

**TOWARD A ZERO WASTE FUTURE:
REVIEW OF ONTARIO'S *WASTE
DIVERSION ACT, 2002***

Discussion Paper for Public Consultation

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I. TOWARD A ZERO WASTE FUTURE

Where we are: *The Waste Diversion Act, 2002*

The *Waste Diversion Act, 2002* is Ontario's main legislation to promote the reduction, reuse and recycling of waste through the development, implementation and operation of waste diversion programs.

Over the past few years much progress has been made on waste diversion in Ontario. Programs initiated and developed under the *Waste Diversion Act* are changing the way we approach waste diversion. These initiatives have incorporated, to varying extent, principles associated with extended producer responsibility, which hold that producers should be responsible for the costs associated with the environmental impact of their products. Much more needs to be done. Stakeholders have identified a number of challenges associated with the existing waste diversion framework, the programs that have been approved, and the Act itself. Many feel that it is time to reflect on the approaches Ontario has taken, consider how best to undertake future waste diversion initiatives, and define what kind of a future we should drive toward, as a society.

Where we want to go: **Toward a Zero Waste Future**

Ontario is on a "green transformation". Recent action to reduce greenhouse gases, ban pesticides, reduce toxic substances, and encourage research and innovation are laying the foundation for a green economy and a greener and more sustainable future for Ontario.

It is along this "green transformation" pathway that we would like to frame the review of the *Waste Diversion Act*. Progressive jurisdictions around the world have embraced both the concepts of *zero waste* and *extended producer responsibility* as important pieces of building a green economy.

Traditionally, when products are no longer of use, we tend to recycle them or dispose of them as garbage. This traditional approach, often labelled as "cradle-to-grave", views waste as an inevitable by-product of production and consumption. However, waste "costs" us all, through higher prices for raw materials, money spent on diversion and disposal, the environmental impact of disposing of waste, the health costs associated with hazardous materials, and the value lost when products are left to waste in disposal sites.

A "cradle-to-cradle" or *zero waste* approach, on the other hand, focuses on the opportunities that industry has to redesign products and processes to reduce waste before it is made, as well as designing products for greater reuse. It encourages the development of innovative ways to make the wastes of one product the inputs of another, building more sustainable methods of production and supporting opportunities for industry to make a green transformation. By definition, a zero waste approach recognizes that almost all waste materials have some form of inherent value that can be recovered.

Extended producer responsibility is premised on the idea that the producers of products and packaging bear responsibility for ensuring those products and packages are properly managed at the end of their life-cycle.

These concepts – zero waste and extended producer responsibility – go hand in hand. Applying these concepts will help create opportunities for businesses to innovate and improve economic performance by identifying new strategies for eliminating waste. Industries that have adopted a zero waste approach have sought and achieved a range of efficiencies and savings, including lower energy costs, less demand for raw materials, the use of fewer toxic substances, and the creation of less packaging. These industries have come to recognize that not only is this the right thing to do, but it also saves money, and has a direct positive impact on their bottom line.

Reducing production inputs that would normally result in waste will help businesses reduce their costs, build new markets for what would otherwise be waste materials, and create new, green jobs. When taken as a whole, these new opportunities will help build Ontario's green economy and help to ensure the environmental sustainability of our society.

The Act Review: A first step toward a Zero Waste Future

Zero waste has been incorporated into the policies and strategies of governments, advocacy groups, and businesses around the world as a goal to work toward. Adopting a zero waste vision represents a strategic shift in how we think about the products we produce and consume.

Ontario will not achieve zero waste overnight. But, the time to start moving in that direction is now. In order to move from “cradle-to-grave” to “cradle-to-cradle”, governments, businesses, and citizens will need to rethink the way resources are used and will require tools that drive innovation, technological development, and shift societal behaviour.

This review of the Act provides an opportunity to present the vision of zero waste as a goal, and discuss how we can make concrete steps in that direction today and take advantages of the opportunities that a zero waste vision presents. The Ministry proposes that the first steps in striving for zero waste should be built upon four key building blocks:

1. A clear framework built upon the foundation of Extended Producer Responsibility.
2. A greater focus on the first and second of the 3Rs – waste reduction, and reuse.
3. Increasing reduction and diversion of waste from the industrial, commercial & institutional sectors.
4. Greater clarity around roles, responsibilities, and accountabilities, to ensure that all players are contributing to a common goal.

While the Act is not the only tool available to help us move toward a zero waste vision, in many ways it is one of the most important. It is the potential changes to the Act to help drive toward this new vision that is the focus of this discussion. The review of the Act provides an opportunity to model our approach on leading jurisdictions and put forward zero waste as a long-term vision for the province.

Help Us Make it Happen

To date three waste diversion programs have been approved under the Act - the Blue Box program, whose funding and management has been entrenched in the Blue Box Program Plan; the Municipal Hazardous or Special Waste Program, which builds on and enhances municipal efforts to divert and dispose of certain problem household wastes such as paints, solvents,

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batteries, antifreeze, and used oil filters; and the soon to be implemented Waste Electrical and Electronic Equipment Program, which will help Ontarians manage their used electronics properly. Earlier this year, the Minister of the Environment directed Waste Diversion Ontario to develop the next phases of the Municipal Hazardous or Special Waste Program and the Waste Electrical and Electronic Equipment Program, and asked it to develop a program for the management of used tires.

The Act mandates that the Minister of the Environment review the Act. The purpose of this paper is to formally initiate that review and solicit feedback on both the legislation, the program experience associated with the Act, and a new approach for how we think about waste diversion in Ontario.

The Ministry encourages all interested parties to reflect on their experiences and provide feedback as we move forward. Your input and feedback are critical to establishing a clear and effective framework. Be innovative. Think broadly about the principles and priorities of our four building blocks. To help guide the dialogue, the paper contains a number of discussion questions. These are not meant to limit the debate. Respondents should feel free to move beyond the questions in providing feedback.

You can submit your ideas, comments, and feedback electronically through the environmental registry website at <http://www.ebr.gov.on.ca/>. The posting number for the five-year review of the Waste Diversion Act is 010-4676.

Comments must be received by Thursday January 15, 2009.

II: EXTENDED PRODUCER RESPONSIBILITY

Context

Extended producer responsibility is a framework to support the move toward zero waste. Extended producer responsibility holds that producers (most often defined as a manufacturer, brand owner, or first importer of a product) are responsible for the costs associated with the environmental impact of their products. This responsibility extends throughout a product's life-cycle, including its design, manufacturing, packaging, transportation, product use, and diversion or disposal. When producers are responsible for managing the end of life of their products and packaging, they have incentives to ensure their production practices are efficient and avoid producing waste. This responsibility encourages producers to identify production processes that use fewer inputs that would normally result in waste, incorporate greater reuse of materials in their processes and products, and design products and packaging that are more easily recycled. These actions are the cornerstone of a zero waste approach.

Progressive jurisdictions have been moving toward extended producer responsibility as a focus of waste management over the past decade, utilizing a variety of different approaches. Notably, the Canadian Council of Ministers of the Environment (CCME) is currently working on a National Action Plan on Extended Producer Responsibility which will provide guidance on the development and implementation of extended producer responsibility and product stewardship programs.

The Waste Diversion Act does not make explicit reference to extended producer responsibility. However, the Act provides the Minister with the authority to make regulations prescribing materials as designated wastes and requires Waste Diversion Ontario to develop diversion program for those designated wastes with industry funding organizations. Further, the Act allows for fees to be charged to producers, as defined in the approved programs by the rules that are part of the program, to support program development and implementation, thereby creating a degree of financial responsibility for the management of the designated wastes. By defining those producers as brand owners, manufacturers or first importers, these programs begin to utilize an extended producer responsibility framework in their design and implementation.

Producer vs. Shared Responsibility

A key consideration that potentially influences Ontario's ability to strive for zero waste, as well as the success of any program utilizing extended producer responsibility, is the issue of how waste diversion programs cause physical and financial responsibility for designated waste to be discharged.

Some models "share" responsibility among participants. Ontario's Blue Box program is a shared responsibility program. Municipalities collect, transport, and arrange for the recycling of waste from their taxpayers. Under the Act, producers discharge their responsibility by reimbursing municipal governments for a portion of the costs of the Blue Box Program. Distributing costs among multiple parties can act as an incentive for all participants to collaborate and develop a cost-efficient waste diversion program. In theory, municipalities contribute existing infrastructure and programs to facilitate consumer participation in diversion programs. Taxpayers pay municipal costs, generally on an equalized basis as part of their property taxes.

Some issues with this model include:

- a municipal taxpayer who generates little waste may in fact end up paying into the system more than his or her fair share of the cost of managing the waste he or she generates;
- incentives for producers to strive for zero waste are reduced, since they are not fully responsible for all costs and are too far removed from the end-of-life handling of their products;
- incentives for municipalities to become more efficient and reduce the costs of collection and diversion are reduced because they do not bear the entire cost; and
- the cost structure is based on what is actually diverted, versus what is generated so producers avoid paying for anything but that which is recycled.

Another approach is a “full” responsibility system. In this model a producer is obligated to pay all of the costs associated with the collection, transportation, diversion, and disposal of the wastes associated with their products. Costs of waste management are not borne by taxpayers. Where a municipality is involved it is generally on a contractual basis through a fee for service arrangement. The Waste Electrical and Electronic Equipment Program is an example of this approach.

Full responsibility systems have been the norm in Europe for some time. Each European Union state is obligated to put in place systems to achieve designated recycling targets for specified materials. While individual states approach this obligation in various ways, almost all make producers fully responsible for achieving the objective.

Individual vs. Collective Stewardship

The Act empowers Waste Diversion Ontario to establish industry funding organizations to develop and implement waste diversion programs. The Board of Directors of the industry funding organization, prescribed by regulation, is comprised of representatives from industries with a commercial connection to the designated waste, or to a product from which the designated waste is derived. In Ontario, the practice has been for the industry funding organization to develop and submit program proposals to Waste Diversion Ontario, which reviews and recommends these programs to the Minister of the Environment for approval. The industry funding organization represents the mechanism through which the individual producers discharge their responsibilities for managing the designated waste materials.

Where a single industry funding organization is designated to assume responsibility for a material or materials, a “collective” stewardship organization is established. Programs developed under this model strive to efficiently discharge the obligations of the collective producers (for example achieving a specified recovery rate). Fees levied by the industry funding organization on the individual producers reflect the “cost” to the producers of discharging their obligation. Generally, these systems establish an overall cost and tend to charge program costs back to individual producers. In the Municipal Hazardous or Special Waste Program and the Waste Electrical and Electronic Equipment Program, these fees are also proportionate to market share of a company’s sales of the designated material.

These systems do not generally take into account differences in the specific costs of managing an individual producer’s products. Since steward fees are uniform across all producers, there is

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no direct financial incentive provided to individual producers to reduce their costs through product design, such as designing a product that is easier and cheaper to recycle. The lack of direct financial incentives to improve product design can be an impediment to reducing waste, increasing reuse, and ultimately striving for zero waste.

In this model, industry funding organizations try to control those factors that influence costs. Typically, systems are established to collect and process material, and service providers are invited to “bid” on contracts to participate in the scheme. Costs tend to reduce as service providers compete to capture contracts. There are winners and losers, and some displacement occurs in the marketplace. In theory, costs are initially driven downward by these market forces, but over time a risk exists that fewer service providers will be available.

Another approach to extended producer responsibility is through a model that emphasizes “individual” producer responsibility. Under this approach individual producers are held responsible for achieving mandated objectives (for example, specific recovery rates for packaging), and are free to select the means for meeting these obligations. Individual producers can directly manage their own products and packaging, or can select an organization (like an industry funding organization) that will discharge that obligation on their behalf. This approach may result in the creation in the marketplace of competing product stewardship organizations that offer services to producers, for a fee. Producers make their choices based on a variety of factors, such as costs, likely success in achieving objectives, comfort with the organization, track record, etc. Individual stewardship often requires producers to take physical responsibility for their products, facilitating a better connection between producers and the environmental performance of their products. There could be a range of different innovative opportunities for businesses, to encourage them to reduce waste and increase reuse and recycling and ultimately help businesses realize the economic benefits of zero waste thinking,.

With this model, if sufficient competing stewardship organizations are established, no one organization can exercise market control. Competition results in systems reducing costs so that they can attract more producers into their scheme. In theory, individual producers could reduce their cost exposure even further by designing easier to recycle products and then seeking organizations that charge them lower fees to manage those products.

This model also presents some challenges. The volume of any material may not be sufficient to create a marketplace for competing product stewardship organizations. It may also be confusing for producers to deal with different messaging, various collection systems, and multiple stewardship structures, depending on the material. Producers may also lack the time or resources to investigate various stewardship organizations when the industry funding organization model has worked sufficiently well for them in the past. It may also be challenging for government and the Waste Diversion Ontario to monitor progress, and ensure targets are being met, when there are multiple stewardship organizations, rather than a single industry funding organization.

Each model affects the costs of managing products and packaging in potentially different ways, and introduces a different set of decision factors for producers around issues such as reduction at the source, incorporating reusable or recyclable materials, or making products easier to recycle.

Fee Visibility

Costs to producers for the stewardship of their products could be made known to the consumer by being added to the price of the product at point of sale. Conversely, these costs could be incorporated into the product price as a factor of production. This is a continuing debate in extended producer responsibility systems.

Proponents of making environmental management costs “visible” at point of sale argue that stewardship fees imposed under extended producer responsibility programs are often outside the direct control of a producer and, therefore, are not truly a “factor of production”. Critics often refer to these “fees” as a tax, which they are not. This can lead to these fees being publicly characterized as a tax at the retail level, even though none of the fee goes to government. Some proponents argue that a visible fee can act as an educational tool for consumers. Showing the cost of end of life management every time that a product is purchased could highlight the cost of waste in everyday life.

Another driver for visible fees is price consistency at the retail level. In Canada, each province operates a separate waste diversion framework, and stewardship fees vary from one province to another. The result is that a product sold across the country could have a different price in different provinces. Retailers that operate on a national scale want one price and prefer to add an additional stewardship fee at the point-of-sale, in order to maintain a consistent advertised price across the country.

Opponents of visible fees argue that this approach simply facilitates producers and retailers passing environmental costs associated with their products directly to consumers. This approach allows the producers to avoid considering whether to pass all or some of the costs on to consumers, and does nothing to encourage producers to consider ways of reducing those costs, (and associated waste) and bring us closer to a zero waste society. In Ontario, where industry funding organizations charge producers a single harmonized fee, it is even simpler for that fee to be passed on to consumers, through retailers, while competition among producers remains restricted to product price associated with other factors of production.

Those opposing visible fees argue that the costs to the producer of managing their product at the end of life should be treated by producers similarly to other factors of production (such as energy costs, raw material, labour, etc.) These factors associated with production are all part of what a producer considers in design, manufacturing and packaging decisions, as well as a product's final market price. Competition causes producers to try to reduce these costs in order to gain advantage among one another and increase their sales.

The experience in Ontario is mixed. Producers' costs associated with managing Blue Box wastes are not visibly passed directly on to consumers. In many cases this is because the per-unit fee is small enough to be either insignificant, or perhaps is too awkward to reflect separately. In the Municipal Hazardous or Special Waste Program, which began on July 1, 2008, some retailers have chosen to identify the fee charged by the industry funding organization to the producer. Others have not.

In other provinces steward fees associated with electronic items such as televisions and computers also tend to be shown by the retailer as separate charges at point of sale. However these fees also tend to be higher on a per unit basis.

Key considerations related to this issue include the consumer's right to information, the impact of the fee visibility on producers' product design decisions, the proper characterization of the fee, and what, if any, of those costs have been passed on to retailers. Some argue that true producer responsibility will not occur until the full range of environmental impacts of products (the "externalities") are regularly factored into production decisions as accepted costs ("internalized") similar to labour, raw materials, energy, and marketing. According to this view, reducing waste management costs becomes another way for producers to reduce overall costs and improve their competitive position.

Impact on Existing Markets

Waste diversion programs are created because the existing market based relationships do not adequately address waste management considerations. An emerging consideration is the impact that a program may have on existing businesses and business relationships, including a potentially wide range of waste service providers.

Diversion programs can consolidate control of waste collection, transportation, and processing decisions in a single body such as an industry funding organization. How these decisions are operationalized can have significant implications for collection agents, transportation providers, and end processors. Where the motivating factor is cost reduction, decision-makers tend to use the competition in the market to drive down costs, often through competitive procurement. While these may be open and transparent processes, this approach can have a long-term impact on the structure and composition of the market. This impact can include displacing existing businesses, stunting the growth of new, emerging small businesses, and influencing capital decisions that may affect the development and adoption of new technology. Over time, this could affect market efficiency and competition, and the ability of the market to respond to new needs.

On the other hand, some argue that the introduction of waste diversion programs is not unlike the appearance of a new player in the market. Waste diversion programs can create markets that would not otherwise exist, or create momentum to expand existing markets, creating opportunities for business and competition amongst market players. By collecting material for recycling, a waste diversion program can attract investments in collection and processing capacity.

Under this view, those who are able to achieve the necessary efficiencies and can adapt will compete. Others will be displaced. There are no guarantees in business - including in the waste diversion business. Government's role is seen as limited to ensuring that all interested companies are treated consistently in an open and transparent manner. Program design therefore is the critical component in ensuring competition among businesses for waste materials, collection contracts, and other services.

Possible Approaches

- **Full Extended Producer Responsibility**

A revised Act should commit more clearly to the principle of extended producer responsibility, and provide the tools needed to allow producers to discharge responsibility for their products

and packaging in the way that best suits their needs, has the fairest impact on existing markets, and meets the public's demand for successful diversion activities that strive for zero waste and foster a green economy.

Going forward, acceptance of this principle suggests that waste diversion programs should shift more financial responsibility onto producers. This approach will bring Ontario into line with other progressive jurisdictions by entrenching responsibility for products and packaging with those who have the largest input and control over the materials and design - the manufacturers, brand owners or first importers. Adopting extended producer responsibility is a key component of a zero waste approach, since it provides incentives for producers to identify new opportunities to reduce and ultimately eliminate waste associated with their products and packaging.

Embedding extended producer responsibility into the Act affects both future and current programs. Like the Municipal Hazardous or Special Waste and the Waste Electrical and Electronic Equipment Programs, future programs should work toward full producer responsibility. For current programs that do not operate on the basis of full extended producer responsibility, consideration must be given to how the program could be revised to better reflect full extended producer responsibility.

- **Define extended producer responsibility to benefit the environment**

Current waste diversion programs in Ontario do not generally take into account differences in an individual producer's products. Instead, these programs tend to establish an overall cost, and charge proportionate costs back to individual producers. In the Municipal Hazardous or Special Waste Program and the Waste Electrical and Electronic Equipment Program, these fees are based on their proportion of a company's sales of the designated material in the market. Producers are not directly "rewarded" for designing a product that is easier and cheaper to recycle or that is reusable; nor are producers "punished" for designing a product that is more difficult and more expensive to recycle. There is no incentive for producers to find innovative ways to reduce waste and increase reuse.

Going forward, it is critical that a revised Act incorporate the appropriate tools to allow for incentives to producers to reduce the environmental impact of their goods and maximize the recycle and reuse potential of their products and packaging.

There are a number of possible approaches for promoting this policy outcome. The principle of extended producer responsibility could be defined by legislation to take into account the following:

- The waste impact of a product from design to disposal – in this way, producers should be encouraged to incorporate changes into the design and manufacture of products, as well as disposal, in order to reduce environmental impacts and strive toward zero waste.
- Non-waste factors such as energy efficiency, toxics reduction, greenhouse gas emissions and use of raw materials – in this way, producers should be encouraged to go beyond their waste practices and consider how their approach affects cross-cutting environmental priorities.

Stewardship costs should also be defined to better reflect individual producer's efforts. Our current system of a collective stewardship organization does not do enough to recognize variation amongst producers' products and packaging.

Going forward, Ontario could adopt an approach that requires waste diversion programs to differentiate costs to producers based on the waste and non-waste factors described above.

- **Fee Visibility**

In order to make progress toward a zero waste vision, Ontario has chosen to commit to the framework of extended producer responsibility and to introduce waste diversion programs that encourage and reward producers for reducing the environmental costs associated with their products and packaging. A truly green economy requires producers to consider "cradle-to-cradle" costs as another factor of production that they can mitigate against through product design, manufacturing, and packaging decisions.

In this context, producers and retailers should not be allowed to separately show their costs for environmental management above the point-of-sale price. Rather, producers should be required to "internalize" these costs. This acts as an incentive to reduce both the costs and the waste associated with their products. As well, it would be inconsistent for producers and retailers to visibly show environmental management costs, but not disclose the breakdown of other cost factors of production.

- **Improve and extend stewardship**

The Blue Box program, launched over 20 years ago, established an innovative approach to waste diversion in Ontario. This approach has proven to work well for materials for which economical and effective recycling methods exist, such as glass and paper. However, there are many materials that are not covered by an existing diversion initiative, such as organics and products made of composites and multiple materials. If we are to strive for a greener economy, Ontario will need to find ways to deal with an extremely diverse range of materials.

Ontario has made significant progress in dealing with materials that are either difficult to recycle and/or are problematic wastes that contain toxics. The Municipal Hazardous or Special Waste Program and the Waste Electrical and Electronic Equipment Program have been designed to deal with problematic wastes that contain toxics and recognize that not all collected material is easily recyclable at this time. These programs encourage producers to identify materials within these products that can be recycled, while ensuring the proper disposal of components that cannot be recycled or contain toxics. Over time, these programs will help develop new recycling methods or technologies, and will encourage producers to include more reusable or recyclable materials in their products and fewer toxics, in order to reduce waste diversion costs.

Building on our success in diverting materials currently covered by Waste Diversion Act programs, innovative approaches must continue to be developed in order to focus diversion efforts on these materials that are difficult to reduce, reuse, and recycle.

One approach would extend the concept of stewardship to non-recyclable materials. Producers of non-recyclable materials could be subject to stewardship fees that cover the costs of managing these wastes. Fees could be refined to reflect the actual management costs related

to the material. These kinds of fees could help to achieve environmental objectives by shifting behaviour and encouraging desirable outcomes such as more sustainable packaging.

Stewardship could also be improved by providing greater certainty to producers regarding the wastes that will require diversion programs. The Act gives the Minister authority to make regulations to prescribe materials as designated wastes for which diversion programs must be established. Producers have consistently requested clarity around designation, and program expectations and timelines so that they can adequately factor in public policy considerations in their business planning. Regulating a clear schedule of products or materials that will require diversion programs, and the timing of these requirements, is one way to address these concerns. In this way, producers would know in advance which materials will require diversion, and when requests for program development are likely to be made. This certainty will help encourage investment in innovative and green technology and will make it easier for industry to develop stewardship programs on their own initiative.

- **Incorporate greater flexibility for industry in meeting extended producer responsibility requirements**

The Act allows the Minister of Waste Diversion Ontario to recognize industry-led waste diversion programs, called “industry stewardship plans”, if they are satisfied that the plan will achieve objectives that are similar to or better than the objectives of an existing waste diversion program approved by the Minister. Under the Act, however, these are limited to the wastes for which a program has already been approved by the Minister. To date, no industry-led plans have been approved through the Act.

A number of producers and retailers have created individual extended producer responsibility initiatives, such as in-store take-back programs. Other diversion-related initiatives have evolved across industry segments with varying degrees of success in diversion. An example of this is the situation where a retailer offers to collect and manage an existing large appliance when a new appliance is purchased. Some of these diversion initiatives lack formal structure, and do not provide data regarding collection and disposition of material. As such, they are difficult to recognize under the Act framework. The current framework for approving industry-led stewardship initiatives is not conducive to promoting individual producer responsibility, or innovation in product stewardship.

Ontario should adopt a more flexible approach to allowing producers to discharge their existing or future stewardship obligations through individually crafted approaches such as pre-existing schemes, or individual producer-run programs may be warranted. Allowing producers maximum flexibility in discharging their stewardship obligations, existing or future, may result in more creative and less costly approaches for producers, and may also spur innovation in product and/or program design.

Ontario wants a system that encourages producers to focus on achieving diversion results that strive toward zero waste through whatever mechanism is most effective for their particular product or industry.

What do you think?

Full Extended Producer Responsibility

1. How can the Act be revised to embed extended producer responsibility in Ontario's waste diversion framework to drive toward zero waste and foster a green economy?
2. How can existing waste diversion programs move toward fuller extended producer responsibility?
3. What are the roles and responsibilities of municipalities in a full extended producer responsibility framework?

Define extended producer responsibility to benefit the environment

4. How can the extended producer responsibility principle be defined in the Act in order to recognize the impact of waste and non-waste factors?
5. How can programs best extend producer responsibility beyond that portion of the waste stream that is recycled?

Incorporate greater flexibility for industry in meeting extended producer responsibility requirements

6. Does the Act provide the incentives necessary to encourage industry-led stewardship plans and individual stewardship plans?
 - a. If so, how can those tools be used to encourage the development of industry-led waste diversion programs?
 - b. If not, what additional tools are required to provide maximum flexibility for producers?
7. Extended producer responsibility programs are typically built on annual fee setting cycles. Can the fee setting cycles of the programs be redesigned to react more quickly to marketplace changes, or the entrance of new products and packaging into the market?

Fee Visibility

8. As a key principle of an EPR approach, should the province call for fees related to environmental management costs to be included in the product cost as a factor of production, rather than added separately at the point of sale?

Impact on Existing Markets

9. How can Ontario ensure fairness and competition when introducing waste diversion programs?

Stewardship models

10. How could individual stewardship be incorporated into the Act to better drive diversion?
11. What tools would help consumers better manage the wastes they generate?

Improve and extend stewardship

12. How can stewardship best be extended to materials outside current waste diversion programs, such as new, non-recyclable materials or waste that ends up as litter?

Jurisdictional Example: Germany

Waste diversion policy in Germany centres on the concept of extended producer responsibility. The German *Closed Substance Cycle Waste diversion Act (1996)* aims to ensure the complete avoidance and recovery of waste, introduces the polluter pays principle and includes requirements for design for the environment.

Manufacturers and distributors are obligated to design their products to minimize the amount of waste produced during manufacturing and subsequent use, with the aim of achieving high-quality and comprehensive recovery of waste, and facilitating eco-friendly removal of those components from the waste stream once they can no longer be reused.

The *German Packaging Ordinance* (amended in 1998) places a legal obligation on domestic and foreign manufacturers, distributors, and retailers to take back and reuse or recycle all primary and secondary packaging, assigning legal and financial responsibility for waste materials to the producers.

In response to these extended producer responsibility requirements, industry developed the non-profit company, Duale System Deutschland (DSD), to collect used packaging from households. Companies that manufacture and import products for the domestic market pay licensing fees to DSD to cover the costs of collection, sorting and recycling of their packaging materials. Companies can be fined for failing to meet DSD requirements, or reporting incorrect information.

Germany has also implemented disposal taxes that increase the cost of waste landfilling and incineration relative to recycling, creating an incentive for industry to develop source reduction and recycling practices that avoid disposal. Revenues from these taxes are used for waste minimization activities such as research and development into clean technologies and education.

Germany has demonstrated success from its initiatives; in 2006 more than half of municipal and production waste was recycled. In some areas, including packaging, more than 80 per cent was recycled.

For more information see: Morton Barlaz and Daniel Loughlin, *Strengthening Markets for Recyclables: A Worldwide Perspective – Part 2, Policies for Strengthening Recycling in Germany*, August 2002: <http://people.engr.ncsu.edu/barlaz/>, and http://www.cleaner-production.de/fileadmin/assets/pdfs/73_Enql_broschuere_abw_deutschland_01.pdf

III. INCREASING WASTE REDUCTION THROUGH THE 3R HIERARCHY

Context

The effective reduction, reuse and recycling of waste materials is integral to any society which aspires to a zero waste future. The 3Rs have been a feature of Ontario society for many years. Metals, glass, and paper fibre have been successfully recovered and either reused or recycled for decades. Reuse of used products, whether they are furniture, appliances, or clothing, is an accepted means of extending the life of products and providing value to consumers. In the 1980s, the collection and recycling of materials began to be introduced in Ontario on a large scale through programs such as the Blue Box.

In the 1990s, Ontario moved to further entrench the 3Rs principles through a series of new regulatory requirements. O. Reg. 101/94, made under the *Environmental Protection Act*, requires municipalities with a population greater than 5,000 to establish a curbside collection recycling system, collecting a range of certain designated materials such as glass, metal, cardboard, paper, and plastic. This built on the success of the existing Blue Box systems that had been established in a number of municipalities. Industry partners worked with the province and municipalities to provide funding to establish and maintain these Blue Box programs, where industry financed a portion of the residential collection services provided by municipalities.

Waste Diversion Ontario was established to oversee the development of waste diversion programs under the Act. This led to the identification of the first industry funding organization, Stewardship Ontario, in 2003 to coordinate the province-wide administration of the Blue Box program. In 2004, the Blue Box Program was the first program to be financially supported through the framework of the Act. The Blue Box Program Plan is the administrative framework whereby industry and municipalities share responsibility for the management of the program. Currently, under the Act, the net costs of the program are shared on a 50/50 basis between producers whose packaging is collected in the program, and the municipalities that have a Blue Box Program.

Ontario has built on the success of the Blue Box Program by encouraging the recycling and diversion of household hazardous wastes. The Municipal Hazardous or Special Waste Program was developed to divert certain household hazardous and special wastes from disposal in landfills, incineration, and sewers. In operation since July 1, 2008, the program aims to make the disposal of such wastes safer, simpler and more convenient. The introduction of the Municipal Hazardous or Special Waste Program will also help increase the diversion of certain wastes, such as paints, solvents, and batteries, from disposal by encouraging the development of new markets for both reuse of materials such as paint, and the recycling of others, such as batteries. Phase 1 of the program shares responsibility between industry and municipalities along functional lines. Municipalities absorb the costs associated with collecting the wastes that are subject to the program, while producers assume financial responsibility for all post collection activity – transportation, processing, promotion, and education. In July 2008, the Minister of the Environment required Waste Diversion Ontario to develop the next phases of the program which would expand the list of materials to be diverted, and has asked that the new program be fully funded by industry.

On July 9, 2008, the Minister of the Environment approved the Waste Electrical and Electronic Equipment Program. This program is intended to increase the amount of electronics reused, collected, and recycled by Ontarians through the provision of convenient and accessible locations for the drop off of waste computers, televisions, and other electronic products. It is anticipated that the program will be implemented in the spring of 2009.

The Waste Electrical and Electronic Equipment Program represents a number of “firsts” for Ontario. It is the first waste diversion program to address the designated material generated in all sectors – residential, government, and IC&I. It is also the first waste diversion program that is fully funded by producers. As well, it is the first diversion program to contain specific targets and measures aimed to promote the reuse of electronic equipment.

Possible Approaches

Ontario's waste diversion programs are clearly evolving. They are also clearly moving toward greater utilization of extended producer responsibility, and a greater embrace of the 3Rs hierarchy – both of which are key components of a zero waste approach. A significant consideration in the context of the Act is whether and how best to incorporate the 3Rs concepts into the Act so that the principles become more effectively entrenched as policy drivers in the development of programs under the Act.

- **Establish the 3Rs hierarchy in the Act**

While the 3Rs are mentioned in the Act, the Act could be revised to better promote waste reduction, reuse and recycling, in that order. A key policy outcome is greater reduction of waste at the source. Not producing waste in the first place is the best way to move toward zero waste, and provides the greatest environmental benefits and potentially the greatest economic advantages to society.

Current programs under the Act do not encourage producers to focus on waste reduction first, reuse second, and recycling third. Instead, they generally focus on finding the least costly means of collecting and recycling materials. This approach produces a positive outcome relative to waste disposal. However, for a variety of reasons, including low per unit recycling costs, it has not shown itself to be effective in influencing a reduction in waste, greater reuse of materials, or design decisions for products and packaging.

In addition, the only costs attributable to producers in these programs are the costs associated with recycling the material collected within the program. The management costs associated with whatever products and packaging are not collected in an approved waste diversion program are borne elsewhere – either by municipalities and their taxpayers, or by other businesses or consumers.

There are a number of potential ways to promote the 3Rs hierarchy through changes to the Act. In addition to the ideas proposed in the previous chapter on extended producer responsibility, going forward, the legislation could require that all programs under the Act clearly include separate reduction, reuse and recycling components. In addition, the Minister's program direction could stipulate that producers' financial obligations, through steward fees, are reduced proportionate to the expansion of the reuse of their products.

- **The role of the consumer**

The statutory elements of Ontario's waste diversion framework - the Waste Diversion Act and the *Environmental Protection Act* - are focused on the roles of the provincial and municipal governments, producers, waste generators, and the waste management industry. They do not directly deal with the role of the consumer. While reduction of waste at source is a responsibility that ultimately falls to manufacturers, consumers can play an important role in driving manufacturing decisions through their purchasing choices. Providing consumers with the appropriate tools for them to leverage their purchasing power to influence decisions on product design, or the type and quantity of packaging associated with products is key to enhancing waste diversion and building a green economy. Consumer participation in reuse and recycling programs is critical to the success of diversion programs.

There are a number of possible approaches where consumers are empowered to help achieve effective public policy outcomes:

- Requiring retailers to provide take back services for products that they sell when the consumer no longer needs those products.
- Incorporating deposit return systems for certain products and/or packaging.
- Providing more robust information, education and outreach activities focused on consumer participation.
- More clearly entrenching consumer accessibility criteria in waste diversion programs.
- Requiring products to have clear labeling informing consumers of the environmental "impacts" associated with the product and its packaging.
- Providing better consumer-based education on the costs and impact associated with the environmental management of the products and packaging they purchase.

Program request letters, issued by the Minister through the Act, have provided some direction on public education and outreach to support waste diversion programs, but more could be done to ensure that consumers have the information and program options needed to make responsible decisions, and improve their own reduction, reuse, and recycling efforts.

What do you think?

Establish the 3Rs hierarchy in the Act

13. How can the 3Rs be better entrenched in the Act to drive toward zero waste and foster a green economy?
14. Does the Act provide the necessary tools required to promote the 3Rs?
 - a. If so, how can those tools be used more effectively?
 - b. If not, what additional tools are needed?
15. What additional principles should be embedded in the Act to guide development of waste diversion programs in the province?

The role of the consumer

16. How can the Act be used to better encourage and leverage the role of the consumer in the 3Rs hierarchy?

17. What are the incentives that would most likely result in greater waste reduction and reuse?
18. What additional incentives would most likely drive greater waste diversion efforts by consumers?
19. What information regarding the environmental impacts of products and packaging should be made available to consumers and how?

Jurisdictional Example: Japan

Since 2002, Japan has been promoting the 3Rs and environmentally sound waste diversion under a legal framework intended to establish a “sound material-cycle society”. Some of the key pieces of legislation include the following:

- *Law for Promotion of Effective Utilization of Resources* (2001) which outlines basic waste diversion policies to be promoted across government, and prescribes various responsibilities for government, consumers and businesses. Business responsibilities address waste reduction, reuse of parts, material-specific recycling targets, recycling labels, design for the environment (e.g., for automobiles, home appliances, metal furniture, packaging and personal computers), product stewardship (e.g., for electronics and batteries), and waste planning to encourage the 3Rs.
- Specifically, the Act promotes 3R considerations in the Product Design and Production Stages, by designating 10 industry sectors and 69 products (covering about 50 percent of generated municipal and industrial waste) and mandating that they utilize used parts and recycled materials and integrate 3R considerations into product design.
- *Basic Law for Establishing a Recycling-based Society* (2001): sets roles and responsibilities for different parties to establish a recycling-oriented society; establishes a priority ‘orders of efforts’ for waste disposal and recycling; and requires producers to adopt a life cycle approach to product development.
- *Law on Promoting Green Purchasing* (2000): encourages the purchase of products that take the environmental impacts at the consumption/use stage into consideration.
- *Waste diversion and Public Cleansing Law* (2001, revised): strengthens countermeasures against the improper disposal of industrial wastes and promotes decreased waste volumes through 3R activities. Requires large industrial waste generators to create waste reduction plans and monitor and report on results.

Key highlights of the results achieved under this framework include:

- In 2001: 40 percent recycling rate for PET (up from 1.8 percent in 1995)
- In 2002: >80 percent recycling rates for aluminum
- In 2003: 48.9 percent recycling rate for industrial waste
- In 2005: the recycling sector accounted for 1.6 percent of the GDP
- In 2006: >88 percent recycling rate for steel cans (highest rate in the world); >65 percent recycling rate for 8 categories of industrial plastic (up from ~ 22 percent in 1999).

For more information see: Morton Barlaz et al. (2003), *Strengthening Markets for Recyclables – A Worldwide Perspective: Japan*, <http://people.engr.ncsu.edu/barlaz/>; METI (August 2004) *Handbook on Resource Recycling Legislation and Trends in 3R*, http://www.meti.go.jp/policy/recycle/main/english/pamphlets/pdf/handbook2004_e.pdf; and Ministry of the Environment website: <http://www.env.go.jp/en/recycle/>

IV: INCREASING REDUCTION AND DIVERSION OF INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL (IC&I) WASTE

Context for Action

Diversion rates for the industrial, commercial and institutional (IC&I) sectors are low. Despite being responsible for approximately two-thirds of the total waste generated in Ontario each year, these sectors diverted just 12 percent of their waste in 2006. By contrast, according to Waste Diversion Ontario, the residential diversion rate in 2006 was estimated at 38 percent.

The IC&I sector presents a number of unique challenges. The type and number of wastes generated by the IC&I sector make that sector difficult to target. The wide variety of individual establishments, which range from small family businesses to large, internationally-owned facilities, from hospitals and schools to malls and entertainment facilities, presents unique challenges for diversion. In addition, the sheer number of facilities in the IC&I sectors can act as an impediment to the establishment of broad waste diversion programs.

The net result is that IC&I waste generators, rather than product manufacturers, tend to pay directly for the costs associated with waste diversion.

Existing Diversion Framework

Current efforts target the IC&I sectors by driving diversion through waste generators. The IC&I sectors have a number of responsibilities under Ontario's waste diversion framework. The 3Rs regulations, made under the *Environmental Protection Act* in 1994, establish requirements for large IC&I establishments to source separate and make reasonable efforts to recycle specified wastes. The regulations also require these establishments to prepare waste audits and waste reduction work plans. These establishments include schools, retail businesses, hospitals, and large manufacturers. Manufacturers, packagers, and importers of a certain size are also required to undertake a packaging audit and implement a packaging reduction work plan. These work plans are submitted to the Ministry upon request. Smaller operations are exempt from preparing these plans.

Some see this as a necessary step toward establishing a culture of waste diversion in the IC&I sectors. However there are challenges with this approach. For example, ensuring compliance with these requirements is a key issue, since there are many waste generators. Effective oversight requirements of this type often demand considerable resources. In addition, for many facilities, the current obligations to develop waste diversion plans are both costly and onerous. Under the 3Rs regulations, the current approach focuses primarily on encouraging diversion among generators of waste and less on the producers of products or packaging.

Extended Producer Responsibility

Except for the Waste Electrical and Electronic Equipment Program, and some specific wastes addressed in the Municipal Hazardous or Special Waste Program, no current approved waste diversion program makes producers financially responsible for products or packaging sold into the IC&I sectors. In many cases the products and packaging sold into the IC&I sectors are indistinguishable from that sold to individual consumers. However, in the IC&I sectors most

businesses are required to make their own arrangements for the diversion of the waste that they produce, and incur the costs of waste disposal or diversion directly.

Extending stewardship to materials generated in the IC&I sectors has unique challenges. Extending producer responsibility to products sold into the IC&I sectors the IC&I sector is difficult due to the number and diversity of waste generators in that sector and existing waste collection contracts, negotiated by individual businesses with private contractors. Collection by a single system or service provider, as typically the case with extended producer responsibility programs, would be impractical. Understanding the implications of a program across a large spectrum of businesses and institutions is difficult, and determining whether a program impacts on existing service providers in a fair manner is a challenge.

However, for Ontario to build a greener, more sustainable economy that encourages businesses to harness opportunities to be innovative, and drive toward a zero waste future, increasing diversion rates within the IC&I sectors, preferably through approaches consistent with the framework of extended producer responsibility, is essential.

Possible Approaches

- **Revise 3Rs regulations**

Ontario can continue to promote approaches that facilitate diversion by waste generators. While the current waste diversion framework does place a number of responsibilities on the IC&I sector, the regulations made under the EPA could be enhanced to promote increased IC&I diversion rates. The 3Rs regulations could be amended to increase the scope of their coverage, and include more definitive requirements. Data reporting requirements could be incorporated and enforcement measures could be strengthened to encourage the IC&I sector to divert as much waste as possible.

However, since the existing 3Rs regulations focus primarily on creating obligations and requirements for waste generators, they are not extended producer responsibility-based.

- **Extend responsibility for wastes in the IC&I sectors to producers**

An approach to IC&I waste could also be to follow extended producer responsibility and extend stewardship responsibility to producers for the products and packaging that they sell into the IC&I sectors. This would shift the focus from generator to producer. The recently developed Waste Electrical and Electronic Equipment Program has taken this approach by including in the program producer responsibility for all electrical and electronic wastes regardless of where they are generated.

Extending responsibility for waste generated in the IC&I sector could encourage producers to seek out opportunities to strive toward zero waste by finding innovative ways of designing products and packaging to further reduce the creation of waste, encourage reuse, and achieve greater recycling. While extending responsibility to waste materials generated by the IC&I sectors would help build a green economy and enhance our goal of zero waste, the inherent complexities associated with this approach must be carefully considered.

- **Focus on specific sectors or specific materials/range of materials**

The Act already provides the Minister with the authority to designate wastes for which diversion programs must be established. When requesting a diversion program, the Minister sets specific conditions to which the waste diversion programs must adhere. This could be applied to a specific material or materials and focused across the IC&I sector, so that waste diversion programs similar to the Blue Box and Municipal Hazardous or Special Waste programs are developed for the broader sector. Alternatively, the Minister could request that a specific program be developed for a specific sector.

These types of targeted programs, based on extended producer responsibility, may generate a significant level of innovation and new green technology while also making significant gains in the level of diversion, helping move us toward the vision of zero waste.

What do you think?

Enhance 3Rs regulations

20. Should Ontario continue to promote approaches to waste diversion that focus on facilitating diversion by waste generators?
 - a. If so, how could these approaches complement an extended producer responsibility framework?
21. How could data reporting and other 3Rs obligations be used to enhance diversion?
22. What, if any, amendments to the 3Rs regulations could be made to support future extended producer responsibility programs?

Revisions to the Act

23. Is there a role for existing Act programs to encourage the facilitation of diversion by IC&I waste generators?
 - b. If so, are the available tools appropriate or are additional tools necessary?

Extending responsibility for wastes in the IC&I sectors to producers

24. How can responsibility be extended to producers to address the end of life management of their products and packaging sold or supplied to the IC&I sectors?
 - c. What authorities should be included in the EPA or the Act to facilitate this?
25. Are there any aspects of existing waste diversion programs that could provide a means of facilitating extended producer responsibility for products and packaging generated in the IC&I sectors?

Priority IC&I sectors or specific materials/range of materials

26. Do any specific IC&I sectors lend themselves more readily to application of extended producer responsibility?
27. Are any specific materials generated by IC&I sectors more appropriate for extended producer responsibility programs?

28. What other tools could help encourage IC&I establishments to divert as much waste as possible?

Jurisdictional Example: The Netherlands

In the early 1990s, the Netherlands set an ambitious waste diversion target of 90 percent by 2000 for its construction and demolition sector. By 2000, 51 percent of construction and demolition waste and 64 percent of industrial wastes were being recycled. It is now working toward an 83 percent recycling and a 3 percent disposal to landfill goal for 2012.

Progress has been achieved by using a suite of policy tools to promote recycling, including the 1991 Packaging Covenant (a voluntary agreement between the packaging industry and the government, which has subsequently been replaced by legislation), information campaigns, and several economic instruments, including pollution charges, energy taxes, landfill bans and taxes, subsidies and grants.

Under the new *Packaging, Paper and Cardboard Management Decree* (2006) stewards have full responsibility for collecting and recycling any packaging they bring onto the market and are required to bear the costs of separated collection of household packaging.

For more information see: Morton Barlaz et al. (March 2003), *Strengthening Markets for Recyclables – A Worldwide Perspective: Belgium, the Netherlands and Luxembourg* <http://people.engr.ncsu.edu/barlaz/> and the SVM·PACT web site, Packaging Decree: <http://www.svm-pact.nl/web/show/id=80327>.

V. STREAMLINING GOVERNANCE AND ADMINISTRATION

Context for Action

In order to strive for a zero waste future, everyone must do their part. Maximizing waste reduction, reuse, and recycling requires a clear framework that sets out the roles and responsibilities of those involved in waste diversion programs, to ensure that all players are contributing to a common goal. A clear governance structure can provide this foundation, laying the groundwork for successful waste diversion programs that will contribute to a green economy and lead us toward a zero waste future.

The Act establishes the roles and responsibilities of the Minister, Waste Diversion Ontario, and Industry Funding Organizations related to the development, approval, implementation and operation of waste diversion programs. The relationships between the organizations are complex and at times overlapping. The roles have evolved over the past few years, and continue to evolve, as greater experience is gained in applying the Act and Ministers program direction. There is considerable discussion among the Ministry, Waste Diversion Ontario and an industry funding organization in the course of program development as proposals are discussed, contemplated directions are assessed, and interpretations vetted to ensure a program adequately addresses the directions outlined by the Minister.

Developing successful waste diversion programs are an integral part of a zero waste approach. However, this process can be time-consuming and potentially confusing for decision-makers and engaged stakeholders. In addition, the various aims of the participants, and their related responsibilities, do not always facilitate decision-making that adequately considers the public interest.

The Minister

As the guardian of the public interest, the Minister has a number of powers assigned by the Act. The Act allows the Minister to do the following:

- designate materials for which a waste diversion program can be required;
- require that Waste Diversion Ontario develop a program for that material;
- provide policy direction on what the program should include, such as diversion targets, and when it should be completed;
- approve or reject the submitted program, without modification;
- establish through regulation an industry funding organization; and
- approve alternate waste diversion plans.

Some stakeholders have commented that the Minister, as the guardian of the public interest, is somewhat fettered by the restrictions present in the Act. One example cited is the restriction on the Minister's authority related to program approval. The Minister may accept or reject a proposed program, but cannot modify it once received. Another issue is the lack of ability of the Minister to enforce timelines related to program development and implementation. The Act provides for authority to penalize any party in these circumstances.

Others have suggested that Ministerial approval of programs takes too long, and that this tempers industry enthusiasm for timely program development and implementation. This

suggests a time restriction could be placed on the Ministers decision. Alternately, program approval at the level of the Minister could be unnecessary, and could be made the responsibility of Waste Diversion Ontario, without any direct approval role for the Minister.

Waste Diversion Ontario

Waste Diversion Ontario helps implement the Minister's priorities by working with industry funding organizations to develop diversion programs. Waste Diversion Ontario's responsibilities include:

- forming a new (or working with an existing) industry funding organization (upon Minister's direction) to develop, implement, and operate a waste diversion program;
- supporting industry funding organizations in the development of waste diversion plans, including approving the plan development process, and ultimately the plans themselves;
- monitoring the implementation, and performance of waste diversion programs, including reporting, undertaking related research, and promotional and educational support.

Some stakeholders question the need for having both an industry funding organization and the Waste Diversion Ontario, suggesting only one body is needed to perform the associated tasks. They argue that the Waste Diversion Ontario is comprised in part of industry representatives that are duplicated at the industry funding organization level, hence creating a conflict of interest. In addition, it is ultimately the Minister, not Waste Diversion Ontario, who determines which wastes should be designated, establishes the scope and timing of new programs, and approves new programs. Because of this, stakeholders see the Minister as the key point in the process and often bring their concerns, grievances, and suggestions related to waste diversion programs directly to the Ministry, bypassing Waste Diversion Ontario.

Some have suggested that industry funding organizations could independently develop, implement, and operate waste diversion programs, while remaining accountable directly to the Minister. Others have suggested that industry funding organizations are unnecessary, and that an enhanced Waste Diversion Ontario could perform those functions with a modified governance structure and new mandate. Still others feel that the existing relationships are appropriate, but that the Act should be amended to provide Waste Diversion Ontario with greater authority that better aligns with its responsibilities.

Industry Funding Organizations

Industry funding organizations are comprised of industry representatives for the designated material. They develop, implement, and operate diversion programs including:

- identifying obligated producers;
- establishing fees that individual producers pay, and collecting and distributing program funding;
- managing the day to day activities associated with a waste diversion program; and
- education and outreach associated with diversion programs.

By their very nature, industry funding organizations have reason to develop waste diversion programs that deliver mandated results as financially efficiently as possible.

An industry funding organization represents the industry group that is paying for a waste diversion program. This has led some stakeholders to question whether program decisions are always made with all considerations being given appropriate weight. The argument is that IFO decisions will tend to reflect those particular industry interests at the expense of others such as service providers. In the extreme some decisions may not reflect the broader public interest.

The opposite perspective is that an industry funding organization is constrained by the policy direction provided by government. It makes sense to give the industry funding organization the flexibility to meet that direction in the most efficient manner. This may result in some market displacement as those efficiencies are realized, but that occurs in all other facets of business. Maintaining open and transparent processes and decision-making can act as a check and balance against possible displacements.

As discussed above, some also argue that industry funding organizations should report directly to the Minister, without the guiding role of the Waste Diversion Ontario, and that the role of the industry funding organization could be refocused to encompass some of the current role of the Waste Diversion Ontario.

Possible Approaches

- **Bring greater clarity to roles and responsibilities, introducing a clearer set of checks and balances, and reducing duplication.**
- **Introduce more effective compliance tools, including penalties for non-compliance**
- **Consider most appropriate places for compliance authorities to rest**
- **Introduce consistent timelines for program development, approval, and implementation.**
- **Expand the requirements for public consultation through the program development process**
- **Expand the composition of industry funding organization Boards of Directors to include non-industry representatives**
- **Refocus the composition of the Waste Diversion Ontario Board of Directors to eliminate overlaps with the industry funding organizations and better reflect the public interest**

What do you think?

29. How could roles and responsibilities be articulated to clarify mandates?
30. What should be the responsibilities of:
 - a. The Minister?

- b. Waste Diversion Ontario?
 - c. Industry Funding Organizations?
31. What changes, if any, could be made to the board structures of Waste Diversion Ontario or industry funding organizations to provide more balanced representation?
 32. What additional authorities should each organization be given that would help ensure that the public interest is protected?
 33. What tools might be needed to better resolve conflicts, particularly at the program development stage?
 34. What changes are necessary to ensure timely program development and approval?
 35. Are penalties for non-compliance appropriate?

Jurisdictional Example: California, United States

The California Integrated Waste diversion Board is a state agency designated to oversee, manage, and track the 88 million tonnes of waste generated in California each year. The Board holds authority and responsibility in many different waste diversion areas, including expanding markets for recyclables, promoting new technologies that support diversion, enforcing legislation, and funding the cleanup of solid waste disposal sites.

The Board currently promotes a “Zero Waste California” by providing grants and loans to help California’s cities, counties, businesses and organizations meet the state’s 3Rs goals. Through its Recycling Market Development Zone program, the first program of its kind in the U.S., the Board provides financial support, technical assistance, and free product marketing to businesses using materials from the waste stream to manufacture their products – provided that they are located in one of about 40 specified zones in the state. The Board reports that, through this program, more than 4,000 new jobs have been created, and more than 7.6 million tonnes of waste is diverted each year.

The Board’s statutory enforcement role also fosters the expansion of markets. In the area of plastics, for instance, the Board is responsible for ensuring minimum recycling rates for a wide range of plastic packaging material.

In January 2008, the Board adopted an Overall Framework for extended producer responsibility Systems in California that is intended to guide the development of state product stewardship programs. This Framework explores an expanded governance role for the CIWMB, which, through statutory changes, would provide authority for the Board to: establish overall extended producer responsibility regulations; determine initial products or product categories to be included; establish targets, measurement, and reporting requirements; establish and collect penalties for non-compliance; establish transparency and accountability mechanisms; require mechanisms/incentives to drive product design for environmental improvement (e.g., toxics reduction, greenhouse gas reduction); and require marketing, outreach, training and/or education of stakeholders, including outreach to consumers; etc.

For more information see: <http://www.ciwmb.ca.gov/>

Jurisdictional Example: Austria and the EU

The *Waste Electrical and Electronic Equipment Directive* is the E.U. legislation regulating the disposal of electrical or electronic equipment. The purpose of the legislation is to increase the reuse, recycling and recovery of electrical and electronic equipment and reduce the amount of equipment going into landfills.

Austria was one of the first countries to start the implementation of the *WEEE-Directive*. With the implementation of the *Waste Electrical and Electronic Equipment Ordinance*, the responsibility for management of Waste Electrical and Electronic Equipment was transferred to manufacturers. As part of the implementation of the *WEEE-Directive* in Austria, manufacturers are legally required to work with a collection and recovery provider that is registered with the Ministry of Environment. However, manufacturers have the flexibility to choose the collection and recovery provider they desire to work with.

In the practice of collection and processing, the following recovery breakdown has been established: large electrical and electronic appliance; refrigerator, freezer, and air conditioners; small electrical and electronic appliances; screens; and, gas discharge lamps. There are currently six collection and recovery providers operating in Austria, each of which competes to provide their services for a particular combination of the five categories listed above.

This structure allows for flexibility in how producers/manufacturers choose to comply with the collection and processing requirements. They essentially have the ability to select between the six providers, based on the lowest cost for the highest return. Collection and recovery providers compete for manufacturer business through competitive pricing and regulatory compliance guarantees. The Austrian Government approves the WEEE schemes and registers companies. This competitive model has resulted in lower fee rates for producers and an increase in collection rates, exceeding E.U. targets

VI. CONCLUSION

In the years since the *Waste Diversion Act, 2002* was passed, Ontario has made significant progress in diverting waste from disposal. The Blue Box Program continues to improve the diversion of waste mandated for collection, and continues to be recognized world wide as a signature waste diversion program. New programs approved in 2008 will help consumers safely dispose of a wider range of household wastes and electrical and electronic equipment.

But we need to do more. In order to do more, we need to change the way we think about waste. That is why we are proposing to join other progressive jurisdictions from around the world and strive for a zero waste future. Driving toward a zero waste future will help us to build a green economy, as well as a more sustainable society for all future generations of Ontarians.

The review of the Act presents a unique opportunity to hold a public dialogue on how we can make progress today and drive toward a zero waste future. That's why Ontario is proposing a forward-thinking waste diversion framework that is based on these four important building blocks:

1. A clear framework built upon the foundation of Extended Producer Responsibility.
2. A greater focus on the first and second of the 3Rs – waste reduction, and reuse.
3. Increasing reduction and diversion of waste from the industrial, commercial & institutional sectors.
4. Greater clarity around roles, responsibilities, and accountabilities, to ensure that all players are contributing to a common goal.

Adopting these four building blocks represents a strategic shift in how we think about the products we consume and will bring us closer to the zero waste future that we ultimately want to achieve. Making this strategic shift will complement other recent initiatives that will help drive a green economy, such as reducing toxic substances, banning pesticides, and reducing greenhouse gases. All together, Ontario is building a more sustainable way of life.

The Ministry encourages all interested parties to reflect on their experiences and provide feedback as we move forward. Your input and feedback are critical to establishing a clear and effective framework to work toward a zero waste future. As we stated in the introduction, we invite you to be innovative, to think broadly about the principles and priorities of our four building blocks and to let us know what you think about our discussion questions and other related topics.

We look forward to your feedback.

VII. APPENDIX 1: ONTARIO'S SOLID WASTE MANAGEMENT FRAMEWORK

The majority of the waste generated in Ontario is non-hazardous solid waste. According to Statistics Canada, almost two-thirds of Ontario's non-hazardous waste comes from the industrial, commercial and institutional sectors.¹ The remainder is classified as residential waste.

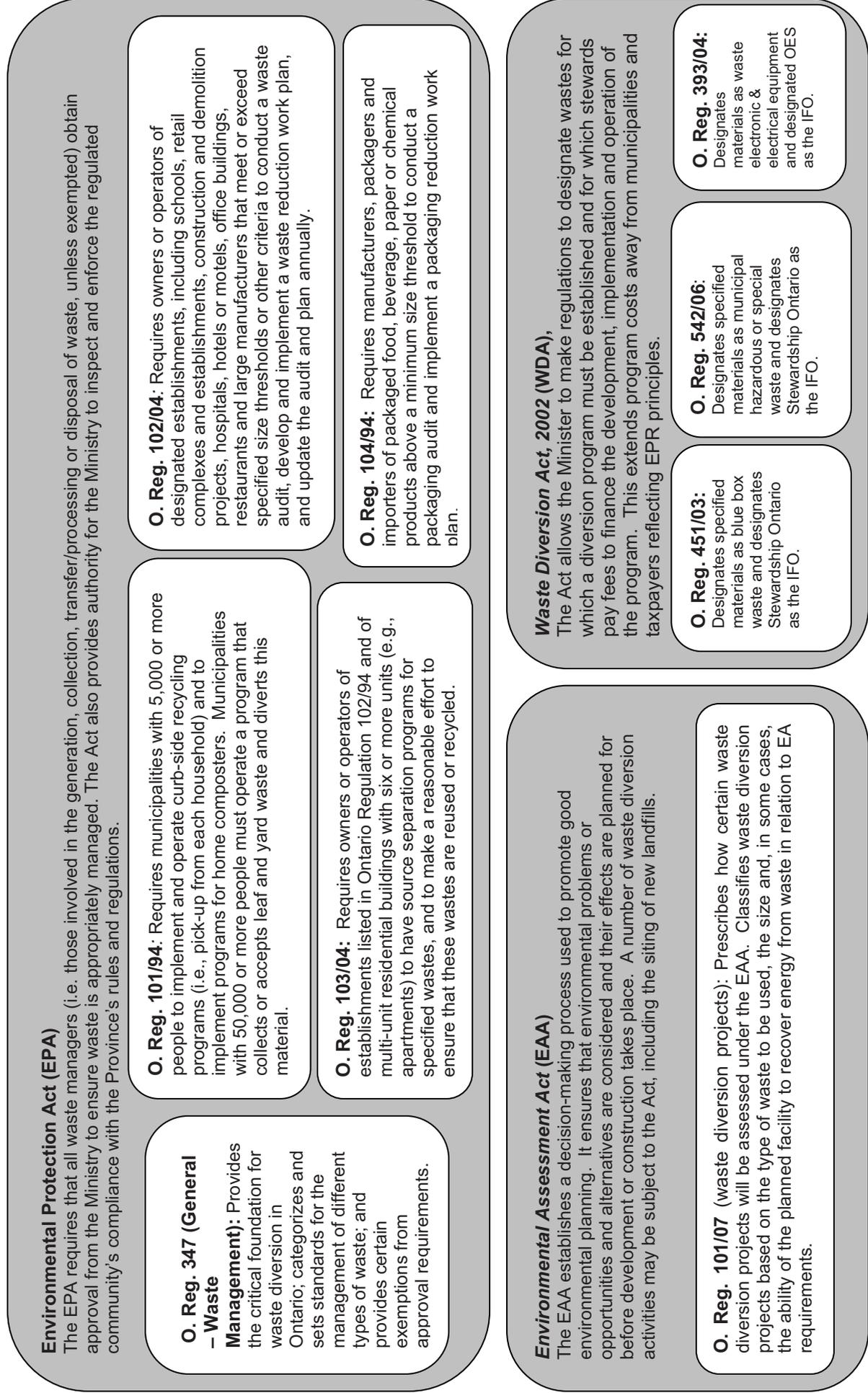
Numerous legislative and policy tools have been implemented to support waste reduction and diversion from disposal through reuse and recycling. These requirements and regulations are made under the authority of three pieces of legislation: the *Environmental Protection Act*, the *Environmental Assessment Act* and the *Act*, as illustrated in Figure 1 on the next page. The ministry also uses non-regulatory tools to provide direction on waste diversion, such as voluntary agreements and education and outreach.

In recent years, Ontario has taken a number of important steps to strengthen and broaden its waste diversion framework, including:

- Approving, on Feb 19, 2008, Phase I of the Municipal Hazardous or Special Waste Program for implementation, and requesting the development of Phases II & III (in July 2008);
- Approving, on July 9, 2008, the Waste Electrical and Electronic Equipment Program for operation in Spring 2009, and requesting Phase II;
- Undertaking regulatory amendments to make it easier to increase waste diversion, use specific waste as alternative fuel and test new energy from waste technologies;
- Committing to develop a Canada-wide strategy on sustainable packaging and national action plan on extended producer responsibility through the Canadian Council of Ministers of the Environment;
- Forming a partnership with Ontario retailers, industry and environmental organizations that will strive to achieve a 50 percent reduction in the use of plastic bags within five years through expansion of reusable bag programs and consumer education;
- Introducing a deposit return system for wine and spirit containers.

¹ The industrial, commercial and institutional sectors include companies that make products and packaging materials (e.g., manufacturers), businesses that generate waste through the products they sell or use (e.g., restaurants or construction/demolition sites) and institutions (e.g., hospitals or schools).

Figure 1: Legislative & Regulatory Framework



*** Note that Figure 1 includes key regulations only, and is not an exhaustive list. See Appendix 2 for further details on key regulations.

OVERVIEW OF THE ACT

In 2002, the Act introduced requirements, roles and responsibilities, and processes intended to achieve its purpose to promote the 3Rs and provide financing for waste diversion programs.

The Act created Waste Diversion Ontario as a permanent, non-government corporation (without share capital), mandated to develop, implement and operate waste diversion programs. Waste Diversion Ontario is governed by a Board of Directors comprised of industry, municipal, and non-governmental representatives. In addition, the Board includes a Ministry of the Environment public service employee and two members not employed by the public service, both appointed by the Minister.²

In early 2008, the process of restructuring the Waste Diversion Ontario Board was initiated, in order to provide more balanced representation between industry stakeholders, non-industry stakeholders (municipal/environmental) and broader public interests. The new structure will include representatives from industry associations, municipal associations, the City of Toronto, environmental organizations, a senior public servant from the Ontario Public Service, and five further members appointed by the Minister.

The Act requires Waste Diversion Ontario to establish or work with an existing industry funding organization – a corporation that acts on behalf of designated producers in developing and implementing new waste diversion programs. In the Act, producers, called stewards, have a commercial connection to the designated waste or the product(s) from which the designated waste is derived (i.e., brand owners or first importers of the designated material).³ Each industry funding organization is governed by a Board of Directors, comprised of industry representatives for the designated waste, and is responsible for identifying affected industries and the fees that these companies must pay to finance the waste diversion program. Section 30 of the Act requires that the fees paid by each individual producer must fairly reflect the proportion of the total waste diversion program costs that are attributable to that industry.

The Act establishes the roles and responsibilities of the Ministry, Waste Diversion Ontario and the industry funding organization for the development, implementation and operation of new waste diversion programs. Key steps in this process are summarized below and illustrated in Figure 2:

- The Minister, by regulation, prescribes materials as a designated waste for which a waste diversion program can be required.
- Once a material has been prescribed as a designated waste, the Minister is able to request Waste Diversion Ontario develop a waste diversion program for that waste.
- The Minister also provides direction on what the program should include, such as diversion targets, and when it should be completed (although this role is not established by the Act).
- Once the Minister requests a program, Waste Diversion Ontario must establish a new or work with an existing industry funding organization, to jointly develop the program.⁴

² Board members, including the Chair, receive no remuneration for their participation.

³ Currently operating IFOs are: Stewardship Ontario for the blue box and municipal hazardous or special waste programs, Ontario Electronic Stewardship for Waste Electrical and Electronic Equipment and Ontario Tire Stewardship for used tires.

⁴ The Ministry may provide direction to WDO about whether to work with a new or existing IFO.

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- The program must include rules for steward fees, estimated program costs and implementation details and rules for steward fees.
- Industry funding organizations operate as independent corporations without share capital (i.e., they are not agents of the Crown for any purpose).⁵
- Once satisfied with the program plan, Waste Diversion Ontario must submit it to the Minister for approval.⁶
- The Ministry is required to post the plan on the Environmental Registry website for a minimum of 30 days for public comment.
- Once approved, another regulation is made by the Minister designating the industry funding organization (which has only been 'interim' until this point).
- The IFO and Waste Diversion Ontario are then responsible for implementing and operating the program with the industry funding organization's role governed by an agreement with Waste Diversion Ontario.
- Fees paid by producers to the industry funding organization each year are held in trust by the industry funding organization to pay for the waste diversion program.⁷
- Any material changes proposed to a program after approval subsequently require the Minister's approval.

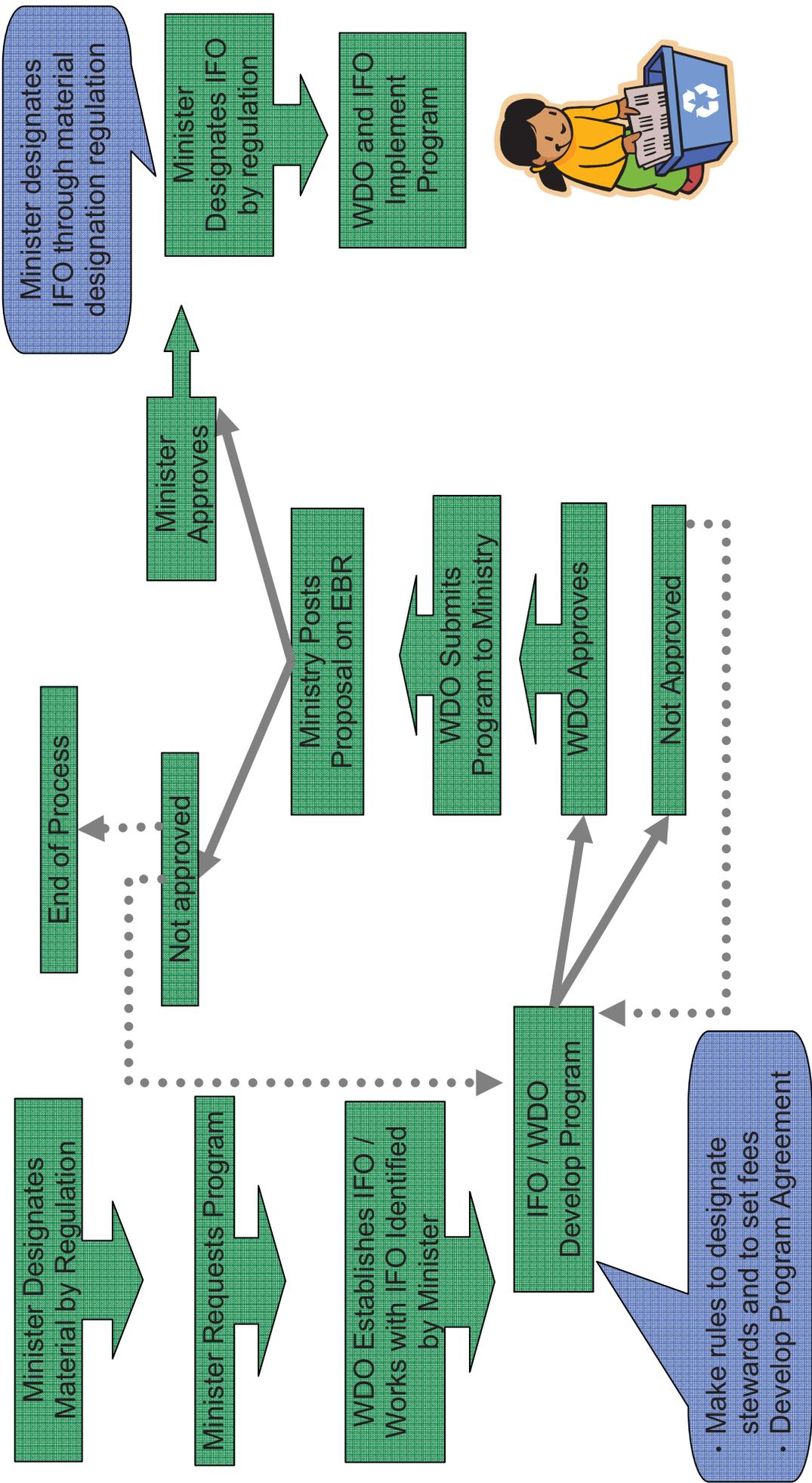
The Act provides flexibility to industry to submit an industry stewardship plan: an alternative, industry-led diversion plan for a designated material already subject to a program under the Act. To be approved as an alternative to the Act program, the industry stewardship program must achieve similar, or better, objectives than those established through the Waste Diversion Ontario /industry funding organization-operated program. With Waste Diversion Ontario approval, participants in the alternative plan are exempt from the obligation to pay stewardship fees to the industry funding organization (although some fees may still be owed to Waste Diversion Ontario to cover administrative costs, such as performance measurement data and analysis). The intent of the industry stewardship program feature of the Act is to provide flexibility to stewards to fulfill their producer responsibility obligations under the Act through their own waste diversion program. To date, no industry stewardship program has been submitted for approval.

⁵ An industry funding organizations is subject to the *Corporations Act* until designated as the industry funding organizations for a diversion program by regulation under the Waste Diversion Act, after which it is governed by the provisions of the Waste Diversion Act (sec. 28).

⁶ In practice, the industry funding organization submits the program to Waste Diversion Ontario's Board for approval and, if approved by the Board, it is then submitted to the Minister; however, this process is not required by the Act.

⁷ The Act identifies that stewards' fees may also be used to pay "a reasonable share" of costs incurred by: (1) Waste Diversion Ontario in carrying out its responsibilities under the Act that are not directly related to the diversion program; and (2) the Ministry in administering the Act.

Figure 2: Program Development Process



Materials Designated As Wastes Under the Act

In 2003, Waste Diversion Ontario's Blue Box Program was the first to be implemented under the authority of the Act.⁸ The Blue Box Waste identified by O.Reg. 273/02 are glass, metal, paper, plastics and textiles.⁹ Producers fulfill their financial obligations under the Act by submitting steward fees to Stewardship Ontario, the industry funding organization designated for the Blue Box Program.

The Act prescribes that industry must finance 50 percent of the net municipal program costs; municipalities pay the other 50 percent for the Blue Box Program. This co-financing relationship grew out of voluntary cost-sharing arrangements for municipal recycling programs in Ontario between participating municipalities, the soft drink industry and its material suppliers, dating back to the early 1980s. Blue box steward fees are calculated by Stewardship Ontario each year and producers are notified of the fees they are legally obliged to remit.

Fees for the Blue Box Program plan have been designed to create financial incentives to reduce, reuse and recycle. All producers of designated wastes must pay steward fees. Stewardship Ontario applies three factors when it calculates steward fees to increase the incentive to producers to use recoverable materials: 35 percent is based on a Recovery Rate Factor (i.e., materials with higher recovery rates are allocated lower fees), 40 percent is based on a Net Cost Factor (i.e., materials with lower net costs to recycle are allocated lower fees), and 25 percent is based on an Equalization Factor (i.e., materials with low recovery rates and high costs to recycle are allocated higher fees).

On February 19, 2008, the Minister of the Environment approved Phase I of Waste Diversion Ontario's Municipal Hazardous or Special Waste Program. Phase I materials identified by O. Reg 542/06 include paints and coatings, solvents, oil filters and containers, single use batteries, antifreeze, pressurized containers such as propane cylinders, fertilizers and pesticides. Other materials will be added into the program in future phases. The program targets both residential wastes and small quantity hazardous wastes from the industrial, commercial and institutional sectors. Industry is responsible for all post collection costs, which are estimated by Waste Diversion Ontario and the industry funding organization to be about 80 percent of total program costs in year one of the program (municipalities will be responsible for the remaining 20 percent).

⁸ Curbside collection programs had been running voluntarily in Ontario since the mid-1980s, with limited, voluntary industry funding. In 1994, O. Reg. 101/94 made municipal curbside recycling programs mandatory for municipalities with 5,000 or more people, but industry was not required to finance these programs.

⁹ Note that O. Reg. 273/02 was amended by O. Reg. 451/03 after the Blue Box program was approved. It designated Stewardship Ontario as the IFO for blue box waste and dealt with the composition and appointment of the board of directors of Stewardship Ontario. In 2006, O. Reg. 273/02 was further amended by O. Reg. 255/06 to change the provisions governing the composition and appointment of the board of directors. In 2008, O. Reg. 34/08 revoked the provisions of O. Reg. 255/06 governing the composition and appointment of the board of directors of Stewardship Ontario and O. Reg. 33/08 was made, a new regulation governing the composition and appointment of the board of directors of Stewardship Ontario, which reflected that Stewardship Ontario was the IFO for both the blue box waste program and MHSW.

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Steward fees will be collected by Stewardship Ontario, the industry funding organization for the program. The program makes Ontario the first province to have an industry-funded, single use battery recycling program.

On July 9, 2008, the Minister approved the Waste Electrical and Electronic Equipment Program which will cover waste electrical and electronic equipment (as identified by O. Reg 393/04) from both the residential and industrial, commercial and institutional sectors, as identified by O. Reg 393/04. For the first time, industry will be responsible for all waste diversion program costs. Fees will be calculated by Ontario Electronic Stewardship, the industry funding organization for the Waste Electrical and Electronic Equipment Program.

Additionally, in 2003, the Minister requested programs from Waste Diversion Ontario for used oil material and used tires. The program developed for used oil by Waste Diversion Ontario and Ontario Used Oil Management Association (the industry funding organization) was not submitted by Waste Diversion Ontario because it would have been inconsistent with the Act by supporting the burning of used oil. The program developed for used tires by Waste Diversion Ontario and Ontario Tire Stewardship (the industry funding organization), for used tires was submitted in 2005, but then withdrawn as it made producers responsible for financing the clean up of existing tire stockpiles, to which their 'commercial connection' was unclear. On August 14, 2008, the Minister directed Waste Diversion Ontario to develop a program that will recycle stockpiled tires.

ROLES AND RESPONSIBILITIES

All parties involved in waste generation and management – the Province, Waste Diversion Ontario, industry funding organizations, industrial, commercial and institutional sectors, producers, municipalities, the private sector waste diversion industry, the public and environmental groups – have a role to play in achieving sustainable waste diversion, and a responsibility to protect and conserve the environment.

The Province

- Set and enforce rules, regulations and policies for waste diversion and disposal under the Environmental Protection Act, Environmental Assessment Act and Waste Diversion Act.
- Issue certificates of approval for waste disposal sites and waste haulers to ensure waste is properly managed.
- Work with municipalities and the private sector to facilitate waste diversion and the disposal of residual waste.
- Establish and update expectations and guidance for waste diversion activities in the province in response to emerging challenges and opportunities.
- Publicly promote the 3Rs.
- Work with Waste Diversion Ontario through an operating agreement that defines roles and responsibilities and operating relationships.
- Provide representation on Waste Diversion Ontario's Board of Directors.

Waste Diversion Ontario

- Establish and work jointly with a new or existing industry funding organization.
- Develop, implement and operate diversion programs for designated wastes.
- Monitor the performance of programs.
- Provide promotional and educational support for waste diversion programs.
- Undertake diversion-related research upon direction from the province.

Industry Funding Organization

- Work together with Waste Diversion Ontario to develop, implement and operate diversion programs.
- Make rules designating stewards and establish stewards' fees to finance diversion programs and other costs related to the Act.
- Implement and oversee program details and monitor diversion rates.
- Provide promotional, educational and research and development support for waste diversion programs.

The Industrial, Commercial and Institutional Sectors

- Comply with provincial waste diversion standards and requirements.
- Plan for and, where possible, reduce the amount of waste generated by their operations.
- Minimize the life cycle impacts (i.e., environmental footprint) of products and their packaging.
- Manage the waste generated by their operations through contractual agreements with the private sector or municipalities.

Producers and Stewards

- Comply with provincial waste diversion standards and requirements.
- Plan for and, where possible, reduce the amount of waste generated by their operations.
- Minimize the life cycle impacts (i.e., environmental footprint) of products and their packaging.
- Finance and implement diversion programs under the Act.

Municipalities

- Plan for and provide direct waste diversion services to their residents, and in some cases, the IC&I sectors.
- Plan for, locate and invest in necessary waste diversion infrastructure.
- Comply with provincial waste diversion standards and requirements.
- Fund the blue box program plan through a 50 percent cost sharing arrangement with Stewardship Ontario (as prescribed in the Act).
- Fund and implement collection programs for municipal hazardous or special waste.
- Implement voluntary diversion or reduction programs, where possible and reasonable.
- Provide representation on Waste Diversion Ontario's Board of Directors.

Private Sector Waste Management Industry

- Provide waste services to the IC&I sectors and, in some cases, to residents under contracts with municipalities.
- Plan for, locate and invest in necessary waste diversion infrastructure.
- Comply with provincial waste diversion standards and requirements.
- Assist and support waste generators in their efforts to reuse and recycle waste wherever possible.

The Public

- Help reduce the amount of waste generated through purchasing choices.
- Engage in waste reduction through reuse, waste prevention, and through diversion programs.

Environmental Groups

- Promote the need to reduce waste and conserve our natural resources.
- Raise awareness and understanding of Ontario's waste diversion challenges and opportunities.
- Provide representation on Waste Diversion Ontario's Board of Directors.

VIII. APPENDIX 2: OVERVIEW OF THE 3RS REGULATIONS

Ontario Regulation 101/94

This regulation requires municipalities with at least 5,000 people to implement and operate recycling programs that follow certain minimum standards. Municipal recycling programs must source separate and recycle five specified materials plus two others as shown in the following table.

Table 1. Materials That Municipalities Must Recycle		
Recycle All These Items	Recycle at Least Two of These Materials	
Newsprint	Phone books	Boxboard
Steel FBC ¹	Aluminum foil items	Paper cups and plates
Glass FBC	Magazines	Fine paper
Aluminum FBC	Rigid plastic containers	EPS ³ FBC and packing
PET ² FBC	Cardboard	Textiles
	Plastic film	Polycoat FBC

¹ Food and beverage containers ² Polyethylene terephthalate ³ Expanded polystyrene

Ontario Regulation 101/94 also requires municipalities to implement certain composting programs:

- Municipalities with at least 5,000 people must provide residents with home composters (e.g., in their backyard) at cost or less, to promote the program and to offer residents information on proper composting procedures.
- Municipalities with at least 50,000 people must provide residents with a service that allows them to source separate and divert leaf and yard waste from disposal. The municipality must divert the materials received through the system they operate, whether they are collected at curbside or through depots.
- Municipalities that are required to establish a leaf and yard waste collection system (including a home composter program), must submit an annual report on the operation of the system to the ministry.

Ontario Regulation 102/04

Ontario Regulation 102/94 requires owners or operators of the following establishments to conduct waste audits, develop and implement waste reduction work plans, and update the audits and plans annually:

- schools with an enrolment of more than 350 students;
- retail shopping establishments where the total floor area is at least 10,000 m²;
- retail shopping complexes where the total floor area occupied by retail establishments is at least 10,000 m²;
- construction projects where total floor area is at least 2,000 m² or more;
- Group A, B, or F hospitals in Regulation 964, Revised Regulations of Ontario 1990, under the *Public Hospitals Act*;
- hotels or motels with more than 75 units;
- demolition projects where total floor area is at least 2,000 m² or more;

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- office buildings where office floor area used for offices is at least 10,000 m² or more;
- restaurant owners whose gross annual sales for all restaurants owned in Ontario are \$3.0 million or more during the two preceding years; and
- manufacturers where during any month employees work more than 16,000 hours during the two preceding years.

Ontario Regulation 103/04

This regulation requires owners or operators of the establishments listed in Ontario Regulation 102/94 and of multi-unit residential (apartment) buildings with six or more units to have source separation programs for specified wastes and to make reasonable efforts to ensure that the wastes are reused or recycled.

Table 2: Materials To Be Recycled by Establishments Designated under the 3Rs Regulations

	School Over 350 students	Retail* 10000 + m ²	Construction 2000+ m ²	Hospital Group A, B, F	Hotel/Motel Over 75 units	Demolition 2000+ m ²	Office 10000+ m ²	Restaurant \$3 million+ annual Sales	Manufacturer Over 16000 hrs worked in a month	Apartment 6 units +
Aluminum food & beverage cans										
Cardboard										
Fine paper										
Glass food & beverage bottles/jars										
Newsprint										
Steel food & beverage cans										
Brick & Portland cement concrete										
Drywall (unpainted)										
Steel										
Wood (untreated/unpainted)										
PET (#1) plastic food & beverage bottles										
Aluminum										
Glass										
HDPE plastic jugs, crates, totes, drums										
LDPE film plastic										
Polystyrene expanded foam										
Polystyrene products										
Municipal Blue Box materials										

* Equivalent to a very large retail store or a mall

Ontario Regulation 103/94 only applies to establishments in municipalities with populations of at least 5,000 people, except for manufacturers, construction or demolition projects. The wastes specified for each sector are shown in Table 2. Note

that inclusion in the table does not mean that the entire sector is required to participate in recycling (due to *de minimus* thresholds). For example, only about 10 percent of the businesses that could fit into “Manufacturer” are required to recycle under the current regulation.

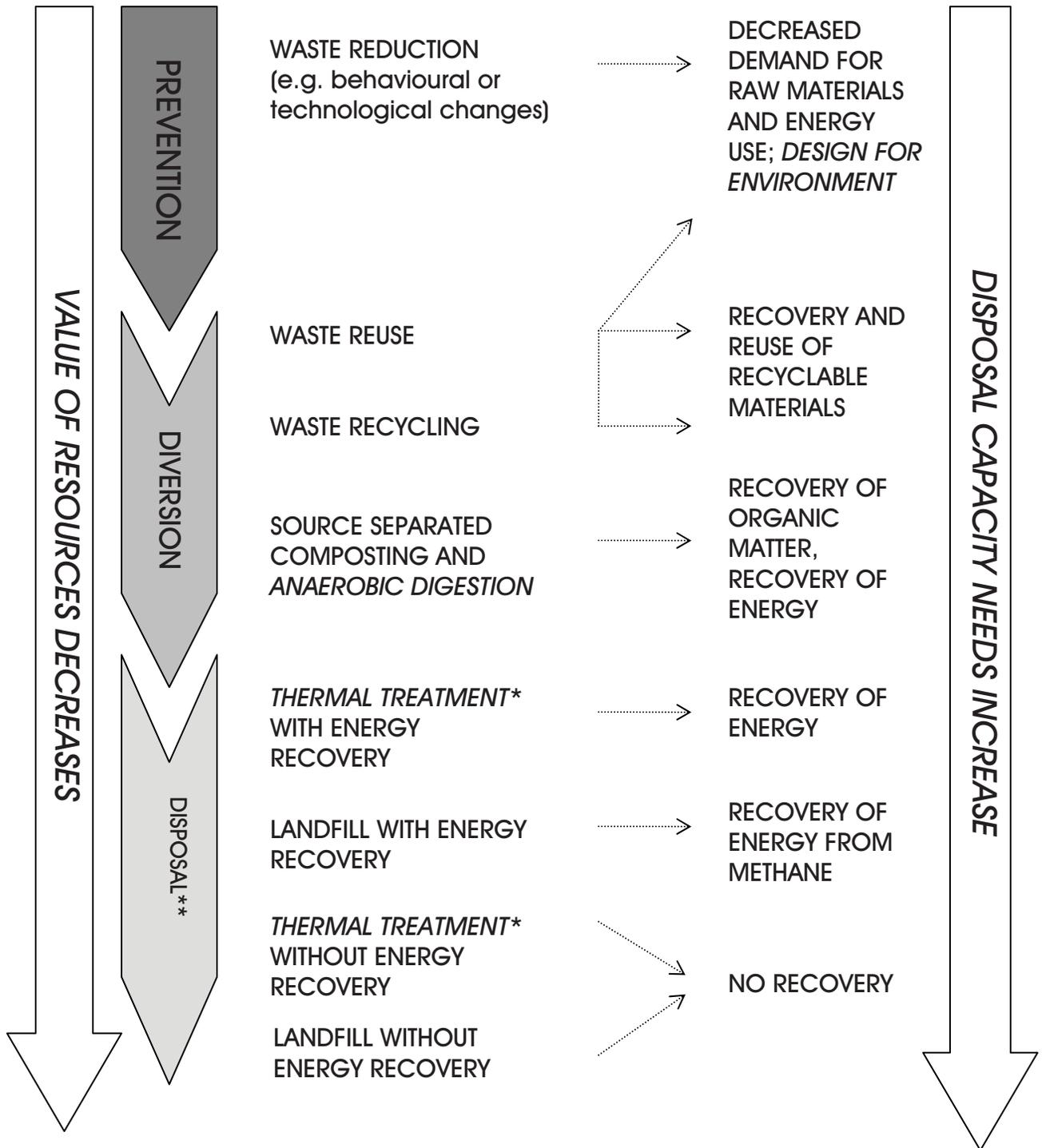
Ontario Regulation 104/94

Ontario Regulation 104/94 requires manufacturers, packagers and importers of packaged food, beverage, paper or chemical products to conduct a packaging audit and implement a packaging reduction work plan. The requirement applies only to manufacturers and packagers where during the two preceding years, there was one or more months where the hours worked by persons employed was more than 16,000 hours, or for importers, during the two preceding years the annual value of goods imported into Ontario was \$20 million or more.

A packaging audit must address the:

- type and amount of the packaging;
- amount of reused or recycled materials being used;
- management decisions and policies affecting packaging;
- reusability and recyclability of the packaging after use; and
- final destination and its impact on that waste stream.

Figure 3: The Waste Value Chain



* With potential use of ash or recovery of metals.

** Waste generators and managers should consider waste reduction as a first priority, followed by diversion. All disposal options have unique environmental concerns and should only be considered as a last option. Where disposal is necessary, waste generators and managers should carefully reflect on these environmental concerns in light of their local circumstances. Recovering energy from landfill or thermal treatment should be considered prior to thermal treatment or landfill without energy recovery.