

# ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT INDICATORS: ENVIRONMENT CANADA PILOT PROJECTS – ADDRESSING CHALLENGES

BARRETT, FRANK AND PASCOE, DAVE

Environment Canada

## 1 INTRODUCTION

This paper presents a snapshot of Environment Canada's efforts to develop new, more meaningful Environmental Compliance and Enforcement (ECE) indicators. Until recently, Environment Canada's enforcement-related indicators have focused on *outputs*. Examples of ECE output indicators include the number of compliance-promotion pamphlets sent, the number of workshops held, and the number of inspections, investigations, warning letters, and prosecutions completed. Outputs, while being relatively easy to quantify and a reflection of activities, do not reflect environmental results or characterize the state of compliance; they do not reflect progress toward our goals. While useful in understanding efficiency, they do not gauge the effectiveness of our compliance promotion and enforcement programs from the standpoint of environmental improvements, or reductions of industrial discharges (i.e. the real impacts of compliance promotion and enforcement actions).

More recently Environment Canada has placed a renewed emphasis on developing the means to measure the outcomes of its programs: improvements to industrial processes, decreases in rates of recidivism, reductions in the time for an industrial sector to come into compliance, etc. The goal is to reach a point where we can link compliance promotion and enforcement actions to actual improvements in environmental quality through environmental indicators.

This paper explains why Environment Canada embarked on its path to develop ECE indicators, describes pilot projects it currently has underway, and summarizes challenges we have learned must be addressed to successfully implement ECE indicator pilot projects. It also points to our interest in fostering partnerships for developing meaningful ECE indicators.

## 2 BACKGROUND

As we move into the first years of the new century, we find many influences converging that support current efforts to develop ECE indicators. These efforts are consistent with a trend throughout the Canadian government and the persistent demands of our many stakeholders. It also reflects a growing awareness of the need to develop meaningful ECE indicators internationally.

The Canadian government has been encouraging meaningful and effective performance reporting for more than a decade. In 1992, the government's Operational Planning Framework and the Green Plan placed much greater emphasis on the need for outcome-related performance measures than had previously been the case. In 1998, the federal government introduced a Planning Reporting and Accountability Structure, which more explicitly pointed to results-based indicators. More recently, central agency direction mandates the development of Results-based Management and Accountability Frameworks (RMAF), which explicitly link activities to outcomes through the use of logic models. All departments must develop logic models and outcome-focused performance indicators for all of their major program areas. Environment Canada is developing RMAF's within most of its business lines, including that of ensuring a clean environment. Developing a Clean Environment RMAF necessitates being able to link resource allocation (input) decisions with compliance promotion and enforcement activities and outputs, changes in polluter activities (intermediary outcomes) and, ultimately, changes in the environment (final outcomes).

Beyond the requirement for all departments to develop performance measures, Environment Canada has had more pointed reasons for developing ECE indicators. In 1997, two external audits of Environment Canada's enforcement programs identified the need for the department to better plan its inspections, develop a robust intelligence program, and report on the effectiveness of its activities. These audits lead to Parliamentary Committee hearings where these messages were re-emphasized. Subsequent to those hearings, Environment Canada reviewed its enforcement program in detail and submitted a Memorandum to Cabinet for increased funding. This funding was approved, eventually doubling the resources for the enforcement program. This approval came with a stipulation that Environment Canada track the utilization of these new resources, report on how its program is affecting the regulated community, and report how compliance rates are changing in general. To address these questions, we are developing a series of pilot projects as well as a Compliance Analysis and Planning (CAP) database.

The CAP database is gathering from multiple sources a comprehensive listing of all of the known regulatees and developing a risk profile at the facility level, based on a series of risk-related factors. Each facility is being "scored" on each factor, resulting in total risk-factor scores for each identified facility. These risk-scores will be used to stratify the regulatee population, enabling Environment Canada to draw separate representative samples for each stratum. The relative sample sizes for each stratum will reflect the stratum's proportion of total risk scores, as well as required precision and confidence levels required of the results. The samples drawn from each stratum will be used for our inspection planning. Compliance results will then be extrapolated back to the various strata and, once amalgamated, to the population. Separate samples will be drawn for priority regulations and industry sectors such that we can report back on regulation and industry sector compliance rates as well.

The CAP database will allow us to track compliance rates and trends in compliance rates. Although important, compliance rates only address part of the performance question. To manage our program well we need to be able to address several different performance-related questions:

- Are we achieving appropriate compliance levels?
- Are we improving environmental performance?
- Are we increasing the effectiveness of the program?
- Are we demonstrating the value of our activities to the public?

The CAP database will assist us in addressing some of these questions but Environment Canada is expanding its efforts far beyond CAP.

### **3 DEVELOPING PILOT PROJECTS – LEARNING BY DOING**

One of the key lessons learned from agencies that have more experience in developing and using performance measures is the importance of actually exploring and experimenting with performance measures, rather than waiting for others to develop a universal set of measures to apply.

Applying the learning-by-doing philosophy, Environment Canada is in the process of developing ECE indicators that will enable us to:

- analyze our program performance, and determine how successful we have been in securing compliance with an Act or regulation;
- show where we have to make adjustments to refocus our program so that it has the desired effect;
- report the results of our activities; and
- account for the impacts of the resources employed in our compliance promotion and enforcement programming.

To gain a better understanding of how to gather and use performance information, Environment Canada has embarked on a series of pilot projects. Ontario region has led the initiative with multi-year pilot projects in the agricultural and mining sectors. More recently, Environment Canada has also developed other pilot projects to explore what could be gathered and used to understand the effectiveness of different regulatory tools.

### 3.1 Agriculture and Mining Pilot Projects in Ontario Region

Beginning in fiscal year (FY) 2002-03, Environment Canada initiated a pilot project to develop indicators of outputs, outcomes and environmental results associated with compliance promotion and enforcement activities in the agriculture and mining sectors. These projects will continue through FY 2003-04 and end in FY 2004-05.

#### 3.1.1 Agriculture Sector

The agriculture sector project focuses on specific watersheds and measures compliance-related and other changes as a result of Environment Canada's compliance promotion and enforcement program. In 2002 baseline measurements in the environment were collected. A second round of measurement collection was conducted in 2003, after a period of compliance promotion. A further round of measurement collection will be conducted in 2004, after a period of enforcement. By assessing the results of these pilot projects, as well as other changes, we anticipate gaining a better understanding of the outcomes (the things farmers have done to improve their operations) as a result of both compliance promotion and enforcement actions. We also expect to better understand improvements in environmental quality (environmental indicators) as a result of our compliance promotion and enforcement efforts. We also seek to be able to assess the relative contributions and cost-effectiveness of both compliance promotion and enforcement efforts towards improving environmental performance.

We identified over 20 types of performance measures for the pilot study. While not all of the proposed measures will necessarily provide valuable insight, we chose to measure as many as we could. The aim was to move into the "real world" and apply some of the lessons learned from other jurisdictions.

Year 1 (2002) was limited to compliance promotion, during which compliance promotion staff and enforcement officers visited 192 farms. They provided advice with respect to harmful effects associated with cattle access to waterways and manure run-off; techniques through which to improve environmental practices; legal requirements associated with protection of the environment; and options available to enforcement officers. For the 43 farms where we found violations, we provided compliance promotion rather than enforcement actions.

In 2003, the 192 farms were revisited and the same output, outcome and environmental indicators were measured. Only 25 sites were found to be out of compliance, a decrease in non-compliance from 22 percent to 13 percent. This time we addressed non-compliance using enforcement tools. All sites will be revisited in 2004 and the same output, outcome, and environmental indicators will again be measured.

#### 3.1.2 Mining Sector Pilot Project

We selected the mining industry for the other Ontario Region pilot project as it is an industrial sector that is now subject to new regulatory controls. The project involves conducting baseline measurements and, following periods of compliance promotion and enforcement, determining changes to the baseline data so that we will be able to establish *outcome* and *environmental indicators*.

### 3.2 National Program and Compliance Performance Indicators

As a complement to the efforts by Ontario region, Environment Canada held an Environmental Compliance and Enforcement (ECE) indicators workshop in March 2003. At this

workshop, INECE, the USEPA and others shared developments of interest in ECE indicators in other countries. Participants of the workshop were shown how to work through a logic model and how the logic model can be used to develop an appropriate suite of indicators to better understand and assess program performance. Following the workshop, compliance assurance staff worked with program staff to develop four ECE Indicator pilot projects. These pilots include a new regulation, an existing mature regulation, a new emerging regulation, a pollution prevention plan and an environmental guideline. Specifically, pilots were developed for:

- **New Regulation - Environmental Emergencies (E2) Regulations:** Environmental Emergencies Regulations under the Canadian Environmental Protection Act (CEPA 1999) require companies using / releasing a certain quantity of specified substances to prepare environmental emergency plans.
- **Existing Regulation - New Substances Notification (NSN) Regulations:** New substances notification regulations under CEPA 1999 are the legislative tool under which industry provides information for the departments of environment and health to assess substances that are new to Canada and determine their allowance and any restrictions that may apply.
- **Pollution Prevention plan – Dichloromethane P2 Plans – DCM:** Under Section 56 of CEPA 1999, pollution prevention notices require companies to prepare pollution prevention plans, in this case for dichloromethane for 5 sectors, namely: aircraft paint stripping, flexible polyurethane foam blowing, pharmaceuticals and chemical intermediates manufacturing and tables coating, industrial cleaning, and adhesives formulation. Pollution prevention plans are subject to enforcement actions.
- **Environmental Guideline: Volatile Organic Compounds (VOCs) in Consumer Products:** These guidelines specify a limit on the concentration of VOCs in consumer products. These guidelines are consistent with the US-EPA rules on the same products. These guidelines are voluntary and not subject to enforcement actions.

To develop ECE indicators for each of these pilot projects, the Compliance Assurance program staff:

- developed a logic model and identified performance indicators for compliance promotion as proposed in RMAF guidance documents; and
- created a work plan for implementing the data collection activities for the performance indicators developed by each team.

We prepared draft logic models and work plans and circulated these to the pilot project teams. After review and comment, participants from the four pilot projects met via teleconference, allowing all four pilot project teams to share their planned data collection and processes and build on each other's plans. Following minor refinements to the logic models and work plans, the project teams sought management approval and began project implementation.

The goals of these projects are to develop and evaluate doable, practical means of measuring performance within the compliance continuum. Specific project team objectives are to:

- create work plans and coordinate the work of four pilot project teams in applying the RMAF logic model as a basis for creating performance indicators; and
- report results and explore how to integrate performance indicators into existing programming, particularly through compliance strategies.

These pilot projects are presently in the data collection phase. From December - February, Compliance Assurance staff will assess the data collected. In February 2004, the Compliance Assurance Team plans to host a second performance indicator workshop to review

the results of these pilots and their applicability for more comprehensive application in Environment Canada's programming.

#### 4 CHALLENGES TO OVERCOME

As Environment Canada moves more deliberately into the area of developing ECE pilot projects we find several challenges – real and perceived – that must be specifically addressed.

- **Resisting the drift:** Organizational change does not come easily. New initiatives, such as developing ECE indicators, generally entail new responsibilities and activities. The tendency is for new initiatives to peter out as the initial enthusiasm wanes; and organizational inertia can easily result in a “drift” back into doing what an organization is used to doing. Resisting the drift requires sustained focus and attention. The purpose, progress and impact of the new activities must be repeated often. Milestones should be clearly established and successes celebrated.
- **Performance indicators perceived as too complicated:** Developing performance indicators strikes many as a daunting task – one for which many compliance promotion and enforcement staff believe they are ill equipped. We used two important strategies to address this concern:
  - We developed teams around each pilot area and asked departmental specialists in RMAFs and performance indicators to lead each team in facilitating the discussion and developing the indicators; and
  - We scoped the breadth of the pilots to sizes for which the work teams were comfortable. In some cases this meant scoping down a proposed pilot project and simplifying the tasks.
- **Selecting the best indicators:** Although many indicators are being tested, we need to determine which ones best represent what is happening and tell us which programs are working and which are not, and how to make adjustments to obtain the desired results. We also need to determine which indicators are more easily and more cost-effectively measured.
- **Obtaining the data:** Developing performance indicators often carries a perception of being very costly and carrying a high probability of failure. Explicit use of a logic model has helped Environment Canada to mitigate these concerns. By explicitly mapping how the inputs, activities, outputs and various levels of outcomes are logically linked, prior to seeking specific measures to collect, program staff gained confidence that they will be able to interpret the results of their suite of indicators in a meaningful way. They also found that a lot of the desired information was, in fact, already being measured, though not comprehensively, consistently or for the same purposes. The cost of developing ECE indicators for the pilot projects was lower than had been anticipated.
- **Proper interpretation of data:** We need to determine which activities are responsible for specific outcomes. For example, if an industrial plant invests money to improve its waste treatment facility resulting in less effluent, this improvement could have been motivated by the mere existence of a new regulation, by compliance promotion or enforcement actions, or by some other factor, such as the economics associated with reduced costs associated with less water usage. Anticipating these possibilities through the application of logic models helps, as does re-introducing various measures in a series of pilots.

- **Pilots do not tell us much:** Some staff has expressed concern that even if we learn more about compliance promotion and enforcement results within one watershed along the Great Lakes, or measure outputs and outcomes related to one program, we will not be able to extrapolate these results or draw any inferences about the larger program. Even if this perception is correct it does not negate the value of the indicators for the activities or program measured. More importantly, the more an organization learns to develop and use indicators, the more it will know about its programs over time. Starting small and progressing as experience leads to success is infinitely more valuable than wanting to measure everything and developing nothing.
- **Lack of management interest:** While central agencies want performance information, the benefits to line management may not always be as apparent. Key to the success of new pilots is finding the enthusiasts and working with those who want to participate. It is also important to constantly remind staff how these measures will support line management in their decision-making.
- **Indicators can be seen as a threat:** To the extent that performance indicators accurately reflect program performance, they may be resisted as a potential means of critiquing management performance. For instance, we may find that results may not be as strong as earlier believed (e.g., programs that have been in place for years may not be providing the expected results). It is important to convey that the journey to develop performance measures is geared primarily to support program management not evaluate it.

These examples present only a few of the many challenges that await change agents seeking to implement ECE indicator pilot projects. In 2000, Canada's Office of the Auditor General reviewed the implementation of performance measurement within departments and concluded that the process of introducing performance measurement has an even greater impact on changing organizational cultures toward ongoing learning and managing for results than it does on measurement and reporting. In essence, we view the development of ECE pilot projects as a modest but important step toward fostering a learning organization.

## 5 FOSTERING LEARNING THROUGH PARTNERSHIPS

Environment Canada is actively seeking to learn how best to develop, implement and apply ECE indicators in its compliance promotion and enforcement programming. At the same time we seek to learn from - and share with - other agencies that are also interested and actively developing ECE indicators. In 2003, Environment Canada looked at international efforts to develop ECE indicators and found that many agencies are trying to establish links between their programs and improvements in compliance and environmental quality.<sup>1</sup> Some of the key findings of that review are:

- many indicator projects have been completed, from which other jurisdictions could profit through the selection or adaptation of performance measures for their own programs;
- many indicator programs are underway with results pending, and these need to be tracked so that other jurisdictions can learn from the successes and failures of these programs;
- several new and innovative performance measures have been developed;

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<sup>1</sup> Review of Work on Performance Indicators for the Measurement of Enforcement Actions, August 2003; Lumb, A.B.

- some agencies have suggested that certain indicators be discarded as they result in technical difficulties in measurement or interpretation, they overlap with other indicators, or they were found not to be of national or regional significance;
- there are still no conclusive findings that demonstrate the relative effectiveness of compliance promotion and enforcement efforts for achieving better environmental performance.

Understanding what works in other jurisdictions can be very informative about what should be tried – and avoided -- within one's own program areas. On February 24-25, 2004, Environment Canada will host its second ECE indicator workshop. This workshop will present the results to date of our Ontario and national pilot projects and consider how to develop and use ECE indicators more extensively throughout its compliance programming.

Environment Canada is also interested in learning from our partners through collaborative initiatives. As we develop additional pilot projects in the future, we welcome the opportunity to explore the feasibility and value of developing concurrent pilot projects with partners in other jurisdictions – both to explore the extensiveness to which ECE indicators can be used in multiple jurisdictions and to compare performance results internationally.

## **6 CONCLUSION**

All Canadian government departments are increasingly required to provide sound, comprehensive analysis of both the efficiency and effectiveness of their programs. Environment Canada is committed to developing Environmental Compliance and Enforcement indicators both as a means of addressing these reporting requirements and for providing management with the information it needs to steer its compliance promotion and enforcement programs. ECE indicators are being actively developed and tested within Environment Canada through a series of pilot projects, both at the regional and national levels. Although there are many potential challenges to developing and implementing pilot projects, Environment Canada staff has found means to address each challenge as it has occurred. Through the OECD-INECE ECE indicator workshop and follow-on activities, Environment Canada welcomes opportunities for developing and implementing ECE pilot projects in collaboration with our INECE partners.