

**Improving Environmental Regulation:**

**An Environment Canada  
Perspectives Paper**

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**Environment Canada  
Working Paper**

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## I. Introduction

Environment Canada's regulatory objectives reflect its mandate, mission and vision – in essence to promote measures that protect, conserve and enhance the environment; to protect species and preserve ecosystem integrity; and to provide a natural environment that sustains our health, economy and quality of life.<sup>1</sup>

This document has been prepared for Environment Canada's input to the federal government's Smart Regulation initiative and for the consideration of the External Advisory Committee. The paper has two related purposes. The first is to take a step back, and look at Environment Canada's regulatory efforts writ large, to identify what we are doing well and where there are opportunities for fundamental improvements, both in the near term and over the long run. The second is to identify more immediate, practical action in three specific areas of opportunity.

Any discussion of environmental Smart Regulation will be improved by preliminary examination on what is meant by "regulation." Some apply a very broad definition, using regulation to refer to any efforts by government to shift, or regulate the behaviour of others (individuals' firms; industries; other jurisdictions; etc.). Others interpret the term in the narrow legal sense, where regulations are detailed rules developed by designated authorities under the terms of an enabling piece of legislation. Consistent with the mandate of the External Advisory Committee, this paper will use the term "regulation" in the broader sense – except in its treatment of specific technical questions, where a narrower use of the term will be used.

Canada has an excellent reputation for having a mature and well functioning regulatory system. The recent Organisation for Economic Cooperation and Development (OECD) regulatory review of Canada emphasises many strengths of our system, noting Canada has been a "consistent leader and innovator," noting that our environmental regulation is "actively testing new approaches." Our environmental regulatory system encompasses a wide spectrum of tools, used alone or in combination, to achieve our policy objectives. The Canadian Environmental Protection Act, 1999 (CEPA 1999) provides an excellent example of a Canadian law that explicitly identifies and encourages the use of a broad range tools. A variety of instruments, such as performance-oriented or economic-based regulations, codes of practices, pollution prevention or environmental emergency plans, and environmental performance agreements, can be used to develop optimal environmental management strategies. Environment Canada, working with stakeholders and other government departments, has lead the way in identifying and developing innovative approaches that spur the development of new technology and practices to improve environmental protection.

However, the OECD report also recommends Canada maintain its momentum. Environment Canada is committed to continuous and sustained improvements to our environmental policies and regulations. This paper provides an overview of our thinking, our successes and ongoing efforts, as well as looking forward, focussing the three specific areas of opportunity – economic instruments; administrative efficiencies; and international convergence.

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<sup>1</sup> See [www.ec.gc.ca](http://www.ec.gc.ca) for more information on Environment Canada's mandate and activities.

## II. Context – Broader Developments

Several broad intersecting trends set the context, and increase the demand for, regulation by governments. In this section we single out four broad trends for special attention: the pace and impact of scientific and technological change; globalisation and economic trends, governance and jurisdictional co-operation; evolving public attitudes and demands; and increasing complexity.<sup>2</sup> It also identifies some of the general principles and approaches of modern environmental management that respond, in part, to these broader trends.

### ***A. Scientific and Technological Change***

Policy-makers and analysts in Environment Canada and the federal government are constantly confronted with a profound variety of scientific and technical developments. For instance each year, hundreds of new substances are developed to improve our quality of life, but that also present a challenge in terms of understanding their overall safety and environmental impacts. Without testing, we risk causing unintended harm to the environment and human health – we do not want to repeat the story of PCBs, CFCs, etc.

The recent Federal Science and Technology Foresight Project was created to help policy-makers gain a better understanding of the rapid pace of developments in science and technology, as well as providing some longer-term trend analysis. While there will undeniably be substantial benefits from these developments, we can also expect that these technologies may interact with the environment and society in unanticipated ways – particularly if we do not take the time now to assess their broader impact.

Many current environmental issues reflect the unthinking application, and unintended consequences, of past scientific and technological innovations. Consider the examples of ozone depletion, climate change, and water pollution stemming from residual drugs from human consumption. Each of these problems reflects the unanticipated consequence of technological progress i.e. improvements in refrigeration; energy production and use; and health care. In the long run, governments need to get a much better handle on how science and technology are developing, and create a more complete system that adequately integrates analysis of environmental and social consequences into our innovation activities. This will enable us to anticipate, rather than merely react to, the unintended consequences of profound technology shifts.

Scientific and technological developments do not only create new demands on regulators and policy-makers – they also provide critical information and analysis. One of the cornerstones of Environment Canada's work is a sound science-base, where we are considered a leader amongst government departments. Science is essential to understanding the environment, how it functions, the ways we depend on it, and how our activities affect it. For instance, atmospheric science has revealed the impact of greenhouse gasses (GHGs), and the movements and

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<sup>2</sup> Of course, there are other major developments, such as armed conflict and geopolitical security, or population growth, which also have major impacts on the environment. For consideration of length, these are not addressed in this paper.

interactions of air pollutants which contribute to smog, and will continue to be essential for modelling and developing strategies to address climate change. Further, environmental policies can require significant changes in behaviour, and it is also reasonable to ask for the best scientific rationale to support notable change and effort.

The pace of environmental science in some ways seems both too slow, and too fast. On the one hand, we urgently need a better understanding of how to deal with pressing environmental problems, such how to anticipate the impact of chemicals or organisms introduced into the environment. On the other hand, our investigations into the workings of basic environmental systems often seem to reveal more problems than they resolve. In any case, Environment Canada's activities are fundamentally shaped and driven by science, and sound scientific research remains a departmental priority.

## ***B. Globalisation and Economic Trends***

One of the most challenging trends for government policy-makers, and indeed many institutions, industries, and organisations in Canadian society, is the ongoing acceleration of a multifaceted phenomenon dubbed “globalisation.” The underlying driving force for globalisation is technological change. Technological developments have allowed for faster movement of goods, ideas, money and peoples, shifting underlying patterns of interactions, the spread of technology, and the production of goods. We also recognise that ecosystems around the world are interconnected – that we share a common global environment and actions in one part of the world can cause serious harm in another. Finally, international agreements, such as the WTO, have accelerated global economic integration.

It is perhaps the economic developments of globalisation that are given the greatest attention, and indeed the trends have been dramatic. Trade has grown enormously, particularly for Canada, where 43.1% of our GDP is exported, and we import 38.1% of GDP in the goods and services we consume. Canada – U.S. economic ties have also become stronger, fuelling demands by business, and within policy circles, to give more careful consideration to our economic links to the U.S. in policy and regulatory discussions.

### **1. Economic Diagnostique**

The integration of global markets and the pace of economic growth, highlight the need to assess the economic aspects of environmental policies and regulations. Environment Canada has over the years researched and developed a sophisticated analysis of the genesis of many environmental problems based on economic analysis and research. This economic framework was given centre stage in the Green Plan of the early 1990's, but its essential analysis, diagnostique and prescriptions are now internationally accepted, and promulgated by organisations such as the OECD.

Underlying this analysis are the related concepts of externalities and public goods. An example of an externality is a firm that pollutes without considering the impact of this environmental damage on others. The full costs and benefits of the firm's activities are not integrated into the firm's accounting framework, and the result is inefficiency and environmental damage. Public

goods, such as clean air and water, are common property that is difficult to police and control – so (without regulatory intervention) when firms or individuals damage these resources there are no mechanisms to force an accounting of the damage, or externality, that is generated. For instance, in the decades prior to government intervention, firms and communities dumped thousands of tonnes of chemicals and untreated waste into the Great Lakes / St. Lawrence system, not considering the harm done downstream.

The solution is to develop mechanisms to control access to the public good, and to “internalise” the damages on those responsible. This is the “Polluter Pays Principle” i.e. holding polluters responsible for the damage they cause. While a number of regulatory instruments can accomplish this, economic instruments have many attractive features to recommend them.

Some have also raised concerns about the ability of national governments to impose controls on large footloose multinational enterprises; others ask whether countries are now competing with each other for trade, markets and investment. While some forms of *policy competition* are positive, and encourage countries to improve infrastructure, education, the legal system etc.; other forms of competition, as the OECD has noted, may be harmful. They can lead to negative tax competition, or unwillingness to regulate if this is seen as a making a jurisdiction less attractive to industry. These dynamics highlight the need to assess international implications and foster international co-operation when developing environmental policies and regulations.

**Economic instruments:  
Aligning Public and Private Benefits in the  
Global Marketplace**

- Global markets can exacerbate the environmental problems stemming from poor economic rules and signals. Economic instruments are particularly effective at shifting incentives to account for environmental impacts, in ways that are flexible, generate efficiency, reduce costs, and promote innovation – important benefits in competitive global markets.
- Use of economic instruments will often reconcile apparently conflicting environmental and economic goals. Environment Canada analysis on competitiveness indicates that when global economic signals are correct, good environmental performance can be a source of competitive advantage.

### **C. Governance and Jurisdictional Co-operation**

Globalisation accentuates the need for inter-jurisdictional co-operation and co-ordination. First, because environmental impacts do not respect political boundaries and many problems are regional or global. Second, stronger economic linkages also create pressures for common environmental standards and mechanisms. Firms in one jurisdiction may argue that they face extra costs and reduced competitiveness if forced to meet stricter standards, or use different technologies than competitors.

The need for jurisdictional co-operation is an inescapable reality for policy-makers and regulators on the environment. Yet, we also have to consider general concerns about impacts on

sovereignty, and the need to respect important differences between jurisdictions with respect to ecology, legal systems, values, economic status, etc.

Canada faces some similar issues in dealing with shared federal, provincial and territorial jurisdiction for the domestic environment. Canada's experience with joint jurisdiction (discussed below) may also shed light on approaches to international co-operation.

#### ***D. Evolving Public Attitudes and Demands***

The attitude of Canadians on environmental issues has evolved over time. Canadians have always had a deep-rooted appreciation of our natural heritage, but they once tended to assume that in such a vast country the environment was too immense to be damaged by our activities. Over the last few decades, as stories of contamination, species loss, climate change, etc. emerged, concern for the environment has become a core value of Canadians. The environment is now consistently ranked as a priority for government by 75-85% of Canadians. (EKOS, 2002). Further, the important links between environmental and human health contribute to the strong public interest in environmental issues.

Public attitudes are also evolving with respect to how governments share responsibility and interact with other parts of society, such as communities, civil society, and the marketplace. We now ask, whether, and to what extent government involvement and action is appropriate, versus letting other institutions in society address a problem. In some periods there have been calls for strong government action and regulation, in other times calls for less government and less regulation.<sup>3</sup> More recently, the debate has become subtler, asking what are ways of regulating better, and how to use a more balanced and effective use of policy instruments and institutional strengths to achieve our policy goals – in short, a call for smart regulation.

Demands in different policy areas are often in tension. Calls for stronger environmental protection can occur at the same time as the public is asking for less overall government intervention in the economy. The environment also competes for top billing in polls with health, education and economic concerns. Environment Canada's regulatory efforts to need to be developed within a sustainable development framework that acknowledges the need to integrate public concerns about environmental, economic and social issues.

#### ***E. Increasing Complexity – Interaction and Interplay amongst Trends***

The net result of these broader developments is that the challenge facing policy-makers and regulators is increasingly complex. The demand for new regulations is growing, and yet the problems to be addressed are becoming more interconnected and challenging to understand. Thomas Homer-Dixon has noted that our society is faced with an ingenuity gap. Despite the continual and impressive improvements in our understanding, and better tools to address our problems, the pace at which issues are arising, and their level of complexity, is increasing at an even faster rate.

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<sup>3</sup> See Hill, 1998, for a comprehensive review of evolving attitudes on regulation over the last 20 years.



Pressures to deal with existing and emerging issues such as climate change, regulating toxic substances, protecting endangered species; biotechnology; reducing urban air pollution – are all generating enormous demands on Environment Canada. We are facing our own ingenuity gap – even the need for basic science outpaces our research capacity. These increasing pressures are now part of Environment Canada’s basic work environment, and we will need to find the resources, develop new tools and new ways to set priorities, in order to deal with them.

What is called for is a better way of integrating policies – greater co-ordination amongst disciplines, departments, and jurisdictions. Our policy analysis will need to consider how the trends in large fundamental systems such as the economy and the environment interact – where they mutually reinforce each other and when policies in one area undermine efforts in the other. However, despite the challenges we have made progress, and have developed some sound guiding principles to guide our future efforts.<sup>4</sup>

### 1. Sustainable Development

Sustainable development is the basic model underlying Environment Canada’s vision of good decision-making. Sound policies and regulations must be based on an integrated consideration and assessment of the impacts on the environment, economy and society. Sustainable development is not only a guide for Environment Canada’s own activities, but also one that is endorsed and adopted by institutions and organisations throughout the world. Further, the sustainable development framework echoes current demands for greater horizontal policy integration. Sustainable development is a framework that captures the essence of sound policy – the ability to consider, manage and integrate multiple priorities in a complex world. It is also the core of Smart Regulation more generally.

### 2. Ecosystem Approach

As noted earlier, environmental systems do not respect political boundaries. Ecosystems at a natural level require a complex multidisciplinary approach, bringing together biology, geography, meteorology, chemistry, physics etc. Because we are also part of the ecosystem, human behaviour also needs to be considered, and social sciences such as demography, economics and political science will be part of a full understanding of ecosystems. Again, as with sustainable development analysis, we find that an ecosystem approach demands a multidisciplinary, horizontal style of thinking and analysis. Good environmental management also demands that we recognise the relevant ecosystem for analysis, and match our policy and regulatory interventions to this level – whether it be a local community effort or a global agreement.

### 3. Pollution Prevention

Complexity is not always inevitable. Some of our most difficult problems reflect our failure to intervene in a timely fashion. Our experience on environmental issues has repeatedly illustrated that it is simpler, more effective and less costly to prevent environmental problems than to deal

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<sup>4</sup> While these are principles that help guide government regulatory activity, they also apply more broadly. Indeed on issues such as sustainable development and pollution prevention, civil society and many elements of the business community have been leaders in developing and putting these principles into action.

with the damage after the fact. Remediation is almost always more costly than prevention. In some cases, the damage may be irreversible. It is also generally cheaper to integrate a pollution prevention system within a manufacturing process, than to implement end of pipe controls once a plant is already built. An important challenge is older manufacturing infrastructure in some industries where technology is being updated slowly. Overall, a key feature of smart environmental regulation will be the extent to which it anticipates, instead of reacts to, environmental problems.

#### 4. Precautionary Principle

Environment Canada has integrated the precautionary principle throughout its environmental protection activities. As formulated in Principle 15 of the 1992 Rio Declaration, the precautionary principle states, “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason to postpone cost-effective measures to prevent environmental degradation.” Canada was one of the first countries to incorporate the precautionary principle into its main environmental protection statute, CEPA 1999.

#### 5. Polluter Pays Principle

Environmental policies and regulations will often redistribute costs and benefits. The polluter pays principle embodies the basic value that those who are responsible, the polluters, should bear the costs of preventing or repairing the environmental damage they cause.

### III. Smart Environmental Regulation

Governments use policies and regulations to address many of the ongoing and emerging problems they confront. Given the complex trends outlined above, how can government improve its tools to deal with the emerging challenges? This section identifies the specific characteristics of smart environmental regulation.

#### ***A. The Goal: Maximising the Public Good***

The overriding criteria for assessing regulations and regulatory systems will be the promotion of the public good – i.e. whether the overall benefits of a policy exceed the costs, compared with all relevant alternatives, and considered from the point of view of the overall public.<sup>5</sup>

Determining the public good, however, is not necessarily straightforward. First we need to define the public. While we will be obviously concerned with the Canadian public, there are other “public” groupings that may have claims on the allegiances of Canadians, including communities, provinces, and indeed, an interest in the welfare of the global community.

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<sup>5</sup> Of course it is not always possible to monetise or even quantify all the benefits and costs related to a policy or regulation. However, even if assessments are only qualitative, the discipline the cost-benefit framework imposes will help improve the quality of analysis and decisions.

Regulations may have different and conflicting impacts at these different levels, and good regulation will require assessing and balancing these effects.

### ***B. Addressing Underlying Dynamics***

Regulatory instruments should match the nature and context of the issue and target identified. First, the degree of intervention should reflect the risk posed by the problem. Time and resources allocated to the problem, the costs imposed on those regulated, should all be proportionate to the seriousness of the problem.

Second, they must reflect and address the underlying dynamics that contribute to the identified problem. For instance, if the interests of those regulated largely coincide with the public interest, then a voluntary approach may be reasonable. Indeed, expanding the use of voluntary instruments is an active area of regulatory analysis and innovation. Sometimes mandatory information disclosure may be sufficient to re-align interests via pressure from third parties, such as the public or consumers. On the other hand, if interests diverge, the optimal instrument may need a stronger combination of incentives/disincentives backed up with more intense monitoring and enforcement measures. This cautions against applying simplistic, one-size-fits-all approach to regulation.

For example, one goal cited by many policy-makers is to achieve a reasonable consensus amongst stakeholders. A result that leaves all parties reasonably satisfied is sometimes considered the mark of an effective policy or intervention. In some cases, this may be a reasonable and achievable goal. However, it may not be reasonable for a policy or regulatory intervention designed to correct an externality, i.e. where one group is gaining by imposing damage on others. Interests will often diverge in these cases. In short, sound policies and regulations will not always generate win-win results.

### ***C. Characteristics of Smart Regulation***

At a pragmatic level, there has been considerable progress in Canada and other countries in our understanding of smart regulation. This progress can be usefully broken down into two areas, reflecting ends and means:

- better regulatory instruments; and
- improved systems for developing regulations and managing the regulatory process.

The two areas are closely connected in that better systems for developing regulations will generally lead to better regulatory tools.

## 1. Regulatory *Instruments*

### a) Effective

Good regulatory instruments must be effective – i.e. meet the public policy goal for which they are intended. This does not mean 100% success at addressing the identified problem or opportunity, but some reasonable target is achieved.

### b) Cost-Effective

All else being equal, the instrument chosen should achieve the intended target at the lowest cost. Better instruments will also promote a reasonable and efficient distribution of costs and benefits. This will involve consideration of competitiveness impacts, and concerns about fairness to different regulatees and stakeholders.

### c) Manage Uncertainty and Risk

All policies and regulations are developed with imperfect information, creating uncertainty and risks, which need to be properly managed. Further, there is also a demand on regulators from many stakeholders to create greater certainty for the market place.

Unnecessary uncertainty stemming from poor policy should always be avoided. However, in some clearly-defined cases, it may be in the public interest and more efficient to let real risk and uncertainty be handled by the market; or balance increased certainty with the need to ensure the regulatory system can adapt and respond to new information and developments. Proper risk assessment and management will help establish this balance.

### d) Performance-Based

Instruments that are performance-based, i.e. that ensure targets are achieved and yet allow for sufficient flexibility to enhance efficiency and effectiveness, and promote innovation on the part of those regulated, are often more effective than other approaches.<sup>6</sup>

### e) Innovative

Regulation should be seen as an opportunity to increase efficiency, and productivity – within government, the regulated community and the broader economy. Within government, policy-makers and regulators will also want to identify opportunities to explore new policy instruments, and promote public-sector innovation. Policies and regulations will also need to consider how they can encourage greater innovation on the part of the private sector.<sup>7</sup>

### f) Complementary

Good government intervention is also rarely a matter of finding a single optimal instrument – it usually requires a balanced combination of instruments that integrate a number of policy goals. This subtler form of intervention requires a comprehensive and up-to-date policy toolbox.

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<sup>6</sup> However, in special circumstances, such as where the costs linked to monitoring or enforcing performance are very high, using a proxy for performance, such as prescribing known technology, may still be justified.

<sup>7</sup> The research initiated by Michael Porter, the noted competitiveness expert, on how well-designed regulations can stimulate innovation and become a source of competitive advantage, deserves particularly close attention.

### g) Administratively Efficient

Many of the practical elements involved in developing and implementing regulations are fairly generic business activities relating to communication, and information collection and dissemination. Yet, as any administrator knows, such activities can generate significant transaction costs for all parties. Administrative processes need to be reviewed to ensure all the information requested is reasonable, and that there is a good balance between the need for checks, and a streamlined process.

### h) Adequately Monitored and Enforced

Well-designed regulations can still fail if not properly implemented. Regulatory success requires that the resources and mechanisms needed to monitor and enforce the instrument be provided.

### i) Identify Appropriate Authority(ies)

Finally, regulatory instruments must be designed and implemented by those best situated and able to act. This should include involvement of all the different jurisdictions needed to achieve the policy target. Globalisation and considerations of competitiveness, business efficiency, and administrative streamlining have all increased the pressures for jurisdictions to harmonise regulatory activities.<sup>8</sup>

## 2. Regulatory *Development*

### a) Consultations and Collaboration

Consultations are now an essential element of the regulatory process in a modern democracy, and consultation is a formal requirement under federal statutes such as CEPA 1999. From early in its history, Environment Canada has identified the importance of good communication and consultation with the public and concerned stakeholders. Opportunities for general public input, particularly from direct stakeholders, need to be built in at several stages in the development of a regulatory instrument. Effective consultation requires that the process and documents supporting the development of the regulation are open, clear, and easy to understand.

Environment Canada has a sophisticated system for managing federal, provincial and territorial relations, as well as for engaging international partners. Canada endorses a multilateral approach on international issues when appropriate, but has also participated in and actively supported regional and bilateral efforts to address environmental issues<sup>9</sup>.

### b) Open and Transparent

An open and transparent process requires a clear enunciation and development of the rationale for selecting a particular instrument. Information on the regulation and process must be fully accessible, and effectively communicated.

### c) Adequate Research

Good information is critical for the development of all policies and regulations. Time and resources are needed for adequate research to understand the problem and issues. Policy-makers

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<sup>8</sup> How to deal with these pressures and opportunities is dealt with in detail in later sections.

<sup>9</sup> Specific developments and opportunities in these areas are also discussed later in the paper.

and regulators also need information on a complete and up-to-date toolbox of instruments in order to select the best instrument available, including a review of best practices from other jurisdictions, and new approaches being proposed by the research communities.

Information is not only needed in the initial development of the policy or regulation. The regulatory process should integrate provision for ongoing feedback and retrospective analysis. Both the effectiveness and the costs of regulatory interventions needs to be assessed after implementation in order to ensure targets are being met, confirm original estimates, revise methodologies, and identify unintended consequences.

#### d) Balance Quality versus Time and Resources

All of these best practices will take time and resources – yet a “smart” regulatory process should also avoid being too time-consuming and/or resource intensive. The consultations, checks and balance, and the required research should not be excessively burdensome. The regulatory process needs to be sufficiently flexible that it can respond to the need for urgent intervention. Regulators need to be able to assess the type of intervention contemplated, and allocate time and resources accordingly.<sup>10</sup>

### ***D. Developing Smart Regulation – Art or Science?***

The factors contributing to Smart Regulation identified above are numerous, complex, and often in tension with each other. Malcolm Sparrow in his book *The Regulatory Craft* summarises the dilemma as follows:

“Regulators, under unprecedented pressure, face a range of demands, often contradictory in nature:

- be less intrusive - but more effective;
- be kinder and gentler - but don’t let the bastards get away with anything;
- process things quicker - and be more careful next time;
- deal with important issues - but do not stray outside your statutory authority;
- be more responsive to the regulated community - but do not get captured by industry”

As the title of his book implies, there is no magic algorithm that will guarantee good regulation. The practice requires, knowledge, skill and wisdom.

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<sup>10</sup> Environment Canada’s proposals to address administrative streamlining are presented in the final section on Areas of Opportunity.

## **IV. Smart Regulation in Environment Canada: Learning by Doing**

Environment Canada has a wealth of experience in developing, implementing and refining our regulations and processes for regulatory development. In this section we highlight examples of how Environment Canada has improved its regulatory efforts.<sup>11</sup>

### ***A. Building Better Regulatory Instruments***

#### **1. Protecting Wildlife – Expanding and Mixing the Tool Set**

Environment Canada's mandate regarding the protection of wildlife flows from statutes supporting the activities for the conservation of migratory birds and species at risk, protection of wildlife habitat and the regulation of trade in wildlife and wildlife parts. These statutes enable Environment Canada to apply prohibitions as one method to protect wildlife, and complement Canada's vast and expanding system of parks. However, Environment Canada's approach to protecting Canadian wildlife has evolved and diversified over the years.

One mechanism used by Environment Canada is the creation of protected areas, which preserve habitat and restrict activities harmful to wildlife. Environment Canada's protected areas system consists of National Wildlife Areas and Migratory Bird Sanctuaries and in the future will include Marine Wildlife Areas. However, many wildlife species inhabit important ecosystems that are also used by Canadians for other uses. Therefore, Environment Canada has developed several alternative approaches to complement its protected areas system. These include:

- Offering financial incentives to landowners to encourage voluntary conservation efforts;
- Developing partnerships with a broad spectrum of partners to address common conservation objectives;
- Building knowledge and capacity among partners to enable them to make responsible land use decisions; and
- Creating policy/legislative tools to support the conservation efforts of individuals and communities.

For example, through the North American Waterfowl Management Plan (the Plan), Environment Canada has partnered with federal, provincial/state and municipal governments, non-governmental organisations, private companies and many individuals, to work towards achieving better wetland habitat for the benefit of migratory birds, other wetland-associated species and people. The Plan's unique combination of biology, landscape conservation and partnerships comprise its exemplary conservation legacy.

Working through partnerships is also the key to making stewardship a successful conservation tool in Canada. Environment Canada stewardship initiatives, such as the Habitat Stewardship Program, are used to complement other wildlife protection measures. The compendium

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<sup>11</sup> Other examples of Environment Canada regulatory experiences are presented in a detailed Compendium, a companion document to this paper.

document describes these and other alternative approaches used by Environment Canada to protect wildlife.

## 2. Economic instruments

Recent efforts by Environment Canada to promote the use of economic instruments have been supported by over a decade of research and analysis, as well as some practical, albeit limited, domestic applications. This section provides examples of some early efforts of using economic instruments in Canada.<sup>12</sup>

*Methyl Bromide Tradable Permits:* In January 1995, Environment Canada introduced a small “cap and trade” scheme to phase out the consumption of methyl bromide, a fumigant and powerful ozone-depleting substance scheduled for complete phase-out by 2005. On a yearly basis, Environment Canada allocates transferable allowances (or permits) to 100 users, based on historical use. The overall cap is ratcheted downwards yearly, and permits are not bankable. While the price of Methyl bromide has increased over the years, the transfer of allowances has enabled a smoother, less costly transition. Moreover, parts of the revenues from the transfer of allowances were funnelled to fund research in alternatives to this ozone-depleting substance. This system has introduced a low-cost alternative to more traditional abatement tools, and has encouraged users to look for alternatives to methyl bromide.

*Phasing Out Lead in Gasoline:* Lead in the environment is a serious health issue, and in September 1988, the Ministers of Health and Environment announced that lead would be effectively eliminated from motor fuel effective December 1, 1990. The Federal Government implemented a tax differential of 1 cent/litre in April 1989 to “discourage the use of leaded fuel”. Prior to the federal tax, some provinces also levied their own tax on leaded fuel. As a result of the tax increases, the imminent federal ban and retrofits of the pumps by the marketers, demand for leaded gasoline in Ontario dropped from 25-33% to 10-12% a year later, and to 1-3% by 1990. While a downward trend had already begun in the 1980s (because catalytic converters forced motorists to use unleaded gasoline only), econometric analysis suggests the federal and provincial tax differentials have accelerated the phasing out of lead, resulting in greater health benefits.

*Accelerated Capital Cost Allowance for Energy Efficient Equipment:* Reducing energy consumption is a key strategy for reducing GHGs and air pollution. Initiated by Natural Resources Canada in 1996, this program provides preferential tax treatment for companies that use energy efficient equipment for the production and distribution of heat. It also improves the tax treatment of rail assets (by increasing their CCA rates), helping make this relatively more energy-efficient mode of transportation more competitive with trucking.

*Tax Incentives for Ethanol-Blended Fuel:* Burning ethanol produces less GHGs than pure gasoline. Since 1992, the ethanol portion of gasoline blended with ethanol has been exempt from the federal excise tax, so that retailers could sell the ethanol-blended fuel at competitive prices while still satisfying the green fuel objective. The instrument, also developed by Natural Resources Canada, has helped to maintain competitive retail prices while increasing the market

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<sup>12</sup> More analysis of economic instruments, the rationale for their use, and the results of international experience, is provided in section V.B.2 of the paper.



share of ethanol-blended gasoline to around 1% of the Canadian gasoline market. The program also encourages the provinces to revise their tax policies, and those provinces that comply have received federal funding for the construction of ethanol plants.

### 3. Ten Year Agenda for Vehicles and Fuels

Environment Canada has laid out a 10-year agenda to reduce emissions from vehicles, engines and fuels, based on a mix of instruments and approaches. The agenda responds to unique aspects of this issue. These include: integrated North America vehicle manufacturing; regional differences in Canadian fuel supply and refining; the similarity of Canadian and U.S. markets; and issues of compatibility between vehicle emissions technology and fuels. The agenda provides an integrated roadmap for car manufacturers and petroleum product producers to work together to reduce emissions, based on a general strategy of alignment with the U.S.

Implementation is well underway. Canada has put in place new emission standards for on-road vehicles and engines that align with U.S. standards - generally recognised as the most stringent national standards in the world. By aligning Canadian and U.S. standards the regulations achieve their objectives with minimum cost and impact to the Canadian automotive industry. Environment Canada's fuel quality requirements are also based on a strategy of alignment with the U.S. For example, regulations for sulphur in on-road diesel fuel were put in place in 2002. Canada was able to match the U.S. requirements with a simpler set of regulations than those in the U.S. – yet achieve a higher level of environmental performance. The U.S. regulation has a 4-year phase-in, whereas the Canadian reductions are done earlier, and in one step.

### 4. National Pollutant Release Inventory

Environment Canada's National Pollutant Release Inventory (NPRI) is a legislated, nation-wide, publicly-accessible inventory of pollutants released to the environment. It provides Canadians with information on pollutant releases from facilities located in their communities and the quantities sent to other facilities for disposal, treatment or recycling. It is both a vehicle for collecting data to develop programs, and a lever to encourage emissions reductions by industry. Broader public and stakeholder consultation has always been an integral part of the program, and environmental groups have cited this as an excellent model for stakeholder engagement. The NPRI is also an example of federal-provincial co-operation and government-industry partnership. It provides a one-window pollutant inventory used by other levels of government, other Environment Canada programs, and some voluntary programs (such as Environment Canada's ARET program and the Canadian Chemical Producers Association Responsible Care program.)

Pollution prevention (P2) is a priority for Environment Canada. P2 planning is a new and unique risk management tool included in Part 4 of the Canadian Environmental Protection Act (1999), to manage the risk associated with substances found to be toxic under the Act. Under Part 4, the Minister can require persons to prepare and implement pollution prevention plans for substances determined to be toxic under CEPA 1999 by publishing a Pollution Prevention planning notice in the *Canada Gazette, Part 1*.

This notice is a results-based approach, generating quicker action towards reduction of overall risk to the environment and human health.

## 5. Pollution Prevention Plans

The use of the pollution prevention (P2) planning instrument has many advantages for both government and the regulated community. It encourages pollution prevention while recognising that industry is best placed to take corrective action. It provides industry with an early opportunity to develop and implement situation-specific solutions. It is a flexible instrument, enabling the industry to find innovative ways to meet the risk management objectives associated with particular toxic substances. Finally, P2 planning can be used as a stand-alone instrument or in combination with other instruments, as appropriate.

Both for the government and industry, the implementation of pollution prevention plans could mean the minimisation of the need for additional regulatory or other government interventions to manage the risk associated with toxic substances.

There are some opportunities for consultation and comment built in the P2 planning process. The Minister will involve stakeholders as early as possible in the process. The Minister intends to publish in *Canada Gazette, Part 1* a copy of each Proposed Notice, to allow a 60-day comment period before issuing the Final Notice, again in the *Canada Gazette, Part 1*. It is expected that stakeholders will use this 60-day period to comment on various aspects of the notice, for example persons subject to the notice, factors to consider, and time period allocated for preparation and implementation of a plan.

The public will also have access to the notices published in the *Canada Gazette*, the declarations and interim progress reports submitted to the Minister, and the requests for time extensions and waivers of factors to consider, together with the Minister's response. These forms will be posted on the Green Lane and on the CEPA Registry websites.

## 6. Environmental Performance Agreements

Environmental Performance Agreements (EPAs) are an innovative alternative to traditional regulation, which developed from early efforts on voluntary initiatives with industry in the 1990s. Positive reviews of voluntary initiatives in Canada and recommendations from the Commissioner of the Environment and Sustainable Development led to a new policy on negotiating environmental protection agreements between government and the business community.

EPAs are governed by the basic principles of effectiveness, credibility, transparency, accountability and efficiency. Environment Canada has entered into several EPAs, including ones aimed at reducing refractory ceramic fibres and DCE (dichloroethane). EPAs are an opportunity to reduce administrative burden associated with traditional regulation and provide greater flexibility to industry to meet the desired environmental outcomes.

## 7. Enforcement Tools – Innovative Development and Use

An important component of CEPA 1999 was the introduction of new tools that provide enforcement officers with increased flexibility in how they enforce regulations. In particular, CEPA 1999 introduced Environmental Protection Compliance Orders (EPCOs) and Environmental Protection Alternative Measures (EPAMs). EPCOs can be issued to prevent a violation from occurring, to stop or correct one that is occurring, or to require action to be taken to correct a violation. Both EPAMs and EPCOs are aimed at ensuring regulatees return to compliance without the time, cost and administrative burden associated with court proceedings.

Environment Canada is currently targeting its enforcement efforts. At a national level, Environment Canada assesses the likelihood of a facility being out of compliance and the risk of harm to human health or the environment to generate risk-scores for all of Environment Canada's regulated facilities. National and regional inspection plans will take into account the risk-score generated for each facility. Environment Canada has also significantly increased its intelligence program to identify the most suspect facilities for inspections or other enforcement actions. This risk-based approach will enable Environment Canada to focus its enforcement efforts while still providing representative and effective coverage of the entire regulated community.

### ***B. Improving Regulatory Development and Processes***

#### 1. NSN Consultations – Communications and stakeholder relations

When the New Substances Notification Regulations (NSNR) (chemicals and polymers portion) were first promulgated in 1994, Environment Canada and Health Canada made a commitment to review them three years after their implementation, to benefit from the government's, industry's and the public's experience with the regulations.

A two-year consultative process was therefore initiated in 1999 to identify ways to improve the NSNR, and featured balanced representation from government, industry, and public advocacy groups. These consultations resulted in 76 consensus recommendations dealing with revisions to the Regulations and Guidelines, changes in program procedures, increased transparency, further collaboration with industry on various issues, and intensifying international collaboration. The recommended changes will maintain high standards for protecting the environment and human health. This is a good example of integrating consultations throughout the regulatory process.

#### 2. Federal/Provincial/Territorial Cooperation

Environmental protection is a shared responsibility of the federal, provincial, and territorial governments. As such, co-operation between governments is necessary to achieve concrete environmental results. The Canadian Council of Ministers of the Environment (CCME) is the main forum in Canada for discussion and joint action on environmental protection issues of mutual concern. Current priorities include clean air, municipal wastewater effluents and other water quality issues, domestic use of pesticides, hazardous wastes and environmental quality guidelines. On air quality, jurisdictions have agreed upon, and are now implementing, a number of Canada Wide Standards for various emissions. Other Ministerial-level fora include the Joint

Meetings of Ministers of Environment and Energy (climate change), the Wildlife Ministers Council of Canada and the Canadian Endangered Species Conservation Council.

In addition to this broad multilateral co-operation on environmental issues, Environment Canada participates in a number of innovative sectoral initiatives with provinces, industry and other stakeholders. The following two examples demonstrate innovative ways to improve environmental performance and provide greater clarity on federal and provincial roles.

First, in 2001, the governments of Canada, Alberta and Ontario signed a Memorandum of Understanding (MOU) with the Canadian Chemical Producers Association (CCPA). Developed in co-operation with Pollution Probe, STOP, and two members of the CCPA Advisory Panel for Responsible Care, the MOU provides a framework for the signatories to work together to prevent and reduce the release of toxic and other chemical substances. The MOU targeted a 58% reduction in Volatile Organic Compounds (VOCs) from a 1992 baseline, and approximately 90% of these reductions have been achieved. Benzene emissions from CCPA member companies also decreased by about 2/3 from 1992 levels.

Second, the Canadian Petroleum Products Institute (CPPI) is working in partnership with Environment Canada, provincial governments, municipalities and non-government stakeholders under the CCME to develop a framework for the management of air emissions from refineries. The overall objective for this initiative is to reduce refinery emissions through facility level caps. The Refinery Framework will provide principles, methods and a monitoring and reporting strategy, which together can provide an innovative approach to reduce emissions from the petroleum-refining sector.

### 3. International Cooperation

Environment Canada's international co-operation efforts cover a broad range of issues, including multilateral environmental agreements, actions to reduce transboundary pollution and learning from experiences in other countries.

#### a) Global Solutions for Global Problems: Canadian Leadership

Environment Canada is an active participant in a large number of multilateral environmental agreements (MEAs) to address global environmental problems such as climate change, stratospheric ozone depletion and persistent organic pollutants.

Canada's experience with persistent organic pollutants (POPs) provides an excellent example of Canadian leadership and ability to build strategic partnerships. Canadian scientists identified health risks associated with POPs in the North in the 1970s and 1980s and established that the primary source of these toxic substances in the arctic environment was long-range atmospheric transport of emissions from other countries. Through the collaborative efforts of DIAND, Health Canada, Environment Canada and DFAIT, Canada led in building the science foundation and dialogue that led to international co-operation to reduce POPs. In parallel, Environment Canada worked with other government departments, industry and other stakeholders to dovetail domestic

initiatives with the international efforts. Canada was the first to ratify the UN-ECE POPs protocol in 1998 and the first to ratify the global Stockholm Convention in 2001.

#### b) Environment and Trade Issues

Environment Canada is also involved in efforts to address environmental concerns in trade agreements and negotiations. The goal is to protect and improve the environment in the territories of the Parties, and to promote sustainable development based on co-operation and mutually supportive environmental and economic policies.

Canada's approach to free trade includes explicit attention to environmental considerations, including the environmental assessment of trade agreements. At present, Canada has also concluded environmental side agreements under NAFTA, and with Chile and Costa Rica. We are negotiating or discussing environmental side agreements with 25 other countries, as well as under the Free Trade Areas of the Americas.

#### c) Transboundary Issues: Canada-U.S. Cooperation

Canada and the U.S. are closely connected environmentally and economically. The two countries share many environmental "spaces", such as air sheds, watersheds and migratory species, and we face many similar domestic environmental issues. There are major economic ties between the two countries, ranging from increasing trade in goods and services, to integrated ownership and management of firms in many industrial sectors.

As a result of these ties, there are a myriad of co-operative initiatives with the U.S. to manage transboundary environmental issues including the International Joint Commission for management of the Great Lakes and the Canada-U.S. Air Quality Agreement. Environment Canada also negotiated and signed the Ozone Annex in 2000, a major agreement with the U.S. to reduce the flow of transboundary air pollution. The Ozone Annex contains commitments for action by both countries and will deliver cleaner air to 16 million Canadians in Ontario, Quebec and Atlantic Canada and millions more in 18 U.S. states as they apply the commitments to reduce emissions of NO<sub>x</sub> and VOCs.

Canada and the United States announced in January 2003 a Border Air Quality Agreement which sets out a commitment to develop joint air quality pilot projects, and will serve as a platform to encourage continued innovation in border air quality management. One of the pilot projects will be joint Canada-U.S. analysis of the feasibility of cap and trade emissions trading of NO<sub>x</sub> and SO<sub>2</sub>, in order to improve ambient quality in both countries.

#### d) Learning from Other Countries

As Canada's economic and trade linkages with countries have expanded, Environment Canada has increasingly considered policies and practices in other countries in developing domestic policies and strategies to improve environmental performance.

Identifying Best Practices: Environment Canada has been working with industry and provinces for many years to improve industrial environmental performance. In many industrial sectors, regulations, codes and guidelines are based on performance and best practices of industry in other countries.

For example, Environment Canada worked with industry and provinces to develop two CEPA Environmental Codes of Practice for integrated and non-integrated steel mills – based in part on an extensive review of best practices in other countries. The review provided critical reference points for performance standards on atmospheric emissions, water and wastewater, wastes, and environmental management practices. The steel sector, regulatory agencies, and the general public use these Codes as sources of technical and policy guidance.

Pollution Prevention Programs: Environment Canada has co-operated with the U.S. and internationally in developing programs to ensure that our standards are in line with those in other jurisdictions, including the New Substances, Hazardous Waste, Environmental Emergency and Ocean Disposal programs.

Cooperation with OECD Countries: Environment Canada is an active participant in the OECD, which provides a forum for sharing information and developing co-operative approaches, such as how to deal with new substances. Since Canada accounts for only 2% of the world's chemical production, co-operating with other jurisdictions on international initiatives is important. The data requirements for Environment Canada's New Substances Program have been developed internationally through the OECD. The Canadian program also takes into account the information requirements for new substances in the U.S., and actually requires less information to be submitted by industry than in the U.S. Canada also has a formal agreement with the U.S. EPA, enabling the exchange of data and reports, and has signed a broad agreement to co-operate and work share with Australia.

At the international level, Canada has led efforts to strengthen international environmental governance, including actively promoting more effective and efficient multilateral environmental agreements. Canada continues to advocate the Four Cs – co-ordination, coherence, compliance and capacity building, as key to improving the international legal framework.

## **V. Moving Forward – Next Steps on Smart Regulation**

### ***A. Lessons Learned and Longer Term Challenges***

This paper has reviewed both the challenges facing environmental policy-makers and regulators in Canada, as well as the important progress made to date in improving regulatory instruments and processes. Several themes emerge that are worth highlighting.

First, we must continue to expand the toolbox, thereby improving and expanding the policies instruments available to us, particularly with respect to the use of market-based instruments. We need to continue this effort, given the increased pressures confronting regulators.

Second, increased policy complexity demands greater horizontal management of policy issues, and effective co-ordination and co-operation. This applies to the activities of different government departments, different jurisdictions within Canada, and our links to the international community. Once again, our experience shows that Canada has been a leader in this area, but we need to do more. The convergence analysis and framework of the next sections outlines several

important strategies to pursue, but this will continue to be an area requiring ongoing innovation and improvement.

Third, we face increasing demands and finite resources. Our science and regulatory capacity needs to be strengthened and managed more effectively. There are new substances, technologies and processes that will need to be assessed and managed with respect to their environmental impacts.

This paper does not provide a comprehensive analysis of all the approaches and instruments to improve environmental regulations. Instead, it identifies three areas of opportunity where we would like to push the envelope with selected exploratory initiatives. These will provide learning opportunities for Environment Canada and our partners in government and the private sector, and can lead to broader regulatory improvements in the longer term.

## ***B. Areas of Opportunity***

### **1. Economic Instruments**

In recent years, Environment Canada has been intensifying its efforts to analyse, explore and promote the use of economic instruments and incentives as ‘smart’, innovative and efficient tools for environmental protection and management. Indeed, this item has been one of the three main elements in the Minister’s new approach to environmental protection. We see economic instruments as a key part of our future efforts to improve environmental regulation, providing an important class of tools in our policy toolkit.

There is still a real lack of knowledge about economic instruments. Traditional regulators and the broader public are not familiar with how they work, and need to understand how they can be effective. Some stakeholders still see economic instruments as a “license to pollute.” Others are sceptical of the merits of an “additional tax”, although in reality, the charge simply reflects some of the real costs of valuable environmental resources. However, many groups and jurisdictions are increasingly enthusiastic about the use of economic instruments in environmental protection.

#### **a) Economic instruments – How and Why**

Unlike command and control regulation, economic instruments create direct price (or cost) signals for producers and consumers; prices that reflect scarce environmental resources and the costs of pollution. These prices help decision-makers to recognise the environmental implications of their choices. The power of the market to determine an efficient mix of investment and consumption can then be extended to the environmental aspects of economic activity. Higher relative prices for polluting products and activities affect both consumers’ decisions, as well as creating incentives for industry to treat, reduce or eliminate pollution. In some circumstances, economic instruments can be more cost-effective to traditional regulation, allowing a given level of environmental protection to be achieved at a lower cost. This advantage stems from the flexibility to take into account differences in the relative environmental up costs faced by firms.

# Types of Innovative Market Incentives and Instruments

There are two broad categories of economic instruments that may be used for environmental goals – non-tax instruments and tax instruments.

## 1. Non-Tax Instruments

There are four principal types of non-tax instruments addressed in this paper: tradable permits, user charges, deposit-refund systems and non-tax subsidies.

### *Tradable Permits*

In this approach, the responsible regulatory authority sets a ceiling on total allowable emissions of a pollutant. It then allocates the allowable emissions total among the polluters. It does this by issuing permits which authorise plants or other sources to emit a specified amount of the pollutant over a specified period of time or by way of a market mechanism such as by auctioning - or a combination of methods. Permits are subsequently allowed to be bought and sold. Tradable permits have been used in the US to reduce emissions of sulphur dioxide, and more recently in Canada to phase out consumption of methyl bromide. They are also the main instrument under consideration to reduce carbon dioxide emissions in Canada.

### *User Charges and Pricing*

These are charges that can be imposed on users of services that have an impact on the environment, and which are structured to reflect the cost of supplying the service. Examples of such services include municipal water supply and wastewater treatment, where many Canadians in urban areas pay on the basis of how much water they consume.

### *Deposit-refund Schemes*

These economic instruments can be used for products which can be reused or recycled and/or which create environmental problems if not disposed of in an acceptable manner. Under a deposit-refund scheme, a charge is imposed on the sale of such products. The charge, in full, or in part, is refunded when the product is returned to a collection system. Glass pop bottles are a well known example of a product using a deposit-refund system.

### *Subsidies*

Subsidies can have positive or negative impacts from an environmental perspective. It is important to view subsidy programs as both an environmental policy tool as well as a target for reform in that some existing subsidies can be considered perverse from an environmental perspective. For example, government programs which provide grants to subsidise the purchase of new, high efficiency/low pollution industrial equipment may be considered environmentally beneficial subsidies, whereas subsidies which encourage the cultivation of marginal lands are environmentally harmful.

## 2. Tax Instruments

There are three main tax instruments: environmental taxes, tax incentives, and a combination of new taxes and tax reductions known as tax shifting.

### *Environmental Taxes*

Environmental taxes are designed to modify behaviour by imposing a charge on particular activities or sources of an environmental problem. They can be applied to pollution emissions, inputs to a production process, or final products. A tax on emissions of ozone-depleting substances such as CFCs and taxes on non-recyclable packaging materials are examples of environmental taxes.

### *Tax Incentives*

Tax incentives are designed to encourage particular types of activities by reducing the tax burden for those who engage in these activities. Examples of tax incentives would include accelerated capital cost allowances for energy efficient equipment or renewable energy equipment such as windmills or solar panels.

### *Tax Shifting*

Tax shifting is a relatively new approach which seeks to reduce taxes in areas of the economy considered to be “good”, such as investment and labour (i.e., corporate and personal income taxes), and increase taxes on things which are considered “bad”, such as waste and pollution. Revenue neutrality is a key element of tax shifting, and refers to the idea that tax authorities (usually governments) neither increase nor decrease the overall amount of revenue they collect through tax shifting, only the sources change.



Economic instruments can also provide a continuing economic incentive for firms to reduce pollution, thereby stimulating innovation in the development and application of new technologies and processes. Moreover, the ongoing incentives with these instruments in some cases will achieve environmental goals more quickly, and can even encourage firms to surpass established standards or targets. This illustrates that when the economic signals are right, choices that are good for the economy converge with those that improve the environment.

A further advantage of economic instruments is that they can involve lower administration costs for both governments and industries than some more traditional approaches. The U.S. tradable permits program for CFCs took only four staff members to run, versus the 33 the EPA had estimated for an equivalent regulatory program, thereby saving the government and taxpayers considerable expense.

Perhaps one of the most practical reasons to use economic incentives and instruments is that they allow incremental progress. For instance, emission charges can be increased gradually. The goal may not be some abstract goal of fully costing environmental impacts, but rather smoothly adjusting relative price signals. This has been the approach largely taken in Europe.

One of the most innovative market-based approaches is to use fiscal policy to encourage better environmental performance. While this can involve the tax system, these instruments are different from ordinary taxes in one major respect. It is possible to use environmental charges in a manner that does not increase the overall burden on taxpayers - i.e. in a "revenue-neutral" manner.

First, environmental levies can be used to complement other environmental policies, such as "voluntary" programs. For example, in the UK many industries chose to enter into negotiated covenants with the government to reduce GHG emissions, and thus avoided paying a significant portion of the climate change levy.

Second, revenues from environmental charges can be recycled within the affected industries, thereby reducing compliance costs and overall competitiveness impacts. From 1998-2000, Quebec imposed a levy on purchases of the dry-cleaning solvent perchloroethylene (PERC) to create a fund to assist companies to purchase more efficient equipment. In Sweden, a NOx emissions charge was recycled within the affected industries (see side box).

Finally, revenues from environmental taxes (or permit auction fees) can be used to shift the tax burden. Governments can reduce distorting taxes on corporations and labour, thereby promoting investment and job creation, while taxing activities or products that we would like to see diminished, such as air and water pollution.

**Economic Instruments:  
International Examples**

- The 1993 U.S. SO<sub>2</sub> trading scheme was credited with reducing emissions faster than required, at approximately 1/5 of the prior estimated costs.
- Sweden used a revenue neutral charge and rebate system on power producers to reduce emissions of NOx per output by 36% over 6 years. The heavy polluters subsidised low-polluting producers, and the competitiveness impacts to the overall industry were minimised due to revenue neutrality.

Several European governments, such as the UK, Denmark, and Germany, have made some initial efforts in environmental tax shifting.

Many international organisations, such as the World Bank, the OECD, IISD, UNEP, and the World Business Council for Sustainable Development, have endorsed greater use of economic instruments, based on a positive assessment of their use around the world. The U.S. EPA currently refers to economic incentives as a key instrument for addressing environmental problems. It reports that at least 40 studies show that economic incentives are more cost-effective than traditional regulations. One EPA study estimates that with widespread use of economic incentives at the federal, state, and local level could reduce environmental expenditures by 25% (US\$50M).

## b) Economic Instruments – Three Initiatives

### *(1) Emissions Trading and Climate Change*

Canada's Climate Change Plan to reduce greenhouse gasses (GHGs) and meet our Kyoto Protocol obligations includes a major role for emissions trading by large industrial emitters of GHGs. Emissions trading, within a regulatory framework, was included because it is particularly suited to addressing the challenge of GHGs emissions reduction.

Under an emissions trading system, an environmental target is set limiting the maximum release of a pollutant within the relevant jurisdiction(s). The target can require moderate or very significant reductions, depending on the policy goal. Permits to allow this targeted level of releases, and no more, are then created by a governing authority, usually the government that has the authority to control and police the polluters. Firms are then required to have the requisite number of permits corresponding to their level of pollution. A key design feature of any emissions trading system is how to allocate these permits, but once allocated, the system will allow permit holders to buy and sell the permits, i.e. to trade, in a relatively unrestricted manner.

Several factors make emissions trading an attractive instrument. The system is cost-effective and efficient in that those with the lowest costs of reduction will tend to reduce the most, and those facing high costs reduce the least. It also reinforces the polluter-pays principle, in that permit trading will force those who continue to pollute, or increase their emissions, to compensate those who are making the greatest emissions reductions.

The basic theory supporting the use of emissions trading is fairly simple, yet there are many important design issues that need to be properly addressed to achieve the greatest benefits in practice. The final decisions on the form and management of the GHG emissions trading system are now being developed. There are still many complex details to work out, and there will be a need for ongoing "Smart Regulation" to make the system as effective as possible. One conclusion is clear – the very introduction of this major economic instrument represents a significant step forward in the use of smart regulation for environmental protection.

### *(2) Reducing Sulphur in Fuel Oil*

Environment Canada, as well as many other jurisdictions, has been implementing and developing policies and regulations to reduce the sulphur content in various fuels. The burning of fossil fuels which contain sulphur causes environmental and health damage, particularly by contributing to

acid rain and particulate matter in smog. Regulations on sulphur in gasoline have already been put in place, and the regulations on sulphur in diesel recently came into force. However, the management options for sulphur in fuel oils are now being developed.

The National Round Table on the Environment and the Economy (NRTEE) has been examining this issue, and its preliminary work has found that under some circumstances, economic instruments may be lower cost alternatives than regulations. Extending the NRTEE sulphur in heavy fuel oil analysis, Environment Canada is evaluating the feasibility of various management options to reduce sulphur emissions from light and heavy fuel oils, including taxation, tradable permits and traditional regulations

The results of Environment Canada's evaluation will be made available to stakeholders as part of the public consultations on light and heavy fuel oils. The Department also needs to address issues related to instrument design, compliance monitoring and enforcement issues, which would be needed for a more detailed assessment and final recommendation.

The results of preliminary investigations indicate that economic instruments such as taxes and emissions trading (as well as regulations) are feasible instruments for reducing the sulphur in fuel oils, however they all raise some concerns with respect to regional distribution of impacts. Further investigation of economic factors such as elasticities and price of fuel substitutes are needed to determine the relative cost-effectiveness of the different tools. The administrative and transaction costs related to the different instruments need to be assessed, and more background research is needed on the industry structure for the marketing and distribution of fuel oil in Canada.

Environment Canada is thus at an early stage in developing the management options for reducing sulphur in fuel oils in Canada. Whether or not an economic instrument is ultimately part of the package of management instruments chosen, the very fact that they have been given serious consideration represents real progress in our regulatory process.

### ***(3) Toxics Charge***

Environment Canada is investigating the possibility of a toxics charge for the management of toxic substances. A differential charge could be assessed against a broad array of substances, where the level of the charge was proportionate to the environmental damage or risk imposed by the substance. A key feature of such a measure is that it could encompass multiple substances – a schedule of charges set according to a categorisation of environmental damage or risk, potentially easing the resources required for substance-by-substance risk management.

Under CEPA 1999, the Minister of the Environment may be expected to declare hundreds of substances as toxic in coming years, due to the need to categorise the entire list of substances currently in use in Canada (the Domestic Substances List). Developing individual management plans for each substance will place an enormous strain on time and resources in Environment Canada. A multiple-substance approach would allow us to manage risk in an effective and efficient way, potentially saving time and resources.

Clearly developing the details of a potential toxics charge will not be a simple, quick task. It will take time, communication and consultations, and more thinking and decisions on design details.

However, a toxics charge has the potential to make a real leap forward in environmental policy and regulation. It could reduce time and administrative burden of individually developing and managing a broad variety of toxic substances, and set prices in the market that will discourage the use of more toxic substances while encouraging substitution of less toxic alternatives. If it is applied to a wide class of substances, it might avoid a real shortcoming of single substance regulation: when measures are taken to reduce one substance, there is no guarantee that firms will not develop, or substitute a more toxic alternative which has yet to be regulated.

Once the analytical work is completed, Environment Canada will assess, in consultation with stakeholders, whether the prospects for a using a toxics charge are promising enough to include as a practical management instrument.

## 2. Smart Regulation – Administrative and Process Opportunities

Government and business activities depend on good information. Governments require detailed information to develop and implement policies and regulations, for monitoring enforcement, and assessment, and to identify and communicate with stakeholders and regulatees. Yet acquiring timely, accurate, pertinent information can be costly. More information may improve a process, or regulatory instrument, yet we must also consider the time and resources needed to obtain it. In other words, we need to be constantly aware of the administrative and process burdens we impose as part of our regulations and regulatory processes.

We also need to consider *who* bears the costs of these activities, and whether this allocation is fair and efficient. Government regulations often impose administrative costs on business for information that is of little use to the business, but is desired by the government and the Canadian public. In any circumstances where the costs and the benefits of an activity are borne by different parties, (i.e. costs are externalised), this is cause to look closely at whether the benefits of the activity justify the costs.

Concerns about the overall burden of government regulation, including excessive administrative and process demands, have received significant attention over the last several decades, in Canada and around the world. In response to these pressures, the federal government renewed the federal regulatory process, striving to reduce over-regulation, to increase and improve consultation, and ensure transparency of the process.

### a) Reduce Unnecessary Internal Red-Tape

The additional government costs required to provide more checks and balances in the regulatory process will often simply reflect the cost of good governance in a modern democracy. However, there may be cases where the checks and balances have gone too far, and the moderate improvements in the quality of the regulatory results do not justify the additional time and expense.

For instance:

- Should a Regulatory Impact Analysis Statement (RIAS) be required for simply declaring a substance to be toxic under CEPA 1999. Currently this is the case, even though a declaration of toxicity implies no *specific* action by the government. Further, when the

required management plan is developed, a full Regulatory Impact Analysis Statement justifying the intervention (which may be minimal), and considering alternatives, will be prepared.

- How many times is it necessary to go the Special Committee of Council for a given regulatory initiative – is four times necessary or excessive?
- Are we over-consulting on some issues?

As each additional step is added to the internal processes of government, the cost to the taxpayer increases, and the nimbleness of government is further eroded. Smart Regulation should therefore ensure that the government itself is not overburdened with excessive red tape – some check and balances may need to be revisited.

The Deputy Minister's Challenge Team on Law-Making and Governance has already addressed the issue of internal red tape. Their recommendations include a need for Privy Council Office to adopt a more principled, results oriented approach, rather than providing specific directives to departments on regulatory efforts. Several recommendations deal with ways to reduce unnecessary steps and duplication in the regulatory process.

#### **b) Opportunities to Streamline External Regulatory Demands**

It is now recognised that governments need to justify the regulatory demands and administrative burdens they impose on industry and society. However, even when the benefits from such demands exceed the costs, there may still be significant room for improvement. Our understanding of business processes, and the developments in information and communications technologies, all create new abilities to streamline information requirements and processes to benefit both the regulated and regulators.

Parallel to the transformation of business processes by technology – so called e-commerce – is a restructuring of government processes and systems. The Government On-Line initiative, and other efforts within and across government, are using technology to improve government services. Environment Canada has used the Internet and other technologies to improve our communications with stakeholders, allow electronic filing of information, and save the department and regulated industries time and money. The CEPA registry on Environment Canada's web site is an excellent example of this.

Information and communications technologies allow us to conduct our business more cheaply and quickly. In the private sector, one of the more profound impacts of the technology is how it is changing the structure of business, allowing firms to be more profitable when they merge in some cases, and divest and outsource activities in others. The boundaries of firms and industries are shifting, and there may be similar opportunities for government. What made sense for government to do with older technology, and in an economy with a different structure, may need to adapt in a new context. We need to revisit basic assumptions on what government does, the level of government should be responsible, and how activities can be restructured, in the light of these transformative technologies.

#### **c) Links to Other Smart Regulation Efforts**

The use of a broader set of policies and regulatory instruments can also improve administrative procedures. A voluntary instrument, where appropriate, may replace government enforcement

with a alternative accounting mechanisms such as public reporting. The use of economic instruments may allow industries to integrate more easily the requirements of an environmental goal into standard business practices, thereby reducing the administrative burden for industry and government. In other cases, new instruments may demand additional information and administrative procedures, and these additional costs need to be weighed in deciding upon, and implementing, the regulatory instrument.

The “single window” approach can apply not only between jurisdictions, but also across different federal departments. Improved interdepartmental co-ordination of government interaction with industry and the public not only helps to reduce administrative costs; it also parallels the demand of sustainable development and Smart Regulation to develop policies and regulations in a more co-ordinated manner. Such approaches, however, may not be appropriate in all circumstances, given privacy concerns and the need for compatibility between systems.

#### d) Improving the Management of Toxic Substances

Environment Canada has developed several strategies and streamlined processes to improve our management of toxic substances under CEPA 1999. For example, developing a proposed risk management strategy prior to consultations will enable Canadians to better understand and discuss issues and options, contributing to more effective, focused public consultations. When possible, we will address multiple substances with a single tool and use “model or standard” provisions to improve predictability and streamline regulatory development. We will be focussing our efforts on the highest risk sources of toxic substances. We anticipate that only about half of the toxic substances will need to be managed with a regulation, which allows for greater use of the full range of instruments allowed under CEPA, including more flexible tools such as pollution prevention plans. Where it makes sense, we will also use CEPA to set guidelines and work with provinces to implement them through their permit processes.

#### e) Administrative and Process Opportunities – Next Steps

Environment Canada continues to look for administrative and process improvements, given the rapid and significant developments in this area. It looks forward to recommendations from the External Advisory Committee on these issues. This is an area that concerns all federal government departments and the Privy Council Office, and Environment Canada will work with them to streamline and improve regulatory activities. This work should build on the work and recommendations flowing from the Deputy Minister’s Challenge Team.

### 3. International Convergence Opportunities

As noted earlier, several international economic and environmental trends linked to globalisation pose challenges and opportunities for effective management of the Canadian, and global, environment. These linkages create strong and logical pressures for co-ordinated action. Indeed, many in industry are calling for regulatory harmonisation on the environment. There may also be good public policy reasons, such as creating a level playing field, in support of harmonised systems. However, there are also many that are legitimately concerned about widespread harmonisation with U.S. and global environmental standards.

Environmental conditions may differ and require tailored policies and instruments. Different broader social and legal contexts may point towards distinct approaches. More fundamentally, values with respect to approaches and endpoints may also diverge. Many are concerned that harmonisation implies adopting the lowest common environmental standard, and will impede efforts to improve environmental stewardship in Canada. Finally, many have strong feelings about sovereignty, which they believe could be compromised by one-sided, unidirectional shifts toward U.S. standards and instruments.

The analysis of the pros and cons of harmonisation is too complex to be fully presented here. However, the increasing environmental and economic linkages between Canada and U.S. open up new challenges and opportunities. One immediate strategy for Canada is to identify the “win-win” scenarios in the Canada-U.S. context where we can improve environmental performance and lever strategic business benefits.

Generally, Canada’s environmental management regime is more flexible, less complex and costly than that the U.S. system. Where the U.S regimes sets higher levels of performance than Canada, we may be able to match the U.S. levels, but in a more flexible and efficient way. Our environmental management regime could be a “competitive advantage” for Canada.

This matching of environmental performance levels is the essence of the concept of “convergence.” Environment Canada defines international convergence as a performance-based approach where Canada could match higher levels of environmental performance in other countries and develop its own efficient and flexible instruments to achieve that level of performance.

Convergence is broader and more flexible than harmonisation or adopting the requirements of other countries. In some cases, close harmonisation may be the right policy choice. In other cases, matching overall U.S. or international performance levels with flexibility to design “made in Canada” instruments to achieve them could make more sense.

The challenge is to ensure that whatever approach we take to improving environmental performance in Canada, it is designed with Canadian environmental objectives in mind and recognises the system of shared federal-provincial environmental governance.

Environment Canada has identified a number of strategic Canada-U.S. convergence opportunities.

<p>Environment Canada’s <b><i>Convergence Analytical Framework</i></b></p> <ul style="list-style-type: none"><li>• Builds on the tradition of co-operation among government, industry, environmental groups and other stakeholders in finding smart ways to improve environmental performance.</li><li>• At its core, a convergence strategy entails improving environmental performance.</li><li>• Three Analytical Steps:<ul style="list-style-type: none"><li>• Assess environmental performance – potential environmental gains from convergence?</li><li>• Identify and Characterize business opportunities stemming from Convergence Strategy</li><li>• Preliminary confirmation that a convergence strategy is feasible</li></ul></li><li>• Achieve equivalent environmental performance while taking advantage of the lower transaction costs, flexibility and less prescriptive Canadian environmental law and policy regime.</li></ul>
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#### a) Convergence Analytical Framework:

This is a tool (see side-box) which Environment Canada has developed to work collaboratively with industry, provinces and other stakeholders to tease out opportunities where matching higher levels of U.S. environmental performance could improve environmental and business performance. Environment Canada developed this framework as part of an exploratory initiative on Canada-U.S. convergence and is interested in undertaking case studies using the framework. Initial discussions are underway with provincial governments and with a number of industry associations.

#### b) Reducing VOCs in Consumer and Commercial Products:

Environment Canada is working with provincial governments and consulting with stakeholders on a strategy to reduce VOCs in consumer and commercial products. Environment Canada is proposing an approach based on convergence with the U.S. This convergence approach recognises the integrated nature of the North American marketplace for many of these products and will take advantage of the wealth of analysis and information available in the U.S. at the national, regional and state levels.

## VI. Conclusion

Environmental policy-makers and regulators face mounting pressures and demands driven by science and technology, globalisation, changing public attitudes and economic integration. Yet we have also developed a wide array of principles and approaches that will stand us in good stead in meeting these demands. Sustainable development, pollution prevention, the ecosystem approach, and the precautionary principle reflect our basic understanding of how to develop smart environmental regulation.

We have also identified the practical characteristics of sound environmental regulatory instruments and processes. Better instruments will be effective, proportionate and appropriate, cost-effective, performance-based, adequately enforced, etc. Effective regulatory processes must be open, transparent, and incorporate sound research and effective consultation.

Environment Canada's experiences with environmental regulation illustrate that many of these characteristics have been applied successfully. The examples provided illustrate both the development and implementation of better regulatory instruments, as well as improved regulatory processes.

Despite the importance of the guiding principles, defining characteristics and hands-on experience, developing Smart Regulation remains a challenge. It is never a mechanical exercise, and demands both judicious analysis and a sophisticated touch. Over the long-term, Environment Canada must take the approach of continuous learning, monitoring trends, researching and developing new approaches, and assessing best practices. More immediately, we have identified three areas where concrete action is needed: improving administrative efficiency, increasing use of economic instruments, and addressing international convergence.