

***OUR TOXIC-FREE FUTURE:  
AN ACTION PLAN FOR ONTARIO'S  
TOXIC USE REDUCTION LAW***



**CANADIAN ENVIRONMENTAL LAW ASSOCIATION**

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# 1. Toxic Chemicals Have Trespassed into our Bodies

At least 23,000 different chemicals are used in Canada today -- to make automobiles, to supply hospitals, to furnish our homes and entertain us. Yet, we know almost nothing about many of these chemicals. Very little data exist on their effects on human health or their fate in the environment.

We are, however, beginning to realize some of the unintended consequences of their use - their presence in our bodies, for example. When human tissue samples from several Ontario families were tested for industrial chemicals, 46 of them – including various heavy metals, pesticides and perfluorinated chemicals – showed up.<sup>1</sup> The Premier himself and two opposition leaders each carry more than 40 different chemicals in their bodies.<sup>2</sup>

Although we do not know the implications of these chemicals showing up in our bodies, toxic chemicals have been implicated in the explosion of chronic diseases appearing in North America.

This “toxic trespass” is a compelling reason why governments must not only investigate the properties of these chemicals fully, but, even as that work goes forward, they must put in place measures that reduce our exposures and the threat to our health.

In Ontario, we have an unprecedented opportunity to curb the impact of toxic chemicals. Premier Dalton McGuinty, in a statement on November 20, 2007, promised the “introduction of new toxic reduction legislation to reduce pollution, inform and protect Ontarians from toxic chemicals in the air, water, land and consumer products”.<sup>3</sup> In addition, prior to the provincial election in October 2007, all three major parties made a commitment to toxics use reduction.

Toxics use reduction is a practical way to move Ontario’s economy onto a greener and more sustainable footing. Legislation would promote changes in industrial processes and a reformulation of products that would make Ontario more competitive internationally. And, it would promote the Premier’s goal of making Ontario “a leader in environmental protection and driving the new knowledge-based economy that is based on creative, forward-thinking ideas, leading-edge research and new technologies.”<sup>4</sup>

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<sup>1</sup> Environmental Defence, “Polluted Children, Toxic Nation: A Report on Pollution in Canadian Families”, June 2006. Accessible at [www.toxicnation.ca/toxicnation-studies](http://www.toxicnation.ca/toxicnation-studies)

<sup>2</sup> Environmental Defence, “Toxic Nation at Queens Park: A Report on Pollution in Three Ontario Politicians”, September 2007. Accessible at [www.toxicnation.ca/toxicnation-studies](http://www.toxicnation.ca/toxicnation-studies)

<sup>3</sup> Media Release, Office of the Premier, “McGuinty Government Reducing Environmental Toxins”, November 20, 2007.

<sup>4</sup> Ministry of Research and Innovation, “McGuinty Government Invests in Green Industry”, August 14, 2007. Accessible at [www.mri.gov.on.ca/english/news/BioIC081407.asp](http://www.mri.gov.on.ca/english/news/BioIC081407.asp)

The Canadian Labour Congress (CLC) has also called on the Ontario government to turn Ontario's disappearing "blue collar" jobs into "green collar" manufacturing jobs.<sup>5</sup> The CLC believes that provincial support for companies that produce green products or save energy would strengthen manufacturing and keep workers and their families from slipping into poverty.

This report has been prepared by the Canadian Environmental Law Association, in cooperation with our Steering Committee. In this report, we:

- examine the experience of jurisdictions that have already legislated toxics use reduction;
- look at other initiatives that have the same goal of reducing toxics that are currently being put into place; and,
- propose the elements necessary for an effective toxics reduction program in Ontario.

The objective of this report is to provide guidance to legislators and the informed public on strategies for toxics use reduction that could be adopted in Ontario, and to establish the basis for CELA's model toxics use reduction law.

## **2. Vision**

Toxics use reduction is essentially a pollution prevention strategy. It is targeted at toxic chemicals with the goal of reducing or eliminating them to the greatest extent possible. It brings all the benefits of decreasing pollutants going into the environment and reducing the risk to public health, while at the same time giving companies a broad range of choices in how they make these reductions.

It is also a way to stimulate innovation and help Ontario move to a greener economy. Consumers in Canada and abroad are increasingly demanding less toxic products. Companies that invest in substituting non-toxic chemicals in products and in upgrading their processes to reduce the use of toxic chemicals will be ahead of regulatory changes. Their actions will make Ontario the Canadian leader in the emerging field of green chemistry.

What does a toxics use reduction strategy entail? Toxics use reduction laws require companies using designated toxic chemicals to report on their use of these chemicals, and to develop pollution prevention plans that identify how they can reduce their use of toxic chemicals and the generation of wastes. A toxics use reduction strategy can also be used to target, and reduce or eliminate cancer-causing chemicals.

These reductions can be made in a variety of ways -- through changes in production processes, through substituting less hazardous raw materials or products for more toxic

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<sup>5</sup> Monsebraaten, Laurie, "Green Fix urged for Ontario's job blues", The Toronto Star, May 12, 2008.

ones, or simply through improving operations and housekeeping practices. Companies can choose which methods best fit their situation.

Based on the experience of other jurisdictions, significant benefits can be realized from the implementation of effective toxics use reduction legislation.

*Benefit One: Toxics use reduction results in less pollution leading to a cleaner environment and safer products.* All jurisdictions that have put in place toxics use reduction legislation have seen a significant decrease in toxic wastes. In addition, there have been reductions in the use of toxics by companies, in their emissions to air, water and landfill, and in the presence of toxics in the products themselves.

*Benefit Two: It reduces the risk to public health, and contributes to safer and cleaner workplaces.* Reduced air and water emissions benefit communities next to facilities. Consumers benefit from products with less toxic content. Importantly, companies who successfully reduced their toxics use in Massachusetts, where legislation has been in place for almost 20 years, reported that improved worker health and safety was one of the major benefits.<sup>6</sup> Workers in Ontario have considerable exposure to carcinogens in the workplace, as shown in Appendix I, and these exposures could be significantly reduced by a toxics use reduction program.

*Benefit Three: Companies save money from the implementation of pollution prevention plans.* Companies found that they saved money on the purchase of chemicals used in their production processes and on waste disposal.<sup>7</sup> This was the second major benefit reported by companies surveyed in Massachusetts. Although not every company saved money, evaluations of companies in Massachusetts found a combined savings of \$14 million.

*Benefit Four: It promotes the introduction of cleaner, more innovative technologies and the development of greener products.* As companies work to meet the requirements of toxics use reduction laws, many modernize their production practices. Some companies also re-formulate products with non-toxic ingredients, creating new greener products as a result. Industries that make these changes are more efficient and have a competitive advantage over industries in other jurisdictions. They also provide skills and job training for workers in newly-created “green” jobs. Ontario industries could profit from such production improvements, and improve their competitiveness both within Canada and internationally. A toxics use reduction program could also help many manufacturing companies comply with more stringent European rules.

*Benefit Five: It results in lower compliance costs for companies and lower enforcement costs for government agencies.* As a result of toxic use reduction activities, many companies are able to reduce their emissions or lower them below reporting threshold levels, thereby reducing compliance costs. Similarly, reductions in toxic emissions mean

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<sup>6</sup> The Massachusetts Toxics Use Reduction Institute, “Survey Evaluation of the Massachusetts Toxics Use Reduction Program”, Methods and Policy Report No. 14, University of Massachusetts Lowell, 1997.

<sup>7</sup> Ibid. p. iii.

less work for government agencies in monitoring, inspecting and issuing permits for companies. There are also fewer violations and legal costs for both companies and government.

*Benefit Six: It reduces the need for further management of hazardous wastes through treatment, disposal and off-site recycling.* Less toxic wastes, as a result of improvements in pollution prevention, bring about a similar reduction in the need for transporting wastes to recycling facilities, for treatment and for disposal in landfills. It also means fewer chemical spills or accidents are likely to happen on our roads and railways. Ontario currently tries to track 400,000 tonnes of hazardous waste generated annually by companies in the province. A 2005 report, “Business Case to Analyse ASD Options for Hazardous Waste Information Management”, found that a provincial toxics use reduction law would benefit the province by reducing its risk; by reducing the amount of data tracked by Ministry of Environment enforcement staff; and, by reducing the Ministry’s costs in tracking hazardous wastes.<sup>8</sup>

### **3. Ontario Needs a Toxics Use Reduction Act**

There are companies in Ontario that have made significant progress in reducing pollution without the stick of legislation. For example, North American Decal, a medium-sized company in Markham that supplies printed decal products, converted from using solvent-based inks in most of its printing process to ultraviolet inks. This resulted in significant reductions of volatile organic compounds released to the indoor air and during transportation of its ink supply.<sup>9</sup>

However, these kinds of improvements are not routinely done, and, overall, Ontario needs to make much more progress in preventing pollution. The *Environmental Protection Act* and the *Ontario Water Resources Act*, our principle environmental laws, have put the brakes on some polluting activities, but have not persuaded companies to actively pursue pollution prevention.

Despite decades of effort to control pollution in the province, our toxic emissions are strikingly high -- so high, in fact, that Ontario’s reported emissions of toxic chemicals are among the largest of any jurisdiction in North America.

Ontario is second only to Texas when total releases and transfers of pollutants are calculated, according to the most recently published 2004 information from the Commission for Environmental Cooperation (CEC), which monitors Canada, the United

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<sup>8</sup> Deloitte, “Business Case to Analyse ASD Options for Hazardous Waste Information Management”, November 2005.

<sup>9</sup> Environment Canada, “Pollution Prevention – Canadian Success Stories, North American Decal”. Accessible at [www.ec.gc.ca/pp/en](http://www.ec.gc.ca/pp/en)

States and Mexico.<sup>10</sup> These are the toxic substances emitted to air and water, disposed of on land and transferred off-site.

It could be assumed perhaps that Ontario's high emissions levels are due to a higher level of economic activity compared with other jurisdictions. However, the CEC data show that higher levels of economic activity do not necessarily equate with higher levels of pollution. When the different economic activity of states and provinces are taken into account, Ontario's pollutant levels are still relatively higher.

For example, California has the highest Gross Domestic Product (GDP) of any jurisdiction in North America. At #1, its GDP is more than three times the size of Ontario's -- \$1.5 trillion compared to Ontario's \$427 billion in 2004. Yet, California's total pollution releases and transfers are less than one-quarter of Ontario's -- approximately 58 million kilograms in California compared to 277 million kilograms in Ontario.<sup>11</sup>

Even New York State, with an economy second only to California in the North American hierarchy, has a GDP of \$900 billion -- more than twice the size of Ontario's at \$427 billion. New York, however, only produced and transferred 55 million kilograms of pollutants, again much less than Ontario's 277 million.

Massachusetts, known for its pollution prevention work, has a GDP of \$312 billion -- not that much smaller than Ontario's \$427 billion. However, it released and transferred 21 million kilograms of toxic chemicals in 2004 -- less than one-tenth of Ontario's pollution.

Nor can Ontario's high emission levels be explained by a relatively larger number of facilities. For example, Ontario and Ohio have similar numbers of facilities that reported to the CEC in 2004 -- 1,295 facilities in Ontario compared to 1,465 in Ohio. Yet, Ohio's total releases and transfers are 193 million kilograms while Ontario's are 277 million kilograms. Total releases and transfers in Ontario are approximately 30 per cent higher than Ohio's, even though Ohio's air emissions are higher than Ontario's and have given it a reputation as a "dirty" state.

Moreover, Ontario's record on chemicals of concern -- such as carcinogens and reproductive toxins -- is similarly disturbing. These statistics also put Ontario very high up in the rankings. For releases of cancer-causing chemicals to the air, Ontario is the fourth highest emitting jurisdiction in North America behind only Texas, Indiana and Tennessee.

Ontario facilities released more than 3 million kilograms of carcinogens into the province's air in 2004. These include large volumes of well-known carcinogens such as trichloroethylene, ethylbenzene, styrene and formaldehyde. In Massachusetts, only

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<sup>10</sup> Commission for Environmental Cooperation, "Taking Stock: 2004 North American Pollutant Releases and Transfers", Sept. 2007. Accessible at [www.cec.org](http://www.cec.org)

<sup>11</sup> Ibid., Table 4-4, page 50.



150,000 kilograms of carcinogens went into the air.<sup>12</sup> A 2000 analysis of 41 carcinogens used in Massachusetts found an 18% reduction in use and 65% reduction in releases, some of which can be attributed to the toxics use reduction program.<sup>13</sup>

For reproductive toxins released to air, Ontario's record is of even greater concern. Ontario ranks second only to Tennessee releasing more than 4 million kilograms of reproductive toxins into the air in 2004.

By different yardsticks, then, Ontario has a poor track record of polluting. And its poor pollution record is not easily explained by its Gross Domestic Product or the number of facilities reporting.

It reinforces the need for a toxics use reduction strategy. This province, with one of the biggest economies in North America, should be in the same league with the cleanest jurisdictions, and toxics use reduction legislation could help put it there.

#### **4. Existing Toxics Use Reduction Legislation**

Toxics use reduction legislation is a unique approach to reducing toxics. It is not like traditional environmental "control" strategies that rely on approvals, inspections, and fines. Rather, it motivates companies to innovate and implement new environmental practices through pollution prevention planning and technical support.<sup>14</sup>

It encourages companies to see pollution in a new way -- as an expensive commodity that needs reducing to control costs, increase efficiency, and improve workplace safety. Some companies come to see pollution as just product that is in the wrong place. Properly done, toxics use reduction programs provide companies with the motivation, ideas and support to reduce pollution.

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<sup>12</sup> Releases and Transfers 2004: Ontario, Massachusetts and New Jersey, provided by the Commission for Environmental Cooperation, January 2008.

<sup>13</sup> Geiser, Ken, "Massachusetts Toxics use Reduction Program Update", slides presented to the Environmental Carcinogen Use Reduction Symposium, Toronto, February 6, 2007.

<sup>14</sup> O'Rourke, Dara & Eungkyoon Lee (2004) Mandatory Planning for Environmental Innovation: Evaluating Regulatory Mechanisms for Toxics Use Reduction, *Journal of Environmental Planning and Management* 47 (2): 181-200.

Toxics use reduction laws “bypass debates over acceptable levels of toxicity and risks of specific exposure levels and releases. They rest on a simple argument: the use of every toxic chemical should be reduced or eliminated.”<sup>15</sup>

Ken Geiser, Lowell Center for Sustainable Production,  
University of Massachusetts Lowell

Massachusetts has the distinction of being the first jurisdiction to enact a toxics use reduction law, and to develop the institutions and programs to support its effective implementation.

The Massachusetts legislature unanimously passed the Toxics Use Reduction Act in 1989, and now has almost 20 years experience in this field.<sup>16</sup> Its law has been a pollution prevention success story. New Jersey followed suit shortly afterwards passing its Pollution Prevention Act in 1991. A number of other states have enacted legislation promoting pollution prevention as well, but none have been as effective or as well documented as those of Massachusetts and New Jersey. This section provides an overview of the programs in these two states while Section 6 discusses specific features in more detail.

#### **4.1 Massachusetts**

The intention of the *Toxics Use Reduction Act* (TURA) in Massachusetts was to establish toxics use reduction as the preferred means of achieving compliance with environmental laws, as well as to promote the economic viability of companies in the state. Toxics use reduction is defined as:

...in-plant changes in production processes or raw materials that reduce, avoid, or eliminate the use of toxic or hazardous substances or generation of hazardous byproducts per unit of product, so as to reduce risk to the health of workers, consumers, or the environment, without shifting risks between workers, consumers, or parts of the environment.<sup>17</sup>

TURA established a goal of reducing toxic waste generated in the state by 50% by 1997, and achieved this level of reduction in 1998. Beyond the achievement of this goal, over the period from 1990 to 2004 Massachusetts also reduced:

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<sup>15</sup> Ken Geiser, “The Greening of Industry: Making the Transition to a Sustainable Economy”, *Technology Review*, August/September 1991, p.64.

<sup>16</sup> Toxics Use Reduction Institute, “An Overview of TURA”. Accessible at <http://turadata.turi.org>

<sup>17</sup> Definitions, Toxics Use Reduction Act.

- toxic chemical use by 41%;
- toxic wastes by 65% (referred to as byproducts);
- toxic chemicals shipped in products by 58%; and,
- on-site releases by 91%.<sup>18</sup>

TURA has involved more than 1,000 companies in Massachusetts, focussing on the reduction of some 190 chemicals.<sup>19</sup> Firms processing or using any of the reportable toxic chemicals must do three things:

- Report annually to the state on the total amount of chemicals used by the company, the total waste generated, the total toxic chemicals generated in or as products and an economic activity index;
- Prepare a pollution prevention plan to reduce or eliminate these chemicals and update these plans every two years; and,
- Pay an annual fee.

A critical component of Massachusetts' law is the requirement that firms prepare a pollution prevention plan. Pollution prevention plans are based on materials use accounting, a system of evaluating chemical inputs and outputs, and balancing them in the same way a bank account is balanced.

A company is required to design a pollution prevention plan, but not required to implement it. However, experience has shown that most companies implement some or all of their plans. This flexibility allows companies to choose which projects best suit their needs.

Summaries, but not the full plans, are submitted to the state every two years. However, all plans must be certified by a licensed Toxics Use Reduction planner. This certification process ensures that pollution prevention plans meet a high standard established by the state.

Another important element of Massachusetts' toxics use reduction framework is the establishment of institutions that provide technical support and expertise in pollution prevention. As part of TURA, the state established the Toxics Use Reduction Institute, set up at the University of Massachusetts at Lowell. This Institute provides research, training, technical support and public awareness. As well, it trains the Toxics Use Reduction Planners.

Another institute, the Office of Technology Assistance for Toxics Use Reduction (OTA), was also established as part of the Toxics Use Reduction Act. OTA is a non-regulatory office within the Massachusetts' state government's Executive Office of Energy and

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<sup>18</sup> Office of Technical Assistance and Technology, "Toxics Use Reduction". Accessible at <http://www.mass.gov/envir/ota/resources/tur.htm>

<sup>19</sup> Geiser, Ken, "Massachusetts Toxics Use Reduction Program Update", presented at Environmental Carcinogen Use Reduction Symposium, Toronto, February 6, 2007.

Environmental Affairs.<sup>20</sup> It offers free technical support and guidance to industries to help them meet their legislative obligations.

All these activities are paid for by an annual fee levied on companies that are required to report. The fee is a sliding scale based on the number of employees and the number of reportable chemicals.

In 1996, a report, *Evaluating Progress*, assessed the effectiveness of Massachusetts' toxics use reduction program.<sup>21</sup> It found that, as a result of the program, the number of Massachusetts' firms involved in toxics use reduction practices had increased from 30% in 1990 to 75% in 1996. The most frequently reported benefits of the program were 1) cost savings, and 2) worker health and safety improvements.

A study of the costs and benefits of the program found that the benefits exceeded the costs during the period examined in the report – 1990 to 1997.<sup>22</sup> It was estimated that the costs of implementing the program were \$77 million over the 8 year period, and the benefits were \$91 million.

The benefits came from more than \$88 million that companies saved in operating costs and just over \$2 million in federal grants to TURA programs.<sup>23</sup> It did not include the many human health and environmental benefits, such as reduced worker and public health risks from exposure to toxic chemicals. Overall, state industries saved \$14 million.

The report also found that toxics use reduction was becoming the preferred means of compliance with environmental laws, and that 2/3 of the companies at that time implemented recommendations identified in their pollution prevention plans. Some of the firms surveyed stated that toxics use reduction improved their environmental image, with some finding a marketing advantage in it. Others reported reduced regulatory compliance requirements.

Another goal of the Act, which was to strengthen the enforcement of environmental laws, was also achieved under toxics use reduction. The Department of Environmental Protection undertook multi-media inspections that checked companies' compliance with air, wastewater, hazardous waste and toxics use reduction regulations.

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<sup>20</sup> The Department of Environmental Protection which is a regulatory agency within the Massachusetts state government is also part of the Executive Office of Energy and Environmental Affairs.

<sup>21</sup> The Massachusetts Toxics use Reduction Program, "Evaluating Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation", March 1997.

<sup>22</sup> Executive Summary, The Massachusetts Toxics use Reduction Program, "Evaluating Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation", March 1997, p v.

<sup>23</sup> Ibid.

## 4.2 New Jersey

Similar to Massachusetts' TURA, New Jersey's *Pollution Prevention Act* requires all companies that report under the rules of the Toxics Release Inventory (TRI) to develop pollution prevention plans. Like Massachusetts, the Act does not require companies to implement them.<sup>24</sup>

The initial plans and summaries must be revised five years later, and every subsequent fifth year. Plan summaries are submitted to the Office of Pollution Prevention of the New Jersey Department of Environmental Protection (DEP). They must also be accompanied by progress reports documenting how well the facility has done in meeting its pollution prevention goals.<sup>25</sup>

In New Jersey, it is mandatory that facilities use a materials accounting system to understand and evaluate their production processes. This means that companies must quantify the volume of hazardous substances that enter a facility, track their use through the industrial process, and document the quantities that leave the processes as part of the product or as a "non-product" output. New Jersey uses the term "non-product" output to describe the quantity of a chemical that was generated before storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use in a product.<sup>26</sup> It is calculated by adding on-site releases, managed on-site and off-site transfers.

An evaluation of the program in May 1996 found that planning was successful in leading companies to identify pollution prevention opportunities.<sup>27</sup> The authors concluded that "a majority of facilities found planning worthwhile and found benefits beyond reduction goals and fulfilling regulatory requirements".<sup>28</sup> These included inventories of processes not previously examined, a greater understanding of processes and a background framework to propose capital investment projects.

An important conclusion of this evaluation was that the average planning costs were lower than the average savings. Individual facilities estimated that they would expect to save an average of \$116,000 per year.

DEP reports show that industries in New Jersey made significant reductions in toxics use and waste when quantities of toxic chemicals were adjusted for production. In spite of a

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<sup>24</sup> New Jersey Technical Assistance Program, The New Jersey Pollution Prevention Act. Accessible at [www.ycees.njit.edu/njtap/njppa.htm](http://www.ycees.njit.edu/njtap/njppa.htm)

<sup>25</sup> Ibid. Also New Jersey Administrative Code, title 7, Chapter 1K, Pollution Prevention Program Rules.

<sup>26</sup> New Jersey Department of Environmental Protection, Industrial Pollution Prevention in New Jersey: A Trends Analysis of Materials Accounting Data 1994 to 2004, Spring 2007.

<sup>27</sup> Natan, Thomas E. et al., Evaluation of the Effectiveness of Pollution Prevention Planning in NJ, A Program-Based Evaluation – May 1996. Accessible at [www.state.nj.us/dep/opppc/reports/hamp1.htm](http://www.state.nj.us/dep/opppc/reports/hamp1.htm)

<sup>28</sup> Ibid. Summary.

25 per cent increase in production levels, facilities still reduced their total generation of hazardous waste by 45 per cent from 1994 to 2004.<sup>29</sup>

## 5. New and Proposed Chemical Laws

In addition to the toxics use reduction laws in place in Massachusetts and New Jersey, many other states are pioneering initiatives designed to reduce toxics. Ontario has the opportunity to capitalize on the forward-thinking ideas being proposed by other jurisdictions, and incorporate them into a made-in-Ontario toxics use reduction law.

### 5.1 Massachusetts' Safer Alternatives Bill

Massachusetts itself is expected to pass another piece of legislation that builds on the success of the Toxics Use Reduction Act. The legislation, *An Act for a Healthy Massachusetts: Safer Alternatives to Toxic Chemicals*, aims to promote safer alternatives to the most hazardous chemicals currently in use.<sup>30</sup>

As it was originally proposed, it establishes a Safer Alternatives Program that will replace toxic chemicals with safer substitutes using a step-by-step approach. Where TURA applies to facilities using large quantities of toxic chemicals, this Program will ask all companies – large and small—to make the shift to safer alternatives.

Asking manufacturers to make safer products is nothing extraordinary especially when proven, effective alternatives to toxic chemicals exist. Massachusetts is poised to be the leader in the nation for promoting toxic substitution...If we can keep toxics out of everyday products, then we will be safeguarding the health of our environment and our children.

Senator Pamela Resor, Co-Chair of the Environment Committee

The Act initially targets ten priority chemicals of concern in Massachusetts. These are lead, trichloroethylene, perchloroethylene, dioxins and furans, hexavalent chromium, organophosphate pesticides, 2,4-D, penta-BDE (polybrominated diphenyl ethers) and DEHP (diethylhexylphthalate).

<sup>29</sup> New Jersey Dept. of Environmental Protection, "Industrial Pollution Prevention in New Jersey: A Trends analysis of Materials Accounting Data 1994-2004", Spring 2007, p. 20. See also Environment Reporter, "State's Use, Release of Toxic Chemicals Fell Despite Production Gains, Report Shows", March 30, 2007.

<sup>30</sup> A version of the Bill was passed by the Massachusetts Senate in January 2008, and then proceeded to committee. The Bill described here is the one originally proposed to the Senate which has since been amended by the Senate and may be changed again. The status of the Bill may be checked at [www.openmass.org/bills/show?bill\\_num=2481&chamber=Senate](http://www.openmass.org/bills/show?bill_num=2481&chamber=Senate)

Within 2 years, the Toxics Use Reduction Institute will evaluate the availability of alternatives for these priority toxic substances in a Safer Alternatives Assessment Report. All of them, with the exception of the pesticides, have been designated in Canada as “toxic” under the *Canadian Environmental Protection Act* (CEPA), and are on Canada’s List of Toxic Substances.

Within 180 days of the publication of the Safer Alternatives Assessment Report, the Bill requires that the Executive Office of Environmental Affairs develop and implement a chemical action plan for each priority chemical. Chemical Action Plans will have timetables for substitutions and a plan for state-wide implementation. Firms must then prepare and implement facility-specific substitution plans for each priority substance. If safer alternatives are not technically or economically feasible, companies may apply for waivers.

In addition to these ten chemicals, more chemicals may be targeted for substitution through a process set up by the Act. A Science Advisory Board would be formed to develop a Preliminary Chemicals Categorization List by categorizing chemicals commonly used in Massachusetts into 4 tiers. These will be: chemicals of high concern, chemicals of concern, chemicals of unknown concern and chemicals of no concern. The Board will draw on existing lists, such as the chemicals of concern identified under Canada’s categorization work mandated by CEPA.<sup>31</sup>

Under this Act, the state will also provide assistance for businesses and employees. A new Business Transitions Assistance Program will help businesses switch to safer alternatives. It will include technology evaluation, direct grants and loans to businesses for costs required to implement safer alternatives, technical support and research, and development of safer programs.

For workers that might experience job losses as a result of substitution plans, the Bill requires the Department of Labor and Workforce Development to work with other state agencies to plan for any job losses, and ensure a just and fair transition.

## **5.2 Maine’s Promotion of Safer Chemicals in Consumer Products**

Maine is also moving ahead on strategies to reduce toxic chemicals, particularly in consumer products. In the last few years, Maine has tried to eliminate or phase out mercury by banning the sale of mercury switches for cars, as well as mercury in thermometers or other measuring devices.<sup>32</sup>

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<sup>31</sup> Government of Canada, Chemicals Management Plan. Accessible at [http://www.chemicalsubstanceschimiques.gc.ca/plan/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/plan/index_e.html)

<sup>32</sup> Department of Environmental Protection, State of Maine, “Mercury: A Significant Environmental Problem”. Accessible at [www.maine.gov/dep/mercury/](http://www.maine.gov/dep/mercury/)

In 2006, the Governor of Maine, John Baldacci, set up a task force to address the problem, and in December 2007, the Task Force to Promote Safer Chemicals delivered its report. The Task Force recommended that the state:

- adopt and publicize a list of chemicals of high and moderate concern based on inherent properties;
- establish the authority to require consumer product manufacturers to disclose which chemicals of high and moderate concern are in their products;
- develop a publicly accessible database of information about chemicals of concern and which products contain them, as well as information on safer alternatives; and,
- establish the authority to restrict the use of chemicals of high concern in consumer products when safer alternatives are available.

As a result of this initiative, the Maine Legislature passed *An Act to Protect Children's Health and the Environment from Toxic Chemicals in Toys and Children's Products* in April 2008.<sup>33</sup> The Act requires the Department of Environmental Protection to create a regularly updated list of at least 100 priority chemicals that are of high concern with respect to the exposure of children and pregnant women. Manufacturers, which use these chemicals in their products, would be required to disclose them to the state. In addition, the state will establish a process for replacing these chemicals with safer alternatives.

A similar bill -- the *Children's Safe Products Act of 2008* -- was passed in Washington State in April 2008.<sup>34</sup> In addition to requiring manufacturers of children's products to report what high priority chemicals their products contain, this Act prohibits the sale of children's products containing lead or cadmium at more than 40 parts per million or containing phthalates.

Maine is also supporting research in the development of green chemistry products, particularly bio-based plastics, at the University of Maine.

Gone are the days that protecting our people and the environment run counter to business interests.

Governor John Baldacci, Maine

<sup>33</sup> The text of this Act may be found at:  
<http://janus.state.me.us/legis/LawMakerWeb/externalsiteframe.asp?ID=280027552&LD=2048&Type=1&SessionID=7>

<sup>34</sup> The text of this Act may be found at:  
<http://apps.leg.wa.gov/billinfo/summary.aspx?bill=2647&year=2007>



### 5.3 States' Green Chemistry Initiatives

Like Maine, several states are looking at ways to promote the development of green chemistry and give their states an advantage in the growing demand for greener products and technologies. For many, institutions such as the Office of Technology Assessment or the Toxics Use Reduction Institute in Massachusetts are models. The following are some examples:

- New York State is creating a Pollution Prevention Institute at Rochester Institute of Technology. Recognizing that no institution in the state offers a comprehensive set of services to promote pollution prevention, toxics use reduction and green chemistry, New York has passed a law that establishes a pollution prevention institute.<sup>35</sup> The institute will design and test “green” manufacturing methods and provide technical assistance to businesses for pollution production methods that will make them more productive.
- Michigan’s Governor has signed an Executive Order to establish a Green Chemistry Support Program. This program will coordinate research, development, demonstration, education and technology transfer in the State.
- California is developing a set of policies to promote green chemistry. This is in response to a 2008 report from the University of California at Berkeley to the Legislature that found the United States is falling behind Canada and Europe in the management of toxic chemicals. The state’s Environmental Protection Agency has proposed more than 800 ideas that will form the basis of a green chemistry strategy.<sup>36</sup>

## 6. Essential Elements of a Toxics Use Reduction Law for Ontario

Drawing on the experience of other jurisdictions and the innovative ideas being proposed or implemented for toxics use reduction, we have identified the most necessary and desirable elements of a toxics use reduction and safer alternatives law for Ontario. These elements are also the foundation of our model law, the *Act for a Healthy Ontario: Toxics Use Reduction and Safer Alternatives Act*.

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<sup>35</sup> Media Release, “Governor Spitzer Announces Rochester Institute of Technology to Host Pollution Prevention Institute”, Governor’s Office, New York State, February 29, 2008.

<sup>36</sup> California Environmental Protection Agency, “California Green Chemistry Initiative, Phase 1: A compilation of Options”, January 2008. Accessible at [www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/index.cfm](http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/index.cfm)

## 6.1 Goals

It is important to set clear and ambitious goals for toxics use reduction. Clear goals can galvanize efforts and spur innovation. Clear goals also provide benchmarks for evaluating the success of toxics use reduction legislation and programs.

Massachusetts' first target was a 50% reduction in toxic waste in the state by 1997 -- 8 years after the legislation was passed.<sup>37</sup> Similarly, New Jersey's goal was to reduce hazardous non-product output generation by 50% *and* achieve a significant reduction in toxics use over a 5-year period. In addition to waste reduction, Massachusetts also aspired to enhance the capacity of state businesses to grow and prosper.

Both states have met these goals, and gone beyond them to achieve other significant reductions in toxic chemical use and release. In New Jersey even though production increased, gains in reducing toxic chemicals per unit of output resulted in an overall reduction in the use of hazardous chemicals in the state.

Companies are also encouraged to set goals or targets for reductions within their own facilities and write them into their pollution prevention plans.

**Recommendation #1:** Ontario should adopt an overall goal for the province of a 50% reduction in the *release* of toxic substances in the province within 5 years of the passage of the legislation.

In addition, we recommend a 20% reduction in the *use* of toxic substances in the province within 5 years after the first mandated reporting period, and a 40% reduction in use within 10 years.

## 6.2 Definition of Toxics Use Reduction

The definition of toxics use reduction will determine the way in which pollution prevention activities are performed in the province. It is important, therefore, that a new provincial law defines toxics use reduction in a way that approves pollution prevention activities which will contribute to reducing, rather than increasing, harm to the environment and people's exposures to toxic chemicals.

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<sup>37</sup> Massachusetts Toxics Use Reduction Act, Chapter 21I, Section 13.

The Canadian government defines pollution prevention as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment".<sup>38</sup>

Pollution prevention methods include:

- substituting a less or non-hazardous substance for a hazardous substance used in a production process;
- changing the design or formulation of a product;
- changing the equipment or the process of making a product;
- improving the operation and maintenance of existing production processes, including spill and leak prevention; and,
- on-site reuse, recycling or recovery of hazardous substances within a production process.<sup>39</sup>

Pollution prevention does not include incineration, energy recovery, release into the environment, off site recycling or end-of-pipe treatments.<sup>40</sup>

**Recommendation #2:** New Ontario legislation should define “toxics use reduction” to mean --

In-plant changes in the production process of raw materials that reduce, avoid, or eliminate the use of toxic substances or the generation of toxic substance byproducts per unit of product, so as to reduce risks to the health of the public, workers, consumers, or the environment, without shifting risks between the public, workers, consumers, or parts of the environment.

Toxics use reductions shall be achieved through input substitution, product reformulation, production process redesign or modification, production process modernization, improved operation and maintenance of production process equipment and methods, or recycling, reuse, or extended use of toxic substances by using equipment or methods that become an integral part of the production process of concern.

Toxics use reduction does not include incineration, transfer from one medium of release to other media, off-site or out-of-production process waste recycling, or methods of end-of-pipe treatment of toxic substances as waste.

<sup>38</sup> Environment Canada, “Progress in Pollution Prevention 2001-2002”, Accessible at [www.ec.gc.ca/p2progress/2001-2002/](http://www.ec.gc.ca/p2progress/2001-2002/)

<sup>39</sup> This description of pollution prevention methods is drawn from New Jersey Dept. of Environmental Protection “Industrial Pollution Prevention Trends in New Jersey”, December 1996 by Michael Aucott et al. and Environment Canada “National Pollutant Release Inventory: About the NPRI 1988”. Accessible at [www.dsp-psd.pwgsc.gc.ca](http://www.dsp-psd.pwgsc.gc.ca)

<sup>40</sup> The *Canadian Environmental Protection Act* does include provisions for pollution prevention plans. However, this provision has only been applied to approximately 6 substances, and is substance-specific. It is not a pollution prevention planning strategy aimed at the overall reduction of the use and release of toxic substances.

### **6.3 Lists of Reportable Chemicals**

In order to determine whether progress is being made in reducing toxic chemicals at individual facilities or province-wide, companies must report annually on toxics use and releases from their facilities.

In Massachusetts and New Jersey, the requirements for reporting are closely linked to the requirements under the U.S. federal Toxics Release Inventory (TRI) to report chemical releases and transfers.<sup>41</sup> Any company in New Jersey or Massachusetts, which is required to report emissions of specific substances to the TRI, is also required to report annually on their use and release of these chemicals to the respective state governments.

Facilities that must report to TRI are those with 10 or more full time employees, and those within specific designated sectors that manufacture or process 25,000 pounds or more of a reportable substance, or otherwise use 10,000 pounds or more of a reportable substance. These thresholds correspond to approximately 11 tonnes, and approximately 4.5 tonnes respectively.

For certain substances, lower thresholds for reporting have been put in place. Under revised TRI requirements that came into effect in 2000, lower thresholds apply for persistent, bioaccumulative and toxic substances.<sup>42</sup> These new thresholds may be 100 pounds (45 kilograms) or 10 pounds (4.5 kilograms).

Lead, for example, is now being reported above a threshold of 100 pounds (45 kg), and mercury at 10 pounds per year (4.5 kg). For dioxin and dioxin-like compounds, any of the 17 compounds must be reported in grams and it can be as low as 0.1 gram.

In Canada, reporting of pollutant releases and transfers is done under the National Pollutant Release Inventory (NPRI). NPRI requires reporting by all facilities with 10 or more employees, and all facilities which manufacture, process or otherwise use 10 tonnes (10,000 kilograms) or more of a listed substance.

TRI requires reporting for about 600 substances, while companies in Canada report about 324 substances on the NPRI list. Thresholds for reporting releases and transfers of some persistent, bioaccumulative and toxic substances have also been lowered under NPRI.

Because NPRI does not capture all the toxic chemicals of concern in Ontario, it will be necessary to create an expanded list of reportable substances under a new Ontario law. For a comprehensive list of reportable substances that would be candidates for reduction,

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<sup>41</sup> The TRI is part of the U.S. federal Emergency Planning and Community Right to Know Act of 1986, Section 313.

<sup>42</sup> Environmental Protection Agency, Toxics Release Inventory Program. Accessible at [www.epa.gov/tri/](http://www.epa.gov/tri/)

substances from other lists of concern should be added to the NPRI list of reportable substances

The Ontario list should include high hazard substances identified by the federal government under its Chemicals Management Plan.<sup>43</sup> Health Canada and Environment Canada completed the exercise of categorizing many of the chemicals in use in Canada, fulfilling obligations imposed by the *Canadian Environmental Protection Act*. Chemicals have been designated as high hazard, medium hazard or low hazard, or, alternatively, of no concern. The government found that 4,300 chemicals required further action.<sup>44</sup>

The 193 substances on the high hazard list are being considered for inclusion in the list of reported chemicals under NPRI. We recommend that the government of Ontario add the chemicals identified on the high hazard list as reportable substances if they are not currently being reported under NPRI, and if they are used in manufacturing in Canada or imported in products.

In addition, the Ontario list should include carcinogens and reproductive toxins identified by the International Agency for Research on Cancer (IARC), from California's *Safe Drinking Water and Toxic Enforcement Act of 1986* (known as Proposition 65), and from the U.S. National Toxicology Program.<sup>45</sup>

Concerns have also been raised by various groups and individuals about carcinogens and reproductive toxins used by facilities in Ontario and public exposure to these chemicals. It has been suggested that Ontario reduce exposures of its citizens to these chemicals of particular concern to health. In July 2007, for example, The Cancer and Environment Stakeholder Group released its report on "Cancer and the Environment in Ontario: Gap Analysis on the Reduction of Environmental Carcinogens".<sup>46</sup> This report identified toxics use reduction as a framework that would help reduce environmental carcinogens.

Therefore, we recommend that a process be set up by the government that would identify those carcinogens and reproductive toxins that are used in Ontario from the IARC, Proposition 65 and National Toxicology Program lists that are not already covered by NPRI reporting or on the high hazard list, and add them to a list of reportable substances for Ontario.

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<sup>43</sup> Government of Canada, Chemicals Management Plan. Accessible at [http://www.chemicalsubstanceschimiques.gc.ca/plan/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/plan/index_e.html)

<sup>44</sup> Prime Minister's Office, "Canada's new government improves protection against hazardous chemicals", December 6, 2006.

<sup>45</sup> Under California's Safe Cosmetics Program, a list of chemicals has been created that includes the chemicals listed under these three lists, as well as chemicals identified by the U.S. Environmental Protection Agency as known or suspected of causing cancer or reproductive harm. It identifies more than 700 chemicals. This list can be found at [www.dhs.ca.gov/ohb/Cosmetics](http://www.dhs.ca.gov/ohb/Cosmetics)

<sup>46</sup> The Cancer and Environment Stakeholder Group, "Cancer and the Environment in Ontario: Gap Analysis on the Reduction of Environmental Carcinogens", July 20, 2007.

Furthermore, in order to ensure that hazardous chemicals continue to be identified and reduced in the Ontario environment, the government should institute an ongoing process that would add other hazardous chemicals to Ontario's list of reportable substances. In particular, the 2,600 substances, identified by the federal government as medium hazard chemicals under the Chemicals Management Plan, should be added to the list in a second phase. This should be done in a time frame of no longer than 5 years after the passage of the toxics use reduction bill.

**Recommendation #3:** Ontario should establish a list of reportable chemicals as part of its toxics use reduction law that includes:<sup>47</sup>

- the National Pollutant Release Inventory (NPRI) as the basic list of substances that companies must report;
- the 193 high hazard substances identified under the federal government's Chemicals Management Plan;
- carcinogens identified by the International Agency for Research on Cancer (IARC), carcinogens listed by the U.S. National Toxicology Program, and substances listed by the California *Safe Drinking Water and Toxic Enforcement Act* of 1986 (known as Proposition 65) as carcinogens and reproductive toxins, which are not already listed on the NPRI and which are used in Ontario.

A second phase of additions to the Ontario list of reportable chemicals should include medium hazard chemicals as identified by the federal government's Chemicals Management Plan. This should be done within 5 years of the passage of Ontario's legislation.

## **6.4 Reporting Thresholds**

As we have noted, Canadian facilities, which manufacture, process or otherwise use 10 tonnes or more of a listed substance, are required to report their releases of these chemicals under NPRI. However, reporting thresholds should be established not just on the basis of quantity, but also on the basis of hazard.

Both NPRI and TRI have recognized this -- that for high hazard chemicals, these reporting thresholds are too high. As a result, lower thresholds are applied for some chemicals. Under NPRI, the thresholds for reporting arsenic, lead, and hexavalent chromium are 50 kilograms. Mercury and cadmium must be reported at levels above 5 kilograms. For dioxins and hexachlorobenzene, which are byproducts of industrial

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<sup>47</sup> In total, this list could theoretically include approximately 1,200 chemicals. However, the duplication of some chemicals on these lists would need to be considered, and this would probably bring the number of chemicals down.

emissions, there is no threshold. Any detectable amount of these chemicals must be reported.

Under recent amendments to the Massachusetts' Toxics Use Reduction Act, the principle of lowering reporting thresholds for higher hazard chemicals has also been recognized. In the amendments, reporting thresholds for higher hazard chemicals have been set at 1,000 pounds (450 kilograms).<sup>48</sup> For chemicals that are persistent, bioaccumulative and toxic, even lower reporting thresholds have been set at 100 pounds (45 kilograms). Certain chemicals will be designated under the legislation for reporting at these levels.<sup>49</sup> These lower levels are close to the NPRI reporting thresholds for arsenic, lead and hexavalent chromium.

Therefore, for the additional substances that we recommend be listed along with the core NPRI list – the high hazard list under Canada's Chemicals Management Plan as well as the IARC, National Toxicology Program and Proposition 65 listed carcinogens and reproductive toxins, we have concluded that the 10 tonne (10,000 kilograms) reporting threshold is too high.

Because of their particularly hazardous properties, these chemicals pose a risk to both human health and the environment, and lower reporting thresholds should be applied. In Canada, a precedent for this has already been established with lead, mercury, and dioxin. We recommend, therefore, that these chemicals – those that are carcinogenic, reproductive toxins, persistent, bioaccumulative and toxic chemicals -- should be reported at a threshold of 50 kilograms.

In addition, where there are extremely toxic byproducts emitted as a result of industrial processes, like dioxin or hexachlorobenzene, the government should also consider requiring reporting of these chemicals in any detectable amount.

**Recommendation #4:** The threshold level, at which high hazard chemicals should be reported, should be lower than the established NPRI reporting threshold of 10 tonnes or 10,000 kilograms. Under Ontario's law, reporting thresholds should be 50 kilograms for chemicals 1) which are carcinogenic or toxic to reproduction, and, 2) which are persistent, bioaccumulative and toxic.

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<sup>48</sup> Section 25(A), An Act Amending the Toxics Use Reduction Act.

<sup>49</sup>The process of lowering the thresholds for certain chemicals began with the creation of the higher/lower hazard lists by TURA's Science Advisory Board in 2003. Two chemicals have been selected for reporting at the 1,000 pound threshold, while others are in the process of being considered.

## 6.5 Who Would Report

Originally, when TRI was introduced in the United States, all manufacturing industries were required to report their transfers and emissions of toxic chemicals. As a result, Massachusetts' *Toxics Use Reduction Act* (TURA) at first applied primarily to manufacturing industries.

In 1998, the Toxics Release Inventory was expanded to include facilities in other sectors.<sup>50</sup> When the TRI expanded, Massachusetts and New Jersey also extended their legislation to include the same industrial sectors. As a result, the sector groups that are currently subject to toxics use reduction legislation in these states are manufacturing, mining, transportation including pipelines, wholesale trade in durable and non-durable goods and certain services such as automotive repairs.<sup>51</sup>

NPRI, however, requires all facilities meeting the criteria to report.<sup>52</sup> In Canada, therefore, additional sectors, such as the oil and gas sector, pits and quarries, sewage treatment plants, and incinerators must all report, although they are not required to do so in the United States.

Like Massachusetts, Ontario's toxics use reduction law should also cover the manufacturing sector. In addition, the law should cover all sectors that report to NPRI. This would include sectors not covered under the TRI such as the oil and gas sector, pits and quarries, sewage treatment plants, and incinerators.

Moreover, Ontario should consider expanding the facilities that would be governed by the legislation by reducing the criteria for inclusion to 5 employees, rather than 10. Although these facilities may seem small, their releases and uses of toxic chemicals may result in toxic exposures as significant as companies with larger numbers of employees.

**Recommendation #5:** Ontario's toxic use reduction law should cover all sectors that report to NPRI. This includes manufacturing, mining, forestry, electric utilities, hazardous waste treatment and solvent recovery facilities, chemical wholesalers, and petroleum bulk terminals, as well as the oil and gas sector, sewage treatment plants, and incinerators.

In addition, all companies with 5 or more full-time employees using more than threshold

<sup>50</sup> New Jersey Department of Environmental Protection, "Industrial Pollution Prevention in New Jersey: A Trends Analysis of Materials Accounting Data 1994 to 2004", Spring 2007, p. 15.

<sup>51</sup> These correspond with the SIC codes 10-14 for mining, 20-39 for manufacturing, 40, 44-49 for transportation, wholesale trades (50 and 51) and service industries 72,73,75 and 76. They are identified in Chapter 21I: Section 10, Toxics Use Reduction Act.

<sup>52</sup> Environment Canada, "National Pollutant Release Inventory: About the NPRI", 1998.



amounts of listed chemicals should be required to report their use of these chemicals and should be governed by the legislation.

## **6.6 Pollution Prevention Plans**

Pollution prevention plans are an essential element for implementing toxics use reductions and finding safer alternatives. Companies that do pollution prevention plans are able to identify significant opportunities for reducing or controlling toxic chemicals in their processes, and for changing to safer chemicals.

New Jersey's *Pollution Prevention Act* requires about 700 facilities, which are the largest users of hazardous substances, to develop pollution prevention plans, maintain copies of the plans at their facilities and submit summaries of plans to the Department of Environmental Protection every 5 years. The Act sets out very specific and detailed requirements for the content of the plans. The plans must:

- document the use and generation of hazardous substances from each major production process within a facility;
- establish pollution prevention goals; and,
- identify prevention strategies or practices that will achieve these goals.

Facilities are not required to implement the plans they develop. The rationale was that:

In making the planning mandatory and the implementation voluntary, the pollution prevention regulations assumed that the economic benefits of implementation would become apparent and facilities would voluntarily implement them. Also, voluntary implementation would not discourage facilities from establishing ambitious goals.<sup>53</sup>

In Massachusetts, pollution prevention plans must include:

- a corporate toxics use reduction policy statement;
- an analysis of current and projected toxics use, by-product generation and emissions;
- a list of available toxic use reduction options, an evaluation of the options that appear to be technically and economically feasible, the anticipated costs and anticipated savings; and,
- a description and a schedule for the options to be implemented.

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<sup>53</sup> Aucott, Michael, Debra Wachspress and Jeanne Herb, "Industrial Pollution Prevention Trends in New Jersey", December 1996.

At the beginning of the pollution prevention planning process, Massachusetts companies must notify their employees. In some companies, the involvement of employees in the pollution prevention planning process has led to the identification of significant toxics use reduction opportunities.<sup>54</sup>

Like New Jersey, Massachusetts' companies do not have to submit the plans to the Department of Environmental Protection, and are not legally obliged to implement them. Only summaries of pollution prevention plans are submitted every two years. Plans must also be updated every two years at least twice. After the initial plan and two updates have been done, companies can prepare a resource conservation plan or an environmental management system in lieu of a toxics use reduction plan.

The mandatory preparation of plans and voluntary implementation has been a successful strategy in reducing toxics, particularly in Massachusetts. Massachusetts found that 70% of firms identified toxics use reduction options in their plans. And, even though implementation was not mandatory, 81% of these firms implemented at least some of these options.

Even in Ontario, there has been some experience with pollution prevention planning. In 1998, the City of Toronto introduced a new Sewer Use By-law that required pollution prevention planning in order to improve the quality of sewage sludge.

The Sewer Use By-Law established a list of 38 chemicals and set threshold limits for their release into City sewers. The by-law required any industry that discharged one of these pollutants into the sewer system to prepare a pollution prevention plan, and submit a summary of the plan to the City.

Pollution prevention plans included a description of pollution prevention options for regulated pollutants, and an evaluation of those options. As well, companies were required to include a list of possible three- and six-year targets to reduce or eliminate these pollutants. Updates were required every two years. The City has now reviewed more than 4,000 pollution prevention plans.

As a result of the bylaw, companies have reduced toxic substances being discharged to the Toronto sewers. For example, some auto body refinishing operations have switched to water-based paints. Discharges of mercury to the sewage treatment plants have been reduced by 40 per cent, and continue to decline, and there have also been significant reductions in arsenic, molybdenum and selenium.<sup>55</sup> As well, the bylaw put the City of Toronto in a better position to meet subsequent federal regulations of sewage treatment plant effluents.<sup>56</sup>

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<sup>54</sup> Roelofs, Cora R. Rafael Moure-Eraso and Michael J. Ellenbecker (2000) Pollution Prevention and the Work Environment: The Massachusetts Experience, *Applied Occupational and Environmental Hygiene* 15(11), p. 850.

<sup>55</sup> Personal Communication with Vijay Ratnaparkhe, Pollution Prevention Officer, City of Toronto, Toronto, Ontario, August 2004.

<sup>56</sup> Ratnaparkhe, Vijay and Diane Sertic (2006) The City of Toronto's Sewer Use By-law and Pollution Prevention, *Journal of Cleaner Production* 14 (6-7): 580-588. The By-Law helped to better position the

**Recommendation #6:** Under Ontario's toxics use reduction legislation, the development of pollution prevention plans must be made mandatory. However, decisions on the implementation of the plan would be up to the facility.

At a minimum, pollution prevention plans should include:

- an analysis of existing or projected processes that use or generate toxic substances or wastes;
- the identification of available toxics use reduction options, and an evaluation of the options that appear to be technically and economically feasible;
- the identification of options to be implemented and a timetable for their implementation;
- the establishment of numeric or other specific performance goals; and,
- the implementation of selected options.<sup>57</sup>

Plans should be revised every two years on an ongoing basis.

## **6.7 Materials Accounting**

Materials accounting is a different and more comprehensive way of tracking hazardous chemicals. It has been identified by companies that have done pollution prevention plans as *the most valuable* component of the planning process.<sup>58</sup>

A materials accounting system requires facilities to track and report on the fates of hazardous substances that they bring into their facility. The requirements go beyond the reporting requirements of the TRI and the NPRI, which ask only for information on releases and transfers from a facility.

In contrast, for materials accounting, companies must calculate all the materials brought on site, used and produced at the facility, and ensure that the total quantity of outputs matches the total inputs. Outputs include materials shipped off-site as product or waste, released to air, water or land, materials transferred or treated on site and the remaining inventories.

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City of Toronto in addressing the Canadian Environmental Protection Act P2 Planning notice for Inorganic Chloramines and Chlorinated Wastewater Effluents, published in 2004.

<sup>57</sup> The recommended elements of a pollution prevention plan are adapted from the National Pollution Prevention Roundtable, Facility Planning Workgroup White Paper, "Facility Pollution Prevention Planning Requirements: An Overview of State Program Evaluations", 1997. Accessible at [www.p2.org/inforesources/facil-pl.html](http://www.p2.org/inforesources/facil-pl.html)

<sup>58</sup> Geiser, Ken, "Massachusetts Toxics Use Reduction Program Update", Environmental Carcinogen Reduction Use Symposium, Toronto, February 6, 2007.

Materials accounting is necessary to planning toxics use reductions. It is the means by which managers understand how chemicals are used in facilities, and their potential impact on the community. Studies show that prior to doing pollution prevention plans, many facility managers were unaware of the volumes of chemicals used in their operations.<sup>59</sup>

Both Massachusetts and New Jersey require facilities to provide the state with materials accounting data. In New Jersey, materials accounting data is reported as a Release and Pollution Prevention Report that includes approximately 20 different quantities, showing the flow of substances through a facility.<sup>60</sup> Materials accounting requirements forced many New Jersey industries to calculate efficiencies for the first time.

Furthermore, in both states this information is made available to the public. New Jersey, for example, publishes a Community Right to Know Annual Report that summarizes the materials accounting data submitted by facilities in their state. In Massachusetts, this data can be found on the website of the Toxics Use Reduction Institute.<sup>61</sup>

Although many industries initially challenged this type of reporting as an unnecessary intrusion by government, consultants evaluating the Massachusetts program found that materials accounting and development of toxics use reduction options were rated as the “most valuable” components of the program.<sup>62</sup>

Materials accounting is also valuable to government regulators because of the unique information it provides. The New Jersey Department of Environmental Protection uses the data in two important ways:

- To identify priorities for programs by conducting analyses of significant contributors to releases, variations over time, geographic patterns and other analyses; and
- To provide a better understanding of facility operations during permit reviews and compliance inspections.<sup>63</sup>

The introduction of materials accounting in Ontario would be a significant advance over the current reporting requirements in Canada. Canada’s NPRI reporting does not include such a complete accounting. For example, it does not include reporting on materials transported into and used by the facility, although the federal government did collect

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<sup>59</sup> O’Rourke, Dara & Eungkyoon Lee (2004) Mandatory Planning for environmental Innovation: Evaluating Regulatory Mechanisms for Toxics Use Reduction, *Journal of Environmental Planning & Management*, Vol. 47, No. 2, p. 192.

<sup>60</sup> N.J. Dept. of Environmental Pollution, “Industrial Pollution Prevention in New Jersey: A Trends Analysis of Materials Accounting Data 1994 to 2004” Spring 2007.

<sup>61</sup> TURADData, “A community guide to toxics information from Massachusetts’ Toxics Use Reduction Act. Accessible at [www.turadata.turi.org/](http://www.turadata.turi.org/)

<sup>62</sup> Massachusetts Toxics Use Reduction Institute, “Survey Evaluation of the Massachusetts Toxics Use Reduction Program”, *Methods and Policy Report No. 14*, 1997, p. 18.

<sup>63</sup> *Ibid.* p. 10.

some use data in 1986 in support of the categorization work under the *Canadian Environmental Protection Act*. Nor does it require reporting on materials incorporated into products shipped out of the facility. Some facilities reporting to the NPRI, however, already collect this data, and use them to calculate their releases and transfers.

Ontario's Ministry of the Environment could benefit enormously from having materials accounting data from major facilities. This information allows government agencies to evaluate facilities and assess priorities for permit reviews, for compliance inspections and for technical assistance. In New Jersey, for example, these data have shown which facilities were out of compliance, and triggered state efforts to reduce emissions.<sup>64</sup>

Like the NPRI data, the materials accounting data should be available to the public on a facility-specific and chemical-specific basis on the Internet, as it is in Massachusetts and New Jersey.

**Recommendation #7:** The reporting of materials accounting data to the government on an annual basis, along with emissions reporting, should be a required element in Ontario's toxics use reduction law. In addition, materials accounting data should be made public by the government, and this information should be available on the Internet on a facility-specific and chemical-specific basis, as it is in Massachusetts and New Jersey.

## **6.8 Pollution Prevention Planners**

An important feature of the Massachusetts' framework for pollution prevention plans is the requirement that plans be approved by a state-certified toxics use reduction planner. Planners are trained at the University of Massachusetts to understand industrial processes and to recognize opportunities for pollution prevention.

The requirements that certified planners approve plans ensure that industries are held to a certain standard of accountability for their pollution prevention work, and that longer term economic benefits of pollution prevention investments are considered. They also give facilities the advantage of the knowledge of best practices, including safer chemicals and processes, that a trained planner brings to the discussion.

As well, planners can also contribute to improvements in the workplace. Although toxics use reduction activities in Massachusetts have resulted in healthier workplaces, a study found that these improvements were an indirect, rather than a direct, result of these

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<sup>64</sup> New Jersey Department of Environmental Protection, *Industrial Pollution Prevention in New Jersey: A Trends Analysis of Materials Accounting Data 1994 to 2004*, p. 10.

activities. It concluded that worker health and safety issues should be more integrated into pollution prevention activities.<sup>65</sup>

Ontario could build on Massachusetts' experience, and educate pollution prevention planners not only in pollution prevention opportunities but also in workplace health and safety. This would ensure that substitution or process changes that reduce toxic emissions to the environment do not increase them within a workplace.

**Recommendation #8:** Ontario should require approval of pollution prevention plans by provincially-certified pollution prevention planners. These planners should also be trained in workplace health and safety measures.

## **6.9 Reporting and Information Disclosure**

Reporting and public disclosure requirements under toxics reduction legislation are a balance between the protection of confidential business information and the public interest in being aware of the polluting activities that affect their communities.

In New Jersey and Massachusetts, detailed pollution prevention plans are not publicly available, but are kept on-site and must be available to the state inspectors. However, summaries of plans are submitted to the state government every two years and made available to the public. Progress reports that document the implementation of pollution prevention activities are also submitted to the state every year. Massachusetts has a provision that residents living within 10 miles of a facility may petition the Department of Environmental Protection to examine the company's plan and determine its adequacy.<sup>66</sup>

Ontario should ensure that summaries of plans are sent to the government every two years, and that these summaries be publicly available. Ontario should also require companies to make these plans available to Ministry of Environment inspectors on demand.

**Recommendation #9:** Ontario should require companies to keep pollution prevention plans on-site and available to the Ministry of Environment's inspectors. Summaries of plans should be submitted to the Ministry every 2 years, and the government should make summaries available to the public on request.

<sup>65</sup> Roelofs, Cora R, Rafael Moure-Eraso and Michael J. Ellenbecker (2000) Pollution Prevention and the Work Environment: The Massachusetts Experience, *Applied Occupational and Environmental Hygiene* 15 (11): 843-50,

<sup>66</sup> Massachusetts Toxics Use Reduction Act, Chapter 21I, Section 18(B).

## 6.10 Confidential Business Information

A major issue for industry where emissions reporting and materials accounting are required is the problem of this information revealing trade secrets and causing harm to a company's competitive position. This concern has also been raised with NPRI and other information disclosure laws.

To address this, these laws include mechanisms for allowing companies to make trade secret claims, and protect details of their manufacturing processes. Toxics use reduction laws, like other reporting laws, should also include provisions that allow companies to protect trade secrets. If a company believes information will put it at a competitive disadvantage by revealing information about products or processes, companies should be able to make a claim to the government and have it fairly evaluated. Experience in Canada with trade secret provisions under NPRI show that although trade secret provisions are in place, few companies make claims.<sup>67</sup>

**Recommendation #10:** Ontario should include provisions in its toxics use reduction legislation that allow companies to make valid claims of confidentiality. However, these provisions should be properly examined, and should not be used to interfere with the intent of the legislation and the public's right to know.

## 6.11 Community Right to Know

The Ontario legislature began the process of designing and approving legislation that would warn consumers of carcinogens and improve the community's ability to get access to environmental information.<sup>68</sup> In 2006, a private member's bill, Bill 164, *The Community Right to Know Act*, passed 1<sup>st</sup> and 2<sup>nd</sup> readings, but was interrupted by the provincial election, and did not go through the full legislative process to become law.

The Bill proposed amendments to the *Consumer Protection Act* that suppliers of consumer goods or services would be required to warn consumers of exposures to toxic substances that caused cancer or reproductive toxicity. Substances listed as carcinogens by the International Agency for Research on Cancer (IARC) would be considered toxic substances, in addition to other substances prescribed as causing cancer or reproductive toxicity.

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<sup>67</sup> Environment Canada, National Overview: Summary of 2002 Data, National Pollutant Release Inventory.

<sup>68</sup> Bill 164, *The Community Right to Know Act* 2006. Accessible at [http://www.ontla.on.ca/web/bills/bills\\_detail.do?locale=en&BillID=502&detailPage=bills\\_detail\\_the\\_bill](http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=502&detailPage=bills_detail_the_bill)

Giving people the information on hazardous ingredients in products is an important element of toxics use reduction. If consumers know that a product contains a toxic chemical and they have the choice of a safer alternative, it is more likely that they would choose the safer product.

This is the idea behind the California *Safe Drinking Water and Toxic Enforcement Act* (Proposition 65). This law requires businesses that “knowingly and intentionally” expose anyone to a chemical that causes cancer or reproductive harm to give “clear and reasonable warning.”<sup>69</sup> Businesses with less than 10 employees are exempt. Warnings can be given by labels on consumer products, by signs, or through notices published in newspapers. A Proposition 65 list of chemicals – those that cause cancer or reproductive harm – must be published by the Governor of California at least once every year.

Another provision of the proposed *Community Right to Know Act* allowed or facilitated citizens’ access to a provincial inventory of information collected by the Ministry of the Environment under different environmental statutes, such as drinking water information collected under the *Safe Drinking Water Act*. Also, a third important provision of the bill required companies to give firefighters material safety data sheets for the toxic substances used at their facilities.

The development of toxics use reduction legislation is an opportunity to incorporate the proposals in this widely-accepted Bill into a suitable legislative framework. As part of its toxics use reduction program, Ontario should include provisions that require companies to warn consumers when a product contains a toxic chemical, such as a carcinogen or reproductive toxin. In addition, Ontario should give citizens access to environmental information collected by the Ministry of Environment, as set out in Bill 164, and require companies to provide the fire department in the community in which they are located with material safety data sheets.<sup>70</sup>

**Recommendation #11:** Ontario should include in its toxics use reduction legislation community right-to-know provisions that:

- require companies using carcinogens or reproductive toxins in their products to warn consumers;
- allow public access to government-collected environmental information; and,
- require companies to provide the fire department which serves the location of its workplace with material safety data sheets.

<sup>69</sup> Office of Environmental Health Hazard Assessment, “Proposition 65”. Accessible at <http://www.oehha.org/prop65.html>

<sup>70</sup> Bill 164 establishes a pollutant inventory that contains information collected by the Ontario Ministry of Environment, including air and water emissions, source water protection plans, adverse drinking water reports, nutrient management plans and notices under the Pesticides Act.



## 6.12 Technical Assistance Programs

A key to Massachusetts' success in reducing toxics was the establishment of institutions to support the program. More jurisdictions are now recognizing the need for institutions with knowledge and expertise in toxics use reduction and safer alternatives that can help businesses shift to better environmental practices.

The interest in reducing toxics and moving to safer alternatives has been driven, in part, by stringent European regulations. To market certain products internationally, many companies need to ensure that their products meet the higher European standards. For example, the European Union's Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS) prohibits the use of lead, mercury, hexavalent chromium and certain brominated flame retardants in electric and electronic products.<sup>71</sup> Manufacturers in the United States and Canada need to eliminate these common metals from their products in order to sell to one of the world's largest markets.

An important goal of the Massachusetts legislation was to ensure that Massachusetts' businesses were internationally competitive. To assist companies in carrying out pollution prevention activities and to deepen their home-grown expertise in pollution prevention, Massachusetts established two institutions under its legislation – the Office of Technology Assistance (OTA), located in the Massachusetts' state Executive Office of Energy, and Environmental Affairs and the Toxics Use Reduction Institute (TURI), at the University of Massachusetts Lowell.

The OTA provides on-site free technical and compliance advice to manufacturers, businesses and institutions. In addition, it promotes the development of innovative toxics use reduction technologies, and sponsors workshops and conferences for specific sectors on toxics use reduction opportunities.

OTA has been a pioneer in many technical transfer programmes and outreach projects...used as models by other states.

M. Becker and Ken Geiser, *Evaluating Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program*

TURI was also established to promote “comprehensive environmental management practices, inherently safer products and materials, and the efficient use of resources”.<sup>72</sup> With \$1.2 million per year allocated from the state budget, TURI has a wide range of responsibilities with respect to encouraging toxics use reduction including providing

<sup>71</sup> European Commission, Environment, “Waste Electrical and Electronic Equipment”, Directive 2002/95/EC. Accessible at [www.ec.europa.eu/environment/waste/weee/index\\_en.htm](http://www.ec.europa.eu/environment/waste/weee/index_en.htm)

<sup>72</sup> Massachusetts TURA, Chapter 21I, Section 6.

technical assistance for individuals, promoting research, pilot projects and demonstrations of innovative technologies, and outreach to small businesses. TURI also developed and runs the training program for toxics use reduction planners.

Ontario's toxics use reduction legislation should establish technical support services and technology assistance for affected industries. We recommend that the government establish a university-based research institute that advances our knowledge and expertise in toxics use reduction activities, safer substitution and green chemistry.

**Recommendation #12:** Ontario's toxics use program should include the establishment of an independent university-based research institute to advance the province's capacity for toxics use reduction activities, safe substitution and green chemistry.

### **6.13 Safer Substitution**

Massachusetts is in the process of moving ahead with legislation that would promote the identification and development of safer substitutes for highly hazardous chemicals, as described in Section 5.1. The legislation builds on its already well-established framework for toxics use reduction. Ontario has the opportunity to integrate the toxics use reduction framework established in Massachusetts and the more recent safer substitution initiative into a single coherent legislative package.

In its proposed legislation, Massachusetts will identify chemicals of high concern for which substitutes are available. The work of creating a tiered system to identify chemicals of concern has already been carried out in Canada. Under the *Canadian Environmental Protection Act* (CEPA), Canada has identified more than 4000 chemicals of concern and categorized them into three categories -- high priority, medium priority and low priority. However, the Canadian government has not developed a framework for identifying and assessing safer alternatives for these chemicals.

In Massachusetts, this system of priority setting will be the foundation for substitution analysis and subsequent action. Those chemicals, which present the greatest hazard to health and the environment, will be targeted for alternatives assessment and eventual replacement. Part of the staged approach will include research that identifies less toxic or non-toxic alternatives. Once appropriate substitutes have been found to replace a hazardous chemical and their feasibility is proven, companies would be required to plan for substitutions.

This categorization of chemicals and planning for replacement of the most hazardous ones is being incorporated into new chemicals legislation in both Europe and some states in the United States. Canada's categorization work, for example, would be considered by

Massachusetts under the proposed *Safer Alternatives Bill* and is being taken into account in Maine, California and the European Union.

As part of its new toxics use reduction legislation, Ontario should create a staged approach to the identification of safer alternatives and a process that would require planning for replacing high hazard chemicals with safer alternatives. When a hazardous chemical of high concern is identified, companies would have to create substitution plans for replacing the substance with a more suitable, less-toxic alternative.

Ontario can also take advantage of the most current thinking in chemicals management policy, and promote research and development into safer alternatives to toxic chemicals in its new legislation. This strategy of identifying and assessing safer alternatives for known hazardous chemicals is another element of the proposed legislation that will drive innovation and the development of green chemistry in the province.

Furthermore, a major investigation, called CAREX Canada (CARcinogen EXposure), is being conducted by researchers at the Universities of British Columbia and Victoria.<sup>73</sup> It will identify the number of Canadians exposed to IARC carcinogens, and will determine at what levels potential exposure may occur and the extent of any geographic variations. The results of these investigations could help Ontario prioritize those carcinogens that should be the highest priorities for reduction and substitution.

**Recommendation #13:** Provisions for the systematic substitution of safer chemicals for known chemicals of high concern should be incorporated into Ontario's toxics use reduction legislation. A legislative framework for safer substitution would include:

- A process for the development of a tiered list of Ontario chemicals to identify the high hazard chemicals that would be candidates for substitution;
- An analysis of suitable alternatives for high hazard chemicals;
- The preparation of government plans to establish a province-wide priority for substitution based on the danger of each chemical, and the availability of substitutes;
- The establishment of deadlines for implementing safer alternatives;
- Requirements that companies develop substitution plans for designated chemicals, or if necessary, apply for time-limited waivers; and,
- An assistance program that helps businesses to comply with their legislative obligations.

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<sup>73</sup> Demers, Paul, Cheryl Peters, Eleanor Setton, Perry Hystad & Anne-Marie Nicol, "Priority Environmental Carcinogens for Surveillance in Canada: Preliminary Priority List", April 2008. Information on CAREX Canada is available at [carexcanada.ca](http://carexcanada.ca)

## 6.14 Toxics Use Fee

A toxics use reduction and safe substitution program could be financed entirely by a fee on the use of toxic chemicals. This is how the program was started in Massachusetts, and Ontario could implement a similar fee structure.

Massachusetts requires companies that are covered by the Act to pay annual toxic use fees. These fees are based on a sliding scale that takes into account the number of employees at a facility and the number of listed chemicals that it manufactures, processes or uses. For example, a firm employing between 10 and 50 employees pays a base fee of \$500. This base fee increases by \$300 for each listed toxic or hazardous substance it uses but not exceeding \$1,500 in total. These fees raise between \$3.5 and \$4.5 million on an annual basis for the toxics use reduction program.

Recent amendments to TURA include the authority to raise fees for higher hazard chemicals, and lower fees for lower hazard chemicals.

Fee systems have already been implemented in Ontario to finance environmental programs on a cost recovery basis such as the disposal of hazardous wastes. The Ontario Ministry of the Environment requires generators of hazardous and liquid industrial waste to pay a registration fee, a manifest fee and fees based on tonnes of waste disposed.<sup>74</sup>

Ontario should fund its toxics use reduction legislation and program through a fee for toxic chemical use in the province. This creates an incentive for companies to reduce or replace their use and emissions of toxic chemicals so that they also reduce or eliminate the fees.

**Recommendation #14:** Ontario's toxics use reduction program should be financed by fees levied on the number of listed toxic chemicals used by a facility, based on a formula developed by the province. This would include the financing of an independent research institute, specializing in toxics use reduction, safe substitution and green chemistry, as described in Recommendation #11.

## 7. A Challenge for Ontario

This year, support for a toxics free world has sharpened into a tangible agenda for the future.

In Ontario, diverse voices are merging into a collective message to our leaders. Parents are expressing alarm at new knowledge of toxic threats from baby bottles, coatings on

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<sup>74</sup> Ministry of the Environment, "Minister's Requirement for Hazardous Waste Fees" Accessible at <http://www.ene.gov.on.ca/envision/land/hazardousWaste.htm>

clothes, and flame retardants in the electronics in their homes. Health advocates have joined with labour and environmental groups to press for their right to know about toxic exposures in the workplace and the environment that contribute to illnesses like cancers, asthma and heart disease.

Labour groups are calling for a greening of the economy that would transform polluting jobs to green ones, and create new foundations for Ontario's economy. "Make Poverty History" has become a slogan to many who want to turn around the haemorrhaging of manufacturing jobs that is deepening the poverty prospects for future generations.

Leadership is needed to steer the province away from "has not" predictions to being a North American leader and innovator. A toxic use reduction strategy has the potential to drive the societal change that many people in Ontario are looking for.

It is clear that longer-term planning horizons are needed to anticipate and prevent the problems that are piling up in the province. These problems cannot be solved in silos only by industry or governments, but need our collective efforts to arrive at healthy communities, healthy economies and healthy environments.

## 8. Summary of Recommendations

**Recommendation #1:** Ontario should adopt an overall goal for the province of a 50% reduction in the *release* of toxic substances in the province within 5 years of the passage of the legislation.

In addition, we recommend a 20% reduction in the *use* of toxic substances in the province within 5 years after the first mandated reporting period, and a 40% reduction in use within 10 years.

**Recommendation #2:** New Ontario legislation should define "toxics use reduction" to mean –

In-plant changes in the production process of raw materials that reduce, avoid, or eliminate the use of toxic substances or the generation of toxic substance byproducts per unit of product, so as to reduce risks to the health of the public, workers, consumers, or the environment, without shifting risks between the public, workers, consumers, or parts of the environment.

Toxics use reductions shall be achieved through input substitution, product reformulation, production process redesign or modification, production process modernization, improved operation and maintenance of production process equipment and methods, or recycling, reuse, or extended use of toxic substances by using equipment or methods that become an integral part of the production process of concern.

Toxics use reduction does not include incineration, transfer from one medium of release to other media, off-site or out-of-production process waste recycling, or methods of end-of-pipe treatment of toxic substances as waste.

**Recommendation #3:** Ontario should establish a list of reportable chemicals as part of its toxics use reduction law that includes:<sup>75</sup>

- the National Pollutant Release Inventory (NPRI) as the basic list of substances that companies must report;
- the 193 high hazard substances identified under the federal government's Chemicals Management Plan;
- carcinogens identified by the International Agency for Research on Cancer (IARC), carcinogens listed by the U.S. National Toxicology Program, and substances listed by the California *Safe Drinking Water and Toxic Enforcement Act* of 1986 (known as Proposition 65) as carcinogens and reproductive toxins, which are not already listed on the NPRI and which are used in Ontario.

A second phase of additions to the Ontario list of reportable chemicals should include medium hazard chemicals as identified by the federal government's Chemicals Management Plan. This should be done within 5 years of the passage of Ontario's legislation.

**Recommendation #4:** The threshold level, at which high hazard chemicals should be reported, should be lower than the established NPRI reporting threshold of 10 tonnes or 10,000 kilograms. Under Ontario's law, reporting thresholds should be 50 kilograms 1) for chemicals, which are carcinogenic or toxic to reproduction, and, 2) for chemicals, which are persistent, bioaccumulative and toxic.

**Recommendation #5:** Ontario's toxic use reduction law should cover all sectors that report to NPRI. This includes manufacturing, mining, forestry, electric utilities, hazardous waste treatment and solvent recovery facilities, chemical wholesalers, and petroleum bulk terminals, as well as the oil and gas sector, sewage treatment plants, and incinerators.

In addition, all companies with 5 or more full-time employees using more than threshold amounts of listed chemicals should be required to report their use of these chemicals and should be governed by the legislation.

**Recommendation #6:** Under Ontario's toxics use reduction legislation, the development of pollution prevention plans must be made mandatory. However, decisions on the implementation of the plan would be up to the facility. At a minimum, pollution prevention plans should include:

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<sup>75</sup> The duplication of chemicals on these lists would need to be considered in the process of creating a list for Ontario.

- an analysis of existing or projected processes that use or generate toxic substances or wastes;
- the identification of available toxics use reduction options, and an evaluation of the options that appear to be technically and economically feasible;
- the identification of options to be implemented and a timetable for their implementation;
- the establishment of numeric or other specific performance goals; and,
- the implementation of selected options.<sup>76</sup>

Plans should be revised every two years on an ongoing basis.

**Recommendation #7:** The reporting of materials accounting data to the government on an annual basis, along with emissions reporting, should be a required element in Ontario’s toxics use reduction law. In addition, materials accounting data should be made public by the government, and this information should be available on the Internet on a facility-specific and chemical-specific basis, as it is in Massachusetts and New Jersey.

**Recommendation #8:** Ontario should require approval of pollution prevention plans by provincially-certified pollution prevention planners. These planners should also be trained in workplace health and safety measures.

**Recommendation #9:** Ontario should require companies to keep pollution prevention plans on-site and available to the Ministry of Environment’s inspectors. Summaries of plans should be submitted to the Ministry every 2 years, and the government should make summaries available to the public on request.

**Recommendation #10:** Ontario should include provisions in its toxics use reduction legislation that allow companies to make valid claims of confidentiality. However, these provisions should be properly examined, and should not be used to interfere with the intent of the legislation and the public’s right to know.

**Recommendation #11:** Ontario should include in its toxics use reduction legislation community right-to-know provisions that:

- require companies using carcinogens or reproductive toxins in their products to warn consumers;
- allow public access to government-collected environmental information; and,
- require companies to provide the fire department which serves the location of its workplace with material safety data sheets.

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<sup>76</sup> The recommended elements of a pollution prevention plan are adapted from the National Pollution Prevention Roundtable, Facility Planning Workgroup White Paper, “Facility Pollution Prevention Planning Requirements: An Overview of State Program Evaluations”, 1997. Accessible at [www.p2.org/inforesources/facil-pl.html](http://www.p2.org/inforesources/facil-pl.html)

**Recommendation #12:** Ontario's toxics use program should include the establishment of an independent university-based research institute to advance the province's capacity for toxics use reduction activities, safe substitution and green chemistry.

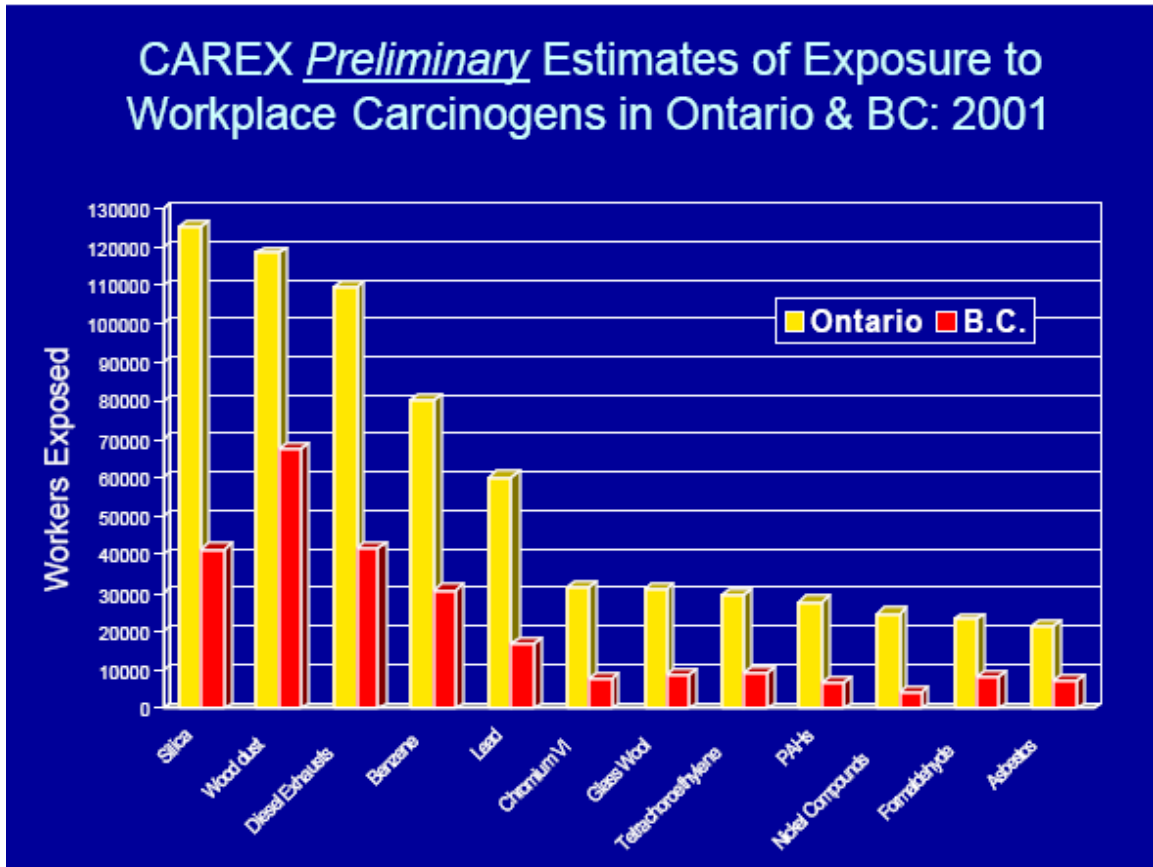
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- The preparation of government plans to establish a province-wide priority for substitution based on the danger of each chemical, and the availability of substitutes;
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- Requirements that companies develop substitution plans for designated chemicals, or if necessary, apply for time-limited waivers; and,
- An assistance program that helps businesses to comply with their legislative obligations.

**Recommendation #14:** Ontario's toxics use reduction program should be financed by fees levied on the number of listed toxic chemicals used by a facility, based on a formula developed by the province. This would include the financing of an independent research institute, specializing in toxics use reduction, safe substitution and green chemistry, as described in Recommendation #11.



## Appendix I - Chart



*From the UBC School of Occupational and Environmental Hygiene/Cancer Care Ontario Project*

## **Appendix II - Scoping a Toxic Use Reduction Law for Ontario**

### ***November 28, 2007 Workshop Attendees***

#### **Project Steering Committee**

Joe Castrilli – Lawyer with the Canadian Environmental Law Association, Joe will be drafting the Ontario Model Law Toxics Use Reduction Law for this project.

Fe de Leon – Researcher with the Canadian Environmental Law Association, Fe has advanced CELA law reform work on federal and international pollution prevention efforts and has been central to development of our website [www.pollutionwatch.org](http://www.pollutionwatch.org).

Ken Geiser – Professor of Work Environment and Director of the Lowell Center for Sustainable Production at the University of Massachusetts Lowell, Ken is one of the authors of the pioneering Massachusetts Toxics Use Reduction Act and served as Director of their Toxics Use Reduction Institute from its founding in 1990 to 2003.

Ruth Grier – As former NDP Minister of Health and Minister of the Environment, Ruth enabled the Ontario Taskforce on the Primary Prevention of Cancer. In her “retirement” she is working on numerous efforts to put primary prevention into practice.

John Jackson – A CELA Board Member, John is the Clean Production and Toxics Campaign Coordinator of Great Lakes United. He is also on the National Pollutant Release Inventory Working Group and is an expert on Ontario waste reduction.

Andy King – The National Health, Safety, and Environment Co-ordinator and Department Leader for the United Steelworkers, Andy is Co-Chair of the Toronto Cancer Prevention’s Occupational and Environmental Work Group that has successfully campaigned for improved Community Right-to-Know in Toronto.

Richard Lindgren - Staff lawyer with the Canadian Environmental Law Association, Rick represents citizens' groups in the courts and before tribunals on a wide variety of environmental issues. Rick was instrumental in our campaign that led to Ontario’s Environmental Bill of Rights.

Theresa McClenaghan - The Executive Director of the Canadian Environmental Law Association, Theresa has just returned from the former Ontario Minister of the Environment’s staff where she advised on Ontario’s recent Clean Water Act which is mandating drinking water source protection. She has also worked on a number of CELA law reform projects on children’s health and pesticides.

Sarah Miller – Researcher and Coordinator of the Canadian Environmental Law Association, Sarah raised funds for this project which she will coordinate. She represents CELA on three cancer prevention committees at the federal, provincial and local levels.

Michael Perley - Director of the Ontario Campaign for Action on Tobacco and a consultant to the Ontario Medical Association, Michael has been a successful advocate for prevention legislation for tobacco control in Ontario.

Sarah Rang – Founding Partner of Environmental Economics International, Sarah has been a Team Member for trilateral project analysing national pollutant release inventories in North America for the Commission for Environmental Cooperation, an international environmental agency. This work results in annual reports on pollution in North America, called *Taking Stock*.

Chris Wolnik – Executive Director of the Canadian Centre for Pollution Prevention for the past six years, Chris is responsible for C2P2's pollution prevention (P2) programs including education and outreach, p2 program support, research, and training.

Anne Wordsworth - A CELA Research Associate, Anne has written numerous reports on best practices in pollution prevention. She is a writer and former producer for CBC's Health Show. Anne will be writing the background report for this project.

#### **GUESTS**

Nick de Carlo - Staff and National Representative in the Health, Safety and Environment Department of the Canadian Auto Workers, Nick has campaigned on extended producer responsibility, justice for asbestos workers and worked on a CAW campaign to reduce the use of carcinogens in their workplaces.

Judah Harrison – Environmental lawyer, Judah is helping on this project with background research on Ontario laws requiring control of toxics in the environment and the workplace.

Carol Mee - Supervisor of Environmental Information and Education at Toronto Public Health's Environmental Protection Office, Carol has been involved in developing smoking bylaws, State of the City reports, the Environmental Plan, the Pesticide Bylaw and more recently is developing policy about community right-to-know issues.

Kaitlyn Mitchell – CELA's Articling Student, Kaitlyn will be recording the proceedings of this workshop.

Rich Whate - A Health Promotion Consultant with Toronto Public Health's Environmental Protection Office, Rich is currently involved in the implementation of the Pesticide Bylaw and projects regarding Community Right-to-Know and cancer prevention.