer labor costs can be reduced through providing only limited handling and through cooperating with a redemption center for most operations. In Michigan, businesses developed to pick up unsorted containers from retailers. These businesses would then provide the sorting and other handling, and receive the reimbursement from distributors (2).

In some deposit states, retailers can choose not to provide redemption services, provided they have contracted with a licensed redemption center, and in some states, are permitted to limit the hours which redemptions are allowed.

In Vermont, over 100 privately run redemption centers have opened which accept containers from consumers and pick up unsorted containers from stores. The proliferation of these centers is viewed as an indication of profitability.

#### Space constraints

Providing space for container handling can be a significant issue for the retailer. Efficient warehousing and distribution have allowed newer markets to operate with less back room space; consequently, space for container handling often competes with retail selling space. While space needs are highly dependent upon the size of the store, retailers have reported using 200 to 250 square feet of backroom or outside space (8).

Some retailers have opted to construct new space, while others have reduced inventories in order to provide for space. Problems with the former option include construction costs and possible theft, with respect to outside space, while the later option decreases consumer choices. Clutter has also been a problem when storefront areas are used.

Reverse vending machines can significantly reduce space needs, particularly in the case of cans which are crushed in the machines. Additionally, clutter is eliminated. In Vermont, few serious space complaints have occurred, and those retailers with tactical problems usually align themselves with redemption centers.

### Sanitation

Sanitation is another concern to the retailer. Reports of states' experiences in sanitation have differed. Vermont has noted no sanitation or health problems due to container handling. Grocers have more frequently required services of exterminators, but as a precautionary measure rather than in response to problems (5). Some retailers have complained of becoming rubbish collection centers in Michigan, with specific complaints of increased need for extermination services and checkout personnel handling both dirty cans and food stuffs. Unclean containers can lead to odor and vermin problems. It has been estimated that sanitation costs can double due to container handling (1). One report distributed by the retailers, estimates these increased costs at \$13 per month (8).

Michigan retailers have suggested and received revisions to their law to allow for rejection of filthy containers (2). This provision is a part of Minnesota's proposal. Elsewhere, however, retailers have been reluctant to reject containers for fear of losing customers.

Reverse vending machines can greatly decrease sanitation and odor problems, since they are self-contained units. Outside storage and keeping handling and storage away from food stuffs also alleviate sanitation problems in the case of manual methods. Sanitation must be incorporated into system design. Finally, outside handlers or redemption centers can be used.

### Decreases in business and revenues

Concern has been expressed that beverage sales would be hurt due to deposit requirements. While initial declines were noted, this has not proved to be the case in general. No declines in sales were shown in Iowa, Vermont or Oregon.

Concern has also been expressed over bottle dumping (getting back substantially more bottles than sold), losses through theft or double redemption, and additional funds being tied up in inventory deposits.

Experience in Vermont has shown that bottle dumping is not a major issue. While containers purchased at convenience stores are generally returned to super markets, it was found that quantities are close to those sold and that consumers tend to spend their redemptions at the place of return (5). Bottle dumping can also occur through the returning of containers purchased out-of-state. Clear container marking, however, alleviates this problem. These containers can then be easily identified through manual handling or reverse vending machines. The machines have the added advantage of guarding against theft and double redemptions.

Loss of sales in border areas have been noted in Michigan, but appear to be due to changing drinking age laws rather than deposit requirements (4). Across border sales appear to be connected with price rather than desire to avoid deposit requirements. In Oregon, no cost differences related to container deposit were noted when comparing prices with other states (7).

#### CONCLUSIONS

The impacts of container deposit on retailers depends on the redemption system established. Impacts can be largely avoided, given proper in-store handling system design, use of reverse vending technology, or use of outside handlers and redemption centers. Labor costs and capital investments experienced by retailers are about two cents per container, which is Minnesota's proposed reimbursement to the retailer for beverage container redemption.

As noted in Beverage World, "enterprising retailers have used the 'bottle bill' to increase traffic in their stores by encouraging shoppers to bring in their returns, even if the product was not bought at the store, or even if the store does not carry a particular brand" (9). Similarly, a Maine retailer noted that "the first principle of marketing is to get people into the place of business. The bottle bill does that" (10).

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Container Deposit Legislation: Impacts on Distributors,  
Including Wholesalers and Bottlers

BACKGROUND

The affect of container deposit legislation on the beverage industry concerns distributors: the beer wholesalers and soft drink bottlers. Beer is typically sold to retailers by wholesalers who handle one or more brands of beer and provide the warehousing and distribution function for the industry. The soft drink industry sells flavored syrups to local independently owned bottlers. The bottler traditionally has an exclusive geographic franchise for the brands of drinks handled.

Minnesota's proposal is to require the distributors (wholesalers and bottlers) to initiate the deposit on specified beverage containers redeem those containers from retailers or redemption centers and provide them with two cents for sorting and storing the containers. Unredeemed deposits from unreturned containers would be sent to the State to be used to support recycling programs and other priorities. Minnesota has 138 beer wholesalers and 103 soft drink bottlers and distributors (1).

DISCUSSION

The reports from deposit states indicate that costs are incurred by distributors in the following areas: warehouse space for empties, transaction time for truckers, investment in capital equipment (truckers, balers, etc.) and labor. These costs are at least partially, and sometimes totally, off-set by the "float" (the deposit money which floats for five to six weeks before being used for redemptions), the unredeemed deposits and from sale of recycled materials.

Deposit states which require the distributor to provide retailers and/or redemption centers with a handling fee find that the cost of the beverages to consumers is raised to cover this fee. The reported cost increase is around 2.2 cents per container.

The following scenario to estimate impacts on distributors of beverages was developed based on the results of a study from four deposit states: Maine, Michigan, Oregon and Vermont (2). Under this scenario a beer wholesaler handling 1.5 million cases a year could expect to incur the following costs:

<u>Item</u>	<u>Cost Increase/Cost Per Case</u>	<u>Total Annual Cost</u>
Warehouse space	6.4% increase in space 2 to 3.5 cents per case	\$ 30,000*
Transaction time	44% more time 11 cents per case	\$165,000
Capital equipment	1.5 cents per case	\$ 21,000**
Labor	25 cents per case	<u>\$375,000</u>
	TOTAL	\$591,000

\* Amortized over 15 years at 12% interest

\*\*Amortized over 5 years at 12% interest

These cost increases for a beer wholesaler handling 1.5 million case a year would be about \$0.40 a case or 1.7 cents per container. If this cost per container is extrapolated to the number of containers sold in Minnesota, the total costs expected to be incurred by distributors is approximately \$38,080,000. Divided equally among the bottlers and beer wholesalers in Minnesota, this would represent a \$158,000 annual cost that each distributor would have to finance. This cost would be reduced by the deposit interest (float) and recycling scrap income. Reducing this cost by a recycling income of .6 cents per container (3), the adjusted annual costs would be \$102,000 or 1.2 cents per container.

New York estimated the impact on distributors prior to the legislation (4) and reported the actual figures after container deposit was enacted (5). The estimated capital costs to the industry were as follows (this cost includes partial conversion to a refillable system).

	<u>1982 (estimated impact)</u>	<u>1985 (actual)</u>
Soft drink industry	\$107.8 million	\$25 million
Brewers	\$122-190 million	NA
Beer distributors	\$56 million	\$9-13 million

From a comparison of the 1982 capital cost estimate and the actual figures, it appears the actual capital costs were substantially less than originally estimated.

Using New York's actual cost data (1985) is another method to estimate the cost to distributors. The results are shown below for beer and soft drink distributors in Minnesota.

Table 1  
Estimated Costs and Revenues for Minnesota Beer Distributors

<u>Costs</u>	<u>Total</u>	<u>Costs per Container at 10¢ Deposit</u>
Handling Costs	\$18,888,000	2.4¢
Handling Fees for Retailers	\$15,740,000	2.0¢
<u>TOTAL COSTS</u>	<u>\$34,628,000</u>	
Per Returned Gross Cost:		4.4¢

<u>Revenues</u>		
Retained Deposits	-0-	-0-
Recycling Income	\$ 3,935,000	0.5¢
Float Investment Potential	\$ 567,000	0.1¢
Handling Fee Allowance	<u>\$15,740,000</u>	<u>2.0¢</u>
<u>TOTAL REVENUES</u>	\$20,242,000	2.6¢
<u>NET COSTS</u>	\$14,498,000	1.8¢

Table 2  
Estimated Costs and Revenues for Minnesota Soft Drink Bottlers

<u>Costs</u>	<u>Total</u>	<u>Costs per Container at 10¢ Deposit</u>
Handling Costs	\$37,825,000	2.5¢
Handling Fees for Retailers	<u>\$30,260,000</u>	<u>2.0¢</u>
<u>TOTAL COSTS</u>	\$68,085,000	
Per Returned Gross Cost:		4.5¢

<u>Revenues</u>		
Retained Deposits	-0-	-0-
Recycling Income	\$10,591,000	0.7¢
Float Investment Potential	\$ 1,089,000	0.1¢
Handling Fee Allowance	<u>\$30,260,000</u>	<u>2.0¢</u>
<u>TOTAL REVENUES</u>	\$41,940,000	2.8¢
<u>NET COSTS</u>	\$26,145,000	1.7¢

The results of the two methods described above show that the expected increase in distribution costs in Minnesota is between 1.2 cents per container and 1.8 cents per container. This is slightly less than the national container deposit state average of 2.2 cents per container. This cost is expected to be passed into the consumers who purchase non-refillable beverage containers.

Another issue of concern to the distributors, brewers and bottlers is that container deposit legislation will cause beverage sales to decline. It is widely written that sales do indeed drop off after enactment of deposit laws, but then return back to their original levels.

The Journal of Consumer Affairs states that, "...the lack of familiarity with a returnable system is probably the primary explanation for the temporary curtailment of beverage buying." Loss of sales may not occur to this extent in Minnesota which already purchases refillables (which carry a deposit) at one of the highest rates in the nation.

#### CONCLUSION

Under deposit legislation distributors have experienced new costs through increased handling of containers (warehouse, transaction time, labor) and capital investment (machinery). These costs are somewhat offset by the recycling income (scrap value) of the containers and the investment income (float) from deposits.

Distributors in Minnesota, based on the costs of other deposit states, could experience increased costs of 1.2 cents per container to 1.8 cents per container. This estimate is slightly lower than the average increase in costs to distributors located in other deposit states of 2.2 cents per container.

The experience in deposit states indicates that the industry can survive container deposit legislation and continue to profit. The consumer, as always, will bear the final cost.

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Container Deposit Legislation: State and County Administration

BACKGROUND

The proposed container deposit system will involve some added administrative costs to State and County government. The amount of extra cost will depend on the structure of the final legislation and its administrative complexity. It is assumed for purposes of the estimates presented in this paper that the State intends to keep the administrative and overhead costs of the new deposit system to a minimum by building on existing agency infrastructures.

Minnesota's proposal differs from other states' traditional deposit legislation in the following ways:

1. The State of Minnesota will receive unredeemed deposits from distributors.
2. Counties will license redemption centers as a second alternative to retail stores for consumers to return empties.

These two differences have both direct and indirect implications of increased work for State and County government. These increased costs to government must be justified in terms of the added benefits of the proposed deposit system as compared to both traditional models and the "no deposits" option.

The State agencies likely affected will be MPCA, Department of Revenue, Department of Agriculture, and Department of Public Safety. Each agency currently has related programs that would have to be adjusted or expanded to implement the provisions of this deposit proposal. MPCA already has staff for permitting and inspecting solid waste facilities. Department of Revenue already taxes beverage distributors. Department of Agriculture already has a licensing and inspection program for grocery stores and beverage distributors. Department of Public Safety, Liquor Control Division, already inspects the beer distributors that Department of Agriculture does not.

The counties also have ongoing licensing and inspection functions for solid waste facilities.

DISCUSSION

Other states with traditional container deposit systems have experienced little, if any, added costs. The Environmental Action Foundation (EAF) summarized documented data about what other states have reported concerning the new state employees hired to administer their respective laws (1). The EAF Briefing Paper stated:

Oregon	0	Michigan	0	Delaware	1/2
Vermont	0	Connecticut	0	Massachusetts	0
Maine	1	Iowa	0	New York	0

In another survey by Citizens Against Waste in Maryland, similar information was reported (2):

Connecticut - No money was appropriated, no money was spent. Basically, the bill is self-implementing, and needed no new positions in government.

Iowa - No appropriations were made and weren't necessary because the law was self-enforcing. .... relatively few problems .... enforced through existing task force working (with distributors and retailers).

Oregon - .... practically no state or local government involvement. ....the (Oregon Liquor Control Commission) has neither incurred significant expenses nor added staff due to the law. Complaints have been resolved primarily through education about the details of the law.

New York - No money was allocated, no new positions created. Expenditures were about \$25,000 for one and one half years gearing up for implementation, promulgating regulations and public hearings, and actual implementation, plus \$30,000 salary of an existing employee. Enforcement during the initial stages is being carried out by existing conservation officers within the department of Environmental Conservation.

Massachusetts - The only expense to the state due to the law was for a Bottle Hotline for calls, complaints, etc., (at a cost of) \$200 per month for about a year. The line (was) phased out March, 1984. For administration, (existing staff have) done the job in addition to other functions, and no new people have been hired.

Michigan - Costs to the state to implement the law were basically zero. The initiative allowed a two year phase in period, and some government employees travelled to Oregon, Vermont and Maine to get ideas on regulations. No new people were hired, existing people were given new assignments.

Vermont - The state spent \$1,000 to \$1,500 total in printing information, on regulations, etc. during the first five years. Public relations was handled by existing personnel. (One staff person) .... spends about one-half of his time handling out-of-state inquiries and the other one-half of his time on non-bottle bill work. He was not hired because of the bottle bill nor would his position be eliminated without a bottle bill.

Delaware - \$10,000 was originally allocated for implementation of the bottle bill, however it was cut with the budget freeze. No new positions were created, all work was carried out with existing personnel. Regulations were promulgated, 2,000 fliers were sent out and during the first three or four months all questions were handled by phone on a full time basis. The rare enforcement activity is carried out by existing Department of Natural Resources personnel. (One staff person) is the only person handling bottle bill and devotes less than 20 hours per week answering inquiries.

Joe Phillips of the New York Department of Environmental Conservation, stated that he is one of several people working on deposits (3). The City of New York also has staff assigned to handle complaints relating to the law, including law enforcement officers. Also, public participation specialists work on promoting participation in the rulemaking process.

Only California has enacted a system whereby the state handles funds in any direct way from deposits. Ken Tipon, California Department of Conservation, stated that California expects to have 96 state employees on board to implement the new act when they are fully up and running by September, 1987 (4). These will be split into four branches: Audit (50 percent of the staff), Processing Fees (10 percent), Certification (20 percent) and Marketing and Research (10 percent). The California system differs significantly from the Minnesota proposal in that all monies from the one cent deposit go directly through the California Department of Conservation which must then create convenience zones for recycling; provide incentive payments, bonuses and processing fees to recyclers and consumers; and develop rules.

The attached table lists the various assumptions to estimate maximum costs to state and county government. It is important to keep in mind that the estimates assume "worst case" projections of staff needs to reflect the maximum possible impacts. It is likely that these costs can be reduced by simplifying the legislation. For instance, the more specific the legislation, the less need there is for development of State rules.

The estimates are divided into one-time and ongoing costs. Item "A" lists the maximum costs assuming MPCA must develop rules. Rule development could cost as much as \$22,700.

Studies needed to report to the Legislature on the impact of container deposit legislation (item "B") will cost \$110,000 and are assumed to be contracted out and administered by MPCA. It is likely that non-profit research institutions could conduct these studies for much less. Also, the "container mix" and "number of containers" studies could be combined. Dr. William Ferretti, Project Director for the Rockefeller Institute of Government (RIG), stated that their costs for similar studies within the RIG New York report were much less than \$15,000 (e.g., \$6,000 for their litter study) (5). These baseline studies will provide the necessary data for evaluating the performance of the deposit system which must be reported to the legislature under Minnesota's proposal.

The Minnesota proposal calls for undredeemed deposits to go to the State from distributors who hold the deposits. The Department of Revenue could develop a new form that appropriate beverage companies will be required to use to report the number of containers sold, amount of deposits reimbursed, and undredeemed deposits. The maximum one-time cost for the development of this system (item "C") is estimated at \$15,000 (6).

Start-up publicity (item "D") could cost as much as \$25,000 for information programs to the general public, the beverage industry, recyclers and counties who are all required to implement various parts of the proposal. For instance, in addition to other communications, a telephone hot-line may be necessary for the phase-in period.

The maximum total one-time costs are estimated to be \$172,700. The actual costs will likely be much lower because these estimates assume the "worst case."

Ongoing State costs will include Department of Revenue administration of the dedicated fund and MPCA's overall coordination activities. Item "E" lists the costs estimated by the Department of Revenue including staff, computer time, travel, office space, and printing (6). The maximum costs to the Department could be \$105,400. Item "F" lists MPCA's costs for administration assuming one full time staff person. The costs to MPCA could be \$42,000.

The costs to counties under the proposed deposit system will vary. Counties may need to increase staff to process licenses and to inspect local redemption centers. Item "H" lists these costs totalling \$123,100 or an average of \$1,400 per county per year. Licenses may not have to be renewed annually which would reduce these costs. Another variable is that counties may elect to form multi-county joint powers agreements so that one staff person could handle several adjacent counties.

Counties could charge license fees to cover all costs of their administration.

#### CONCLUSION

It is assumed for purposes of these estimates that the state intends to keep the administrative and overhead costs of the new deposit system to a minimum by building on existing agency infrastructures. However, to be conservative, "worst case" projections of costs are used to estimate maximum impacts on government.

Maximum one-time costs to the state are estimated at \$172,700. This cost includes development of State rules, the studies needed to report on the impact of the law, development of the system to collect unredeemed deposits and for start-up publicity. The maximum ongoing costs to State government are \$147,400 per year. The ongoing costs include administration of the dedicated fund for unredeemed deposits and program administration by MPCA. The maximum costs to counties could be \$123,100 per year or an average of \$1,400 per county depending on the amount of licensing and inspections of local redemption centers.

The State costs should be compared to the estimated total revenue through unredeemed deposits, of about \$10.5 million per year. The county costs should be compared to the costs of each county implementing the recycling programs needed to achieve an amount of recycling produced by deposit legislation.

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- (6) Don Trimble, Acting Director of Special Taxes, Minnesota Department of Revenue; 642-0461; Phone conversation on Jan. 23, 1987.

### Sources Quoted in Table of Government Cost Assumptions:

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MPCA memo written in 1981: "Costs to Government Associated with Container Deposit Legislation"

ASSUMPTIONS TO ESTIMATE MAXIMUM COSTS TO GOVERNMENT

ONE-TIME COSTS

A. DEVELOPMENT OF STATE RULES

- |                                                                                                                                                                 |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. <u>MPCA staff:</u>                                                                                                                                           | \$ 6,900  |
| a. One (1) MPCA staff person, 60 days                                                                                                                           |           |
| b. Staff salary and fringe = \$115 per day<br>(Or \$30,000 per year)                                                                                            |           |
| 2. <u>Hearing examiner:</u>                                                                                                                                     | \$ 15,000 |
| a. Five (5) hearing days                                                                                                                                        |           |
| b. Average per day costs for examiner, transcripts,<br>recorders, hearing room, miscellaneous amounts to<br>\$3,000. (67 percent increase from MPCA, 1981 memo) |           |
| 3. <u>Expert witnesses:</u>                                                                                                                                     | \$ 800    |
| a. Two (2) witnesses, one day each                                                                                                                              |           |
| b. \$50/hour, eight (8) hours                                                                                                                                   |           |

DEVELOPMENT OF STATE RULES SUB-TOTAL =	\$ 22,700
----------------------------------------	-----------

B. REPORT TO LEGISLATURE

- |                                                                                                                                                                                                                                          |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. <u>Recycling rates:</u>                                                                                                                                                                                                               | \$ 65,000 |
| a. Cost to conduct a one week survey for quantity and<br>composition during four seasons ranges from \$35,000<br>to \$65,000 including overhead and administrative costs.<br>(Source: Michigan Department of Natural Resources,<br>1986) |           |
| 2. <u>Litter rates</u> (roadside litter surveys):                                                                                                                                                                                        | \$ 15,000 |
| 3. <u>Number of containers sold</u> (container audit):                                                                                                                                                                                   | \$ 20,000 |
| 4. <u>Container mix on shelves</u> (supermarket shelf survey):                                                                                                                                                                           | \$ 10,000 |

REPORT TO LEGISLATURE SUB-TOTAL =	\$ 110,000
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(continued)



ONE-TIME COSTS (continued)

C. SYSTEM DEVELOPMENT FOR COLLECTION OF UNREDEEMED DEPOSITS:	\$ 15,000
a. Develop new deposit fee reporting form, computer programming office equipment for three staff. (Source: Don Trimble, Minnesota Department of Revenue, phone conversation on January 23, 1987)	
D. START-UP PUBLICITY:	\$ 25,000
	<hr/>
TOTAL ONE-TIME COSTS =	\$ 172,700

ONGOING STATE COSTS

E. ADMINISTRATION OF DEDICATED FUND BY DEPARTMENT OF REVENUE (Source: Don Trimble, Department of Revenue; phone conversation on January 23, 1987)	\$ 89,000
1. <u>Staff:</u>	
a. Two (2) examiners, one (1) clerical	
b. Salaries plus fringe: examiners at \$33,000; clerical at \$23,000	
2. <u>Computer time:</u>	\$ 5,000
3. <u>Travel:</u>	\$ 7,000
4. <u>Office space:</u>	\$ 3,400
a. Two (2) examiners at 100 square feet each; clerical at 75 square feet	
b. \$12.50 per square foot	
5. <u>Printing:</u>	\$ 1,000
a. Estimate \$500 to \$1,000 per year depending on if reports are required annually or monthly, respectively.	<hr/>
ADMINISTRATION OF DEDICATED FUND SUB-TOTAL =	\$ 105,400

(continued)

F. PROGRAM COORDINATION

1. <u>MPCA staff:</u>	\$ 30,000
a. One (1) staff person, full time	
b. Salary and fringe = \$30,000 per year	
2. <u>Overhead</u> (clerical, materials):	\$ 12,000
a. 40 percent of staff salary and fringe (MPCA, 1981)	
PROGRAM COORDINATION SUB-TOTAL =	<u>\$ 42,000</u>

TOTAL ONGOING STATE COSTS = \$ 147,400

ONGOING COUNTY COSTS

G. INCREASED INSPECTION

1. <u>County staff:</u>	\$ 108,800
a. Five (5) percent of solid waste officer's time	
b. Average salary and fringe \$25,000	
c. 87 counties	

H. LICENSES: \$ 14,300

1. County processing costs:

Approximately 570 redemption centers if every Minnesota city above population of 1,000 has one.

TOTAL ONGOING COUNTY COSTS = \$ 123,100

GRAND TOTAL OF ONGOING STATE AND COUNTY COSTS = \$ 361,000

Container Deposit Legislation: Unredeemed Deposits

BACKGROUND

In states which require deposits on beverage containers, the container return rate ranges from 80 percent to 93 percent. The remaining containers are unredeemed and the deposits paid on them by the consumer are not claimed. The unredeemed containers yield a stream of revenue in the form of unclaimed deposits which can provide revenue for state programs for promotion of recycling, development of new processes for recycling and resource recovery, public education related to solid waste management, community beautification, and retraining of dislocated workers.

DISCUSSION

What do other states do with unredeemed deposits?

All states, with the exception of California and Iowa, allow beer wholesalers and soft drink distributors to retain all unredeemed deposits.

In California, the revenue from unredeemed deposits flows to a separate state recycling fund. The fund is used to support:

- ° Incentive payments to establish recycling centers
- ° Incentive payments to encourage container recycling
- ° Litter abatement programs
- ° Community Conservation Corps projects
- ° Consumer bonuses for recycling containers at places where redemption and recycling rates are low
- ° Promotion and administration of the program
- ° Grants to establish curbside recycling programs
- ° Market development for new recycling processes

The percentage of the fund which goes to several of these program categories is fixed at between 10 percent and 20 percent per year.

The State of Iowa appropriates \$100,000 of annual unrefunded deposits from beverage containers containing liquor, from the Beer and Liquor Control Fund to the Iowa Department of Substance Abuse. These funds are to be used for the care and treatment of alcoholics.

How much can Minnesota expect to collect from unredeemed deposits?

Estimating the revenues from unredeemed deposits requires assumptions about the rate of beverage consumption and the rate of container return. Revenues from unredeemed containers can then be estimated for any container deposit fee.

The following are estimates of potential revenues from unclaimed deposits at the 70 percent, 80 percent, 90 percent, and 95 percent return rates. The assumed rate of consumption in Minnesota is 1.96 billion beer and soft drink containers, 232,600,000 bottled water containers, and 107,000,000 wine and wine cooler containers per year, adjusted for refillables and reported in 12 ounce equivalents.

Annual Unredeemed Deposits

	70%	80%	90%	95% Assumed Recovery Rate
	(Revenue in millions of dollars)			
5 cent deposit	31.6	20.9	10.5	5.2
10 cent deposit	62.8	41.9	20.9	10.5

Minnesota's proposal is for a ten cent deposit on the beverage containers listed above. At a ten cent deposit, a 95 percent return rate could be achieved. The five percent of containers which are not returned would leave \$10.5 million in unredeemed deposits.

Another figure can be derived by looking at estimates of unredeemed deposits in states with container deposit laws. Four states have estimated unredeemed deposits:

Annual Unredeemed Deposits

State	Total (millions of dollars)	Per Capita (in dollars)
California	100	3.71
Connecticut	12 - 15	3.76 - 4.70
Michigan	30	3.28
New York	120	6.75

Using these per capita rates to estimate unredeemed deposits in Minnesota, yields between \$13.8 million and \$28.4 million per year. It should be noted that the effect of varying deposit values (e.g., will more deposits be redeemed if the refund is five cents instead of one cent per container?) on the unredeemed deposits is difficult to estimate. The deposit is five cents per container in Connecticut, Michigan and New York. The California deposit begins at one cent and rises, in steps, to three cents in the fourth year if a 65 percent recycling or return rate is not met. Sociologists and economists studies generally indicate the higher the economic incentive for a consumer to behave in a specific way, the more likely that action will be to occur.

What could Minnesota do with unredeemed deposits?

Minnesota's proposed uses of unredeemed deposits are discussed below. It earmarks unreturned deposits to finance development of total recycling systems.

Market development activities will increase the use of secondary materials (recyclables) as a raw material input into the manufacturing process. These activities should include encouraging manufacturers who use recyclables to expand capacity or locate in Minnesota.

Activities such as facilitating use of regional, national and global markets for recyclables should also be pursued, including development of cooperative transportation and marketing networks. Academia and private industry should

research and demonstrate projects which increase the use of recycled materials or products. Actions to stabilize and develop recycled materials markets will also support the State's recycling structure by providing a steady demand for recycled materials.

Informing and educating the public about all aspects of solid waste management, including the role of recycling and the specifics of container deposit, is also important. Recent studies by the MPCA and the Waste Management Board have identified the need for school curriculum on solid waste management; a media-oriented education campaign; grants to local community and conservation organizations to develop locally-oriented awareness projects; a toll-free statewide recycling hotline for citizens to call for recycling and solid waste information; and last, sessions to educate and inform local decision-makers about solid waste management options.

Development of the recycling and waste management infrastructure is also needed. Full-service recycling and redemption centers need to be developed at convenient locations as identified by individual the county solid waste plans. Curbside recycling programs need temporary support until organized collection and a self-supporting fee for service structure is enacted. This will provide opportunities for Minnesotans to participate in recycling activities. Processing centers and cooperative transportation networks should be developed to serve the centers. Recycling structures can also be developed by matching individuals who have created successful recycling, composting and other solid waste management programs with peers in Minnesota.

Of concern to many counties as they develop their waste management infrastructure, is the need for separate collection of household hazardous wastes either through the existing recycling structure or by establishing new collection and recovery systems. Ongoing financial support of these programs is needed.

#### CONCLUSION

The proposal for container deposit law in Minnesota suggests using unredeemed deposits for a variety of resource conservation priorities including recyclable market development, public education, support of recycling activities, and household hazardous waste collection.

Minnesota can expect \$10.5 million annually in unredeemed deposits if 95 percent of the containers are returned and a ten cent deposit is charged on beer and wine coolers, carbonated and other soft drinks, and bottled water products.

## SOURCES

- (1) Beer Institute. 1987.
- (2) Beverage Industry Annual Manual 1987
- (3) Minnesota State Demographer, personal conversation, January, 1987