

Indicators of Effective Environmental Enforcement

Proceedings of A North American Dialogue

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Preface

Background

In 1993, Mexico, Canada and the United States signed the North American Agreement on Environmental Cooperation (NAAEC). NAAEC establishes the Commission for Environmental Cooperation (CEC) and imposes certain obligations and commitments on the three countries, a number of which relate to environmental enforcement. Article 5 of NAAEC obligates the Parties to effectively enforce their respective environmental laws and regulations, with the aim of achieving high levels of environmental protection and compliance. Further, the provision sets out a non-exclusive list of actions that may be deemed to constitute effective enforcement. Article 6 requires that the Parties take specific prescribed actions to provide private access to remedies, inclusive of the right of interested persons to request the Parties' competent authorities to investigate alleged violations and to give such requests due consideration. Article 12 of NAAEC requires the Parties to provide an annual public report on their compliance with enforcement-related obligations, including data on enforcement activities. Finally, the CEC Council is mandated to encourage effective enforcement by the Parties of their respective environmental laws and regulations, compliance with those laws and regulations, and technical cooperation between the Parties.

In addition, NAAEC introduces a number of processes for examining the effectiveness of the Parties' enforcement actions. One process involves the review of submissions by any nongovernmental organization (NGO) or person alleging failure by a Party to effectively enforce its environmental laws. Another establishes procedures for reviewing and resolving inter-party disputes concerning allegations of persistent patterns of failure by any Party to effectively enforce its environmental laws. Failure to resolve the latter allegations may result in the imposition of monetary penalties or trade sanctions.

In furtherance of these obligations, the CEC in 1995 established the Enforcement Cooperation Program. The objectives of the Program include, among others, support to the Parties in the preparation of their annual reports on NAAEC enforcement-related obligations and in the examination of improved indicators or measures of effective enforcement and compliance. The Program is developed under the guidance of the North American Working Group on Environmental Enforcement and Compliance Cooperation (EWG), composed of senior-level environmental enforcement officials representing national, state and provincial agencies, formally constituted in 1996 by the CEC Council.

The Indicators of Effective Environmental Enforcement Project

In 1997 the CEC, under the guidance of the EWG, initiated a project to explore development of indicators or criteria for evaluating the performance of the Parties in implementing policies and programs for effective environmental enforcement. The objectives of this project include:

In the short term:

- documenting the Parties' current efforts to implement criteria and processes for evaluating and responding to indicators of effectiveness of their respective environmental enforcement policies, programs and strategies;
- facilitating intergovernmental exchange of information and expertise in the development and use of indicators; and
- providing a forum for dialogue amongst government, public and industry on the development and use of indicators and analysis of trends in each country's performance with a view to establishing a baseline.

In the long term:

- exploring the appropriateness of North American indicators of effective environmental enforcement policies, programs and strategies;
- supporting the development of more effective indicators; and
- providing public reports on the Parties' fulfillment of their enforcement obligations, using agreed upon indicators

Progress to Date

This report presents the results of work completed to date in the indicators project. Part One includes proceedings of the CEC-sponsored North American Dialogue on Indicators of Effective Environmental Enforcement, held May 1998 in Puebla, Mexico. The Dialogue was organized by the Enforcement Cooperation program in consultation with the EWG, and included participants from North American enforcement agencies, industry, NGOs and international institutions, including the European Commission and the World Bank. Issues for discussion at the Dialogue included:

- What are the key issues and challenges in developing and applying indicators of effective enforcement of environmental laws?
- Should indicators of effective enforcement be linked with indicators of overall environmental performance? If so, what are the implications for both indicators and what are the possible mechanisms for linkage?
- Are existing indicators adequate to evaluate the use of both traditional approaches to enforcement and more innovative or voluntary approaches?
- Do domestic or international indicators or performance evaluation processes already exist which could provide useful models for this exercise?

Part One of the proceedings includes presentations, a summary of the discussions and a list of participants.

Part Two includes the reports commissioned by the CEC as background documents for the Dialogue and as the baseline for future cooperative efforts in this area. These documents are:

- reports on Canadian, Mexican and United States policies, programs and strategies related to indicators of effective environmental enforcement;
- a report reviewing the actual and potential use of public response indicators for evaluation effectiveness of government policies, programs and strategies; and
- a report briefly reviewing European experience with the development and use of indicators of effective enforcement.

The environmental enforcement indicators project is a continuing initiative of the CEC. Current and projected initiatives by the CEC in this area can be consulted in the CEC Three-Year Program Plan: 1999-2001. The Plan can be viewed on the CEC web site at <<http://www.cec.org>>.

Disclaimer

I wish to clarify that, unless the contrary is clearly expressed, any opinions or views expressed in the report are not intended to represent the views of the CEC or the Parties.

Linda F. Duncan
Head
Law & Enforcement Cooperation Program

Acknowledgments

On behalf of the Commission for Environmental Cooperation (CEC) I wish to acknowledge the following persons and organizations who contributed to the Indicators of Effective Environmental Enforcement Project. I wish to acknowledge the contribution of those members of the North American Working Group on Environmental Enforcement and Compliance Cooperation who advised the CEC Secretariat on the design and delivery of this project, including planning of the Dialogue on Indicators of Effective Environmental Enforcement:

- Sylvia Lowrance, Principal Deputy Assistant Administrator, Office of Enforcement and Compliance Assurance, United States Environmental Protection Agency
- Mtro. Antonio Azuela de la Cueva, *Procurador Federal, Procuraduría Federal de Protección al Ambiente* (Profepa)
- Dale Kimmett, Director of Enforcement, Environment Canada
- David Ronald, Criminal Division, Office of the Attorney General, State of Arizona
- Fred Schulte, Director, Enforcement and Monitoring Division, Alberta Environmental Protection
- Mtra. Norma Munguia Aldaraca, *Coordinadora de Asuntos Internacionales, Procuraduría Federal de Protección al Ambiente* (Profepa)
- Michael S. Alushin, Director, International Enforcement and Compliance Division, Office of Enforcement and Compliance Assurance, United States Environmental Protection Agency
- Armand Lepage, International Enforcement and Compliance Division, Office of Enforcement and Compliance Assurance, US EPA
- François Gagnon, Management Report & Information Division, Office of Enforcement, Environment Canada

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I wish to thank the dedicated team of consultants who prepared and revised the CEC commissioned reports with careful attention to their timeliness and accuracy:

- Canada Report: Joseph Castrilli
- Mexico Report: Lic. Wilehaldo Cruz Bressant
- United States Report: Robert Kerr, Kerr & Associates
- Public Response Indicators: Elizabeth Swanson, Environmental Law Center
- European Report: Dr. Lothar Gündling

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Appreciation is extended to those who served as chair or rapporteur for the Dialogue, including Sylvia Lowrance, Mtro. Antonio Azuela de la Cueva, Margot Priest, Kal Raustiala, Andrea Moen, Professor Christopher Stone, Mtra. Beatriz Bugada, Dr. Alberto Szekeley, and William Long. Thank you also to the Dialogue participants for sharing their knowledge and expertise and in preparation of the final proceedings.

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Linda F. Duncan
Head
Law & Enforcement Cooperation Program
Commission for Environmental Cooperation

Part One

The Dialogue on Indicators of Effective Environmental Enforcement

Session One:

Introduction to the Dialogue: The Challenge of Implementing Effective Environmental Enforcement Indicators

- Where does the obligation for effective enforcement arise?
- What is the impetus for cooperative exploration of indicators?
- Why do we need indicators?
- What are some of the major challenges in designing enforcement and compliance indicators?

Dr. Eduardo Macip Zúñiga

***Secretary of Development and the Environment
State of Puebla
Mexico***

Good Morning. I would first like to thank you all for joining us here in Puebla. On behalf of the state government, I would like to offer you a warm welcome, and hope that the work we are about to begin will be of great value to both the state government and to Mexico, as well as to our relations with the United States and Canada.

The conference scheduled to take place over the following days is extremely pertinent. The topic has been of great importance to our state. The government of the State of Puebla has made great efforts by means of a development system which is divided into three areas. The first of these is the Northern Sierra Program, which focuses on development in the northern part of the state. The second involves a Regional Development Program covering 14 municipalities in the central area. Finally, there is the Sierra Negra Development Program, which many of you are now familiar with, and which includes the Mixtec region in the southern area of Puebla. Several regional development programs are contained within these overall development programs; most of these have received considerable promotion, since the current state government will conclude its term of office next year. We have been working alongside federal institutions to provide the necessary support for all activities carried out under the auspices of ecological programs. Furthermore, many of the observers here today are members of the State Commission invited to this session to give them a more in-depth view of the work proposed here.

I would therefore like to ask my friend Antonio Azuela to give us a more detailed explanation of the conference program, since I feel that this information will be especially useful to our guests, members of the state ecological agency, and to our visitors. We would like to offer you all a very warm welcome, and hope that you will feel free to request anything you require during your stay in our state.

Thank you.

Mtro. Antonio Azuela de la Cueva

*Federal Attorney General for Environmental Protection
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Government of Mexico
Mexico City, Mexico*

Good day to you all, Dr. Macip, Sylvia Lowrance, Linda Duncan, colleagues, ladies and gentlemen. It is with great satisfaction that I welcome such a select group of specialists to this seminar. Your presence here reflects the conclusion of a process that has been under way for a long time within the Commission for Environmental Cooperation (CEC). What we are witnessing today is the important coincidence of interest between the Mexican government and the global project of the CEC. I am sure that this dialogue will also be of interest to the United States and Canada, since we all wish to improve our information systems. From the perspective of Mexico, this is an especially satisfying coincidence. In 1995, Profepa decided to promote an information management system as part of its environmental management endeavors. Meanwhile, within the CEC, each of the three countries has expressed its interests in a differing manner. The evaluation of environmental regulation is extremely important for the modernization of environmental management.

When we speak of information and modernization, we are invariably tempted to focus on the technological aspects of information systems. Nowadays, the world of information technology is characterized by many innovative elements, and we are greatly encouraged by the increasing opportunity to utilize data. Nonetheless, I believe that the relationship between information and modernization does not lie in the information itself, but may be found in its significance for environmental management. This is what will help us achieve a modern society, or modernize the relationship between society and the government.

The modern state was born at the same time as the development of the information age. Until the eighteenth century, births and deaths were not registered. During the nineteenth century, information systems began to emerge in the modern states, registering data such as suicides, while also defining ideas on what was normal or abnormal in terms of health, birth, death and life itself. The manner in which society perceived and accepted certain quantifiable and predictable phenomena as normal also began to play an important role. Modern systems would not exist if we did not have information. Furthermore, it is not simply a question of amassing information, but rather one of how it is used. The most important element characterizing modern states is the possibility of establishing a dialogue between citizens and their governors on current events, on everyday social matters. The only way to really discuss these events is to have an efficient information system. If we did not have good information systems, then we would not have the opportunity to discuss modern social events. Neither could we evaluate the measures implemented by governments to change history, or to modify the course of events in any given area.

As regards environmental problems, conditions generated within society at a given moment in time often create smoke screens that conceal the application of environmental legislation. This means that cases of infringement by one or various companies are reported, or conversely, legislation is severely applied against one or more companies. The notoriety of such cases in the media often creates the illusion of a general lack of compliance. Since these illusions are invariably generated by media distortion, they may only be corrected by trustworthy information systems. Consequently, since 1995, the strategies contained in the National Environmental Program of the Mexican government have included the creation of information systems. One of these information systems, the system of indicators of compliance with environmental standards, is designed to ascertain compliance levels on a factory-by-factory basis. Likewise, it is used to determine on a regional basis the record of compliance or non-compliance with environmental standards.

This information system is intended to provide historical follow-up on company behavior, and serves two essential purposes. The first of these involves knowing exactly in which aspects industry experiences compliance

difficulties. Compliance with environmental standards is not a homogeneous reality, but is rather a group of features which should be differentiated in order to analyze industrial behavior. We need to dismantle industrial obligations to see where companies are complying, where compliance difficulties arise, and where there is resistance. Without an information system allowing us access to such details, we cannot evaluate company performance. We are clearly running the risk of creating information systems that are so detailed and abundant that it becomes easy to drown in a sea of information. We therefore need to make some type of synthesis, or develop some kind of criteria, with all the harshness this implies, in order to express approval or disapproval. Since we need to inform society of the manner in which companies are evolving, this is the only way we may qualify company compliance or non-compliance.

The value of this information clearly lies in the possibility of programming our inspections in a far more rational way. Since its creation in 1992, Profepa has implemented a very ambitious program of industrial visits, which enables us to review all industrial facilities in less than three years. Once these industrial facilities have been inspected several times, the information system must enable us to ascertain which facilities need to be inspected more frequently, where we need to require changes, where we have to accept important technological obstacles, and where we must be far more severe. Without a sophisticated information system, we are unable to orient our activities in the complex world of industrial performance.

An additional information system goal involves informing society of industrial performance. This means publicizing the results generated by tests applied to companies, and naturally obliges environmental authorities to proceed with great care so as to avoid violating company rights. This situation inevitably implies a certain degree of legal discussion as regards the freedom with which the authorities may publicize such information. This year at Profepa, we will begin to publish aggregate figures by activity sector, and will later give out more individualized data. We now have a highly-developed system ready for implementation, and feel that this session will provide us with an excellent opportunity to benefit from the opinions of the experts invited here by the CEC. I would just like to say that this seminar is extremely important for Mexico, since we consider it an important contribution to our country from the CEC. We feel that the CEC is now paying us the dividends we have expected from it since the parallel Free Trade Agreements were signed. We also believe that we are now reaping the benefits of our process of integration with North America, a process that is now satisfying our obligations regarding indicators of compliance with environmental standards; this is essentially a series of mirrors in which we may view ourselves. In this dialogue, we are aided by experts in public policy, lawyers and nongovernmental organizations to help us situate our work in a broader context, and evaluate our actions. As far as we are concerned, the coming months and years are crucial, since we are implementing an information system that must function for a long time.

In conclusion, I feel I should stress a very important point. For an information system to be useful, it must be maintained for many years, since we are only able to appreciate the evolution of compliance with environmental standards over time. Furthermore, we will only achieve this goal by refraining from drastically modifying our information systems. We must therefore be sure that we have a solid information system, and that no one feels the need to radically change it over the next five to ten years. We are certain that the results of this seminar will help us maintain our information system as a durable and solid tool which will allow us to attain our goals.

I would like to end by offering my very special thanks to Linda Duncan, and to the personnel of the Commission for Environmental Cooperation as a whole, for the great efforts they have made to make this seminar possible. I would also like to thank Sylvia Lowrance and her colleagues for accompanying us here today. I would ask Dr. Eduardo Macip to convey our greetings to Governor Manuel Bartlet, and to inform him that we are working for the good of North America, and feel that Puebla is indeed a worthy host for such efforts. I would now like to invite Sylvia Lowrance to make her opening remarks. Thank you very much.

Sylvia Lowrance

*Principal Deputy Assistant Administrator
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency*

Thank you very much, Antonio, and thank you for sharing those perspectives with us. I would also like to thank you for allowing us to hold the conference in this lovely setting, and I would like to take the opportunity this morning as we open the conference to share with you my perspective on the issues we will be discussing in the coming days.

First of all, I think our dialogue over the next few days will give us all an opportunity to exchange information on compliance measurement activities within our own countries. I believe it is an opportune time to do that, because I know that in each of our countries this is an issue that we are addressing individually, and one that is the subject of a great deal of public dialogue in the United States. Secondly, it provides us an opportunity to learn from each other, and to take those lessons back to the work we are doing in our own countries. In addition, the Dialogue provides an opportunity to begin exploring possible common approaches to measuring environmental compliance, and may encourage us, at some point in the future, to consider possible common measurements of that compliance, across the three countries consistent with the provisions of the environmental agreement.

Our goal over the next few days is to engage in an open exchange of ideas. This is not a negotiation, but an opportunity for us to learn from one another, to discuss, to challenge one another, and then to take back our best of thoughts to our respective work and our countries. It will give us new ideas for use not just within our own countries, but for the Enforcement Working Group at the Commission for Environmental Cooperation (CEC). These deliberations will be reported to the Working Group, and used to determine future steps which may be jointly undertaken by the three countries.

I would like to take a moment today to review the four questions that are on your Agenda as we open the Dialogue. The first question is, from where does the obligation for effective enforcement arise? For that we need only refer to Article 5 of the North American Agreement on Environmental Cooperation, by which all three countries involved commit to taking actions to ensure strong enforcement and compliance programs. In addition to maintaining strong enforcement programs, the Agreement is also instructive in guiding us on the other issues that confront us on compliance measurement. Several parts of the Agreement address the need for public information, public involvement, and public transparency in all the efforts that we undertake. I think as we approach our discussions over the next several days, this needs to be a major consideration. How, as we develop new ways of looking at compliance measurement, can we ensure that the public we serve has access to that information and shares their response to that information with us.

The second two questions, which I will deal with together, include: what is the impetus for cooperation on indicators; and why do we need indicators in the first instance? I think there are several reasons. First, within our own programs, we have a need to understand the state of compliance. I would like to point out, in the environmental enforcement area in particular, this is a very complex issue. I often view those of us who work in the enforcement area as having to wear two hats. Our first hat is that of law enforcement officials, who need to ensure that laws are effectively and fairly enforced and that they are complied with. The second hat we wear is that of an environmental professional, and in that regard, we must be mindful of the actual environmental results of each and every action that we take. So as we approach our indicators work, I believe it is important for us to keep in mind both of those perspectives.

Certainly, indicators of enforcement activity—such as inspections and the number of actions taken—are very important. These are the so-called “outputs” of government activity. These indicators are important because they

provide a sense of the level of governmental presence. I think this is important to citizens. It gives an indication of the level of enforcement, which is another indication of presence, and both of these, I believe, help deter would-be violators of environmental law. Yet we recognize that these measures alone are not sufficient to measure environmental results. We need to continually strive to relate the work we do as enforcement and compliance officials to long-term achievement of environmental results. The activities that we undertake in this Dialogue should address both of our needs.

The other need for indicators stems from a very basic need, arising from the fact that we are accountable to the public we serve for the actions we undertake. As members of the public service, we have an obligation to provide citizens with information regarding our activities. In the United States we have recently embarked on a new set of environmental indicators that you will hear about from Michael Stahl later in the conference. I think that the trend in the United States, both at the Federal and State level, is toward greater accountability. We are implementing the new Government Performance and Results Act at the Federal level in the United States government. Under this Act, every agency of the Federal government must have a long-term strategic plan that establishes goals, strategies to achieve those goals and provides performance measures for their achievement. This will be used by our legislators and by our citizens to judge whether we are doing an effective job in accomplishing our missions. Our new measures program is part of our country's long-term strategic plan and we are committed to implementing it. Most of our states now have this type of law as well, and are developing their strategic plans and measurements to achieve our common long-term environmental goals. Why act collectively? I think there is a tremendous opportunity for us to learn from one another, and I also believe that over time there is in the future tremendous potential for identifying common measures of success, and this, ultimately, is one of the goals we should seek to achieve among the three countries.

The last question I would like to address briefly is regarding the major challenges we face in designing an enforcement and compliance indicators system. It is in some respects simple to measure outputs by assessing the number of inspections or the number of violations. That in some cases is very simple, but at other times it is not so simple. In the United States, we measure level of inspection, number of violations, and types of actions taken to address those violations. We keep national data on penalties, on injunctive relief and, over the past few years, we have kept data on pollutant loading reduction achieved by our enforcement activities. Yet I return to a comment made by Antonio Azuela de la Cueva. Maintenance of data systems is very expensive. Just collecting that data can be very complex, when it is being done on an ongoing basis in order to provide information for determining trends, necessary for us to make prudent management decisions. We also face the need to go further.

New types of output that we will be looking at have to do with evaluating overall compliance rates for various industrial sectors. How well are they doing? We are also looking at the pollutant loading reductions that we are achieving and relating them to our overall ambient environmental goals. These are very complicated because, in addition to governmental data, it begins to require industry-generated environmental monitoring data to better understand what we are achieving with our environmental activities.

These are but a few of the difficult issues we confront. As I close, I would like to re-emphasize a variable which I think should be prominent in all our discussions. That is the concept of public access, and I distinguish public availability of information from true public access. Public availability of information refers to the right of citizens to request and obtain information. I think as we move into the new information age, on-line public access is becoming more and more meaningful, and I believe in the future this will become the norm. We need to consider that in our current deliberations, as we make choices on what types of indicators are the most appropriate ones, to build our systems, to measure ourselves and to provide the public with access to information.

I am pleased to announce that last week in the United States, for the first time, we have loaded onto the World Wide Web facility-level data for five industrial sectors, including facility-level environmental performance data, recent compliance history, recent inspections, production data, populations, adjacent populations, as well as information on toxic releases. We view this as a pilot to determine: (1) whether this is the appropriate information; and

(2) how well it serves the public's desire for information on facilities in their community. We view that as an extremely important part of the strategic planning process, and as we further develop indicators, we will incorporate those indicators into our public access program.

Summary of Discussion

The first issue identified during discussion was the need to be clear about the intended audience or potential users of the indicators. For example, while an enforcement agency may require certain tools or indicators to evaluate whether it is targeting the appropriate industries or sectors in its inspections, other tools may be necessary for the purpose of evaluating the larger issue of the relative effectiveness of various enforcement responses or compliance strategies. Yet other tools or criteria may be needed for the public or policy makers to determine if government policies and programs are meeting agreed targets. It was generally agreed that while many of these tools may already be available, it may not be in a format enabling appropriate analysis.

Different indicators and evaluation processes may also be necessary, depending on whether they are intended for domestic, regional or international purposes. For example, while it may be appropriate for each nation or agency to adopt its own set of indicators or measures for gauging effective enforcement, a different, possibly more comparable set of indicators may be necessary to evaluate adherence to common obligations under the North American Agreement for Environmental Cooperation (NAAEC). For this latter category of indicators, it may also be appropriate to focus on indicators or measures of performance for transboundary issues or joint initiatives.

The comment was made that even for those international institutions with prior experience in the design and application of performance indicators for government environmental policies and programs—for example, the Organization for Economic Cooperation and Development (OECD)—minimal consideration appears to have been given to the matter of enforcement and compliance. Neither has sufficient attention been given to the interface between enforcement and environmental quality. Certainly there has been little effort to evaluate or correlate causality between the two. This could influence both the categories of data and selection of priorities. It was further suggested that indicators should be simple, quantifiable and readily communicated. In that way they would provide the necessary mirror reflecting how the nations are doing.

In the development of enforcement indicators, greater consideration must be given to the time-causality dimension. For example, while in the short term increased enforcement action may improve compliance rates, in the long term other factors may well trigger improved compliance, for example, incentives, industry-led initiatives or other factors. More complex tools or measurements may be needed to determine the reasons for changing compliance rates among individual industries or sectors. These should include criteria to evaluate the specific effect of government policies and responses as well as external factors.

Support was expressed for testing a wide variety of indicators at the domestic level, reflecting the broad array of enforcement and compliance tools. It may be premature to impose one common set of indicators of effective enforcement across North America, regardless of any eventual agreement on indicators to measure adherence to common international commitments or obligations. One must recognize both institutional and cultural differences in the choice of enforcement strategies or responses. It may be useful to use a phased approach to introducing indicators; the initial phase could involve innovation and piloting of indicators in various jurisdictions, followed by efforts to harmonize indicators across the region. The question was raised whether we can actually develop a common set of performance measures. Some expressed the view that while there may be value in different approaches, there is value in common indicators or performance measures. Others suggested that it might well be premature to assess particular indicators: in many instances there is still little experience in utilizing the indicators.

Enforcement experts should be consulted in the development and application of broader environmental indicators to ensure that enforcement and compliance related matters are also considered. In addition, the onus to link enforcement and environmental quality should not rest solely upon enforcers. In addition to the need to link

various types of indicators, there is a parallel need to ensure that both environmental quality and enforcement indicators exist, in order to be able to determine whether compliance caused improved environmental results.

At least four separate, but connected categories of indicators were identified. First, indicators are needed to assess the efficacy of the law or norm itself, including regulatory gaps. This would help to distinguish regulatory deficiencies from inadequacies in enforcement and compliance strategies. In other words, the root of the problem may be the standard itself, rather than enforcement. By way of example, efforts to ensure full compliance may not result in improved environmental conditions, if the standard was inadequate to achieve the desired result. The example was given of purported compliance by US coal-fired electrical generating stations with mercury emission limits, when in fact no binding standards were actually imposed on that particular sector. On the other hand, while a standard may be desirable, compliance may not be practicable for a variety of technical or economic reasons. In the reverse, there may be instances where a norm is so inadequate that even full compliance by the regulated sector may not be sufficient to remedy the environmental problem. Too often, when standards are imposed there is an inappropriate assumption that compliance and environmental improvement will automatically follow. Linkage between the standard setting (environmental quality) and enforcement indices may encourage earlier attention to compliance needs during the process of negotiating and drafting standards. Clearly it will be difficult to analyze any apparent environmental quality effects related to use of any particular enforcement or compliance strategy, unless the standards themselves are assessed in tandem. In addition, we may have standards once thought adequate, but over time, they may prove not to be. Therefore, compliance may not be the answer even if we have full compliance.

Second, it was suggested that the relative benefits of a particular compliance strategy might be best measured within a localized context. The impacts of any particular enforcement tool or strategy for implementing a specific standard may be more accurately assessed in the localized environment where the standard is applied, rather than across a large region or continent.

Third, enforcement indicators should be differentiated from compliance indicators. The first are appropriate to assess government performance, while the latter measure industry performance and ultimately, environmental quality results.

Fourth, information must be collected on compliance results for the individual sources and sectors, including a registry of emissions and, where relevant, pollutant transfers. Maintaining this separate database allows for comparisons of environmental impact between areas where there are variances in compliance rates.

Considerable discussion focused on the need to link information on enforcement and compliance with information on environmental quality. In most cases, enforcement and compliance statistics and databases lack any link to potential or actual environmental quality effects. The link between compliance/enforcement and environmental quality goes both ways. As outlined above, there is considerable lack of clarity regarding whether the environmental improvement or deterioration is related to the adequacy of the standard or the level of compliance. We need to develop a credible statistical base, before we can analyze the data. Until we can measure the relationship between compliance/enforcement and environmental quality, we will not be able to tackle causative factors.

Rudimentary connections can be made between compliance information and environmental results. Locally one can examine compliance rates for specified toxins. Where high concentrations are found regardless of compliance, then you must examine further. This helps us to ask the right questions and to get at the root cause of any problems. The assumption is made that if we regulate air pollution, then we can project or assume pollutant reductions. Compliance is assumed as the logical result. However, the very purpose of an enforcement regime is to ensure compliance does occur. Pollutant loading reductions today are a “but for” situation; they constitute a level that would not occur but for compliance and enforcement. At this point, we cannot control other intervening factors, but that is our goal.

We are fated to have a gap between compliance/enforcement data and determinations of environmental quality because those determinations are essentially a political judgment. This is because considerable scientific uncertainty remains about the effects of pollutants. Consequently, we are destined to rely on enforcement data on the faith that the result will be environmental quality.

Greater attention may also be necessary to ensure the veracity of compliance data, all the more so if it is going to be analyzed for its role in enhancing environmental quality. There was some difference of opinion over whether the more effective indicator is enforcement statistics or compliance rates. Some expressed the view that to ensure the credibility of indicators it will be important that they represent the full picture on compliance. For example, while reporting the number of enforcement actions and total penalties assessed may be good public relations to indicate government action, those activities may not accurately reflect the overall rates of compliance.

Some general principles in this area may include: (1) a more robust set of performance measures, as no single measure or number is sufficient; (2) recognition of the need for flexibility in the choice of measurement or criteria, reflective of the policy, program or measure to be evaluated; and (3) recognition of the contribution that measurement of compliance and enforcement could make to environmental quality. It was further suggested that indicators should not be designed for the purpose of targeting a specific industrial sector.

Finally, public access to compliance information should be recognized as a basic democratic right. Government is the trustee for the public interest; consequently, the public is entitled to know that those obligations are being met. It is the government which is responsible for protecting the public against violations by third parties. All segments of society should be consulted in establishing environmental quality standards and evaluation processes. To fulfill this role, the public must be provided timely access to the appropriate information. In this regard, attention must be given to ensuring access to both environmental quality information and compliance related information, recognizing the different forms this must take in urban or more isolated communities, for example, internet or paper.

Session Two:

Issues for Consideration in the Design and Application of Enforcement and Compliance Indicators

- Synthesis of highlights of current North American policies and programs for measuring, reporting and evaluating effective enforcement.
- Identify significant issues.
- Challenge of measuring adherence to international obligations to deliver domestic enforcement and compliance program.
- How do we merge indicators for effectiveness of more traditional measures of enforcement and compliance (e.g. response/penalty/deterrence) with measures of effectiveness of alternative or voluntary approaches to compliance (e.g. ELP, audit, ISO 14001)?
- Reflect on initial efforts to introduce performance indicators/feedback/innovation.

A Government Perspective

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Effective enforcement of environmental standards is without doubt a highly important topic since it is prompted by the need for protecting health and conserving ecosystems. It is aimed at internalizing the costs associated with environmental deterioration, and at increasing the efficiency of both productive processes and the use of natural resources. Effective enforcement of environmental standards is an indispensable human task focused on contributing to attaining sustainable development.

But we might ask: what does effective enforcement of environmental standards mean? Is it simply a matter of enforcing a set of rules of conduct, or enforcing the maximum limits allowable for pollutant emission? Does it signify protecting one's surroundings or restoring conditions considered appropriate for the environment and for development?

Environmental laws in any country always include an objective that is generic but highly fundamental and refers to the obligation of the society as a whole to take the necessary actions for protecting the environment or restoring environmental conditions favorable to good living. Therefore, effective enforcement of environmental legislation should include compliance with this basic precept.

It is also important to keep in mind that the concept of good living conditions encompasses more than just environmental quality. It also involves the possibility for communities to have their basic needs satisfied (adequate food, clothing, education and housing)—in other words, to have access to possibilities for integral development.

It would clearly be a mistake to judge effective enforcement of regulations based on compliance with standards and procedures, instead of on the genuine quality of the environment, and on the absence or diminishing frequency of impacts from human activity on health and ecosystems. When effective enforcement of environmental standards is evaluated according to compliance with rules of conduct, there is a serious risk of “not being able to see the forest for the trees,” and of placing value on the intensity of the work without assessing its effectiveness. Furthermore, if the enforcement of standards is evaluated without taking into account that such standards might imply excessive limitations to economic development, there is a serious risk of working against the communities.

It is therefore fundamental that the regulatory framework—or, in other words, the specific regulations that make it possible to put legislation into practice—be truly congruent with the central purpose of the legislation, specifically with the level of economic development (type, magnitude, and extension of economic activities) subject to regulation, as well as with the legislation's potential for having an impact on the environment.

From this viewpoint, an evaluation of the effectiveness of the enforcement of environmental legislation must consider the appropriateness of the standards with respect to the problem to be resolved. The indicators or parameters selected for this purpose should make it possible to take into account all the factors involved.

It will thus be necessary to include indicators for:

- level of economic development,
- pollution potential,
- environmental quality,
- impacts on health and natural resources,
- level of congruency between legislation and environmental problems,
- authorities' insistence on compliance with standards, and
- compliance by those responsible for the sources of pollution.

It is important to include indicators for the level of economic development because the survival of a community—not only from a purely biological viewpoint, but also politically and socially speaking—depends on the satisfaction of at least basic needs. Therefore, the possibilities available to communities to gain access to conditions favorable to their integral development should be considered as essential factors determining human environments. Excessive limitations in environmental standards can lead to limitations in economic development, and thus—even though it may appear contradictory—to a deteriorated quality of life and, in the worst of cases, a threat to the communities' survival. Conventional economic indicators can be used, including: the overall Gross National Product (GNP), as well as the corresponding rate according to type of economic activity; basic services covered; and income per capita. The GNP according to type of economic activity is a vital indicator, since the more it depends on industrial activity, the higher the level of development and the higher the pollution potential.

It is essential to consider the pollution potential, in order for each country to define its standards for allowable pollutant emissions and the degree to which compliance will be insisted upon. In order to guarantee protection of the environment, the greater the number and dimension of pollution sources, the lower the limits which should be set for allowable emissions. Indicators to consider may include: the number of pollution sources according to type and size; quantities of fossil fuels used by type; the generation of hazardous wastes, including radioactive wastes; amounts of dangerous substances and pesticides used; total amount of pollutants emitted or hazardous wastes generated according to type; tendencies; local, regional and international impacts; and contributions toward resolving the problem of continental and global pollution.

Evaluating environmental quality makes it possible to know how affected the environment is or tends to be, and how effective standards or their enforcement or both have been, thus indicating possible adjustments needed in this regard. Concentrations of pollutants in the environment and future tendencies are adequate indicators for this parameter.

Determining impacts on health and natural resources is vital for evaluating the effectiveness of enforcement of environmental legislation. The existence of these impacts and their subsequent elimination or reduction is the reason such legislation is developed and enforced. To not evaluate these impacts would mean voluntarily closing one's eyes. Essential parameters in this case include: morbidity and mortality rates; loss of soil productivity; loss of or threat to flora and fauna; and other factors associated with environmental deterioration resulting from pollutant emissions.

The level of congruency between legislation and environmental problems is an equally important indicator. Environmental laws require: knowledge of pollutants inherent in the various types of economic activities in each country; the potential for pollutants to be generated; mechanisms by which pollutants are introduced to the environment; the effects of pollutants on health and ecosystems; identifying amounts or concentrations of pollutants which imply or could imply adverse effects; priorities; and techniques or technologies for minimizing or controlling pollutants plus the technical and economic feasibility of adopting such technologies on a broad scale, given the prevailing conditions in each particular country.

Nevertheless, it is unlikely that any country will begin enforcement of environmental standards already equipped with the necessary information for precisely designing the needed strategies, plans and programs for the specific problems faced. Thus, such designs are frequently based on using a certain degree of intuition, or perhaps on the assumption that the problems to be resolved are similar to those of other countries. Then, as the resulting standards are enforced, it is possible, over time, to identify new areas of environmental problems not previously experienced, and to see that some areas have received too much attention, others not enough, and still others ignored completely. Day-to-day experiences in addressing environmental problems make it possible to diminish—although not eliminate—the need for a certain dose of intuition in formulating standards and programs.

Authorities' insistence on compliance with standards is another relevant factor in effective enforcement of standards. The best, most carefully-designed standards are worthless if they are not enforced. The lack of insistence on the part of authorities to demand compliance with standards is sometimes an enforcement policy problem. It may be that standards intrinsically imply a certain laxity—since the legal procedures involved end up allowing for delays in compliance. It is therefore particularly important to evaluate the average time between an inspection visit and compliance with standards by analyzing inspection-warning and recommendation-sanction-compliance procedures as well as the legal or judicial scheme for resolving controversies resulting from enforcement of standards.

It is also important to assess the mechanisms and measures provided for addressing situations involving impending risks, the number of inspection visits carried out, the percentage of pollution sources inspected annually, and the results of inspection visits and applied sanctions.

Another factor that should be considered is compliance by those responsible for the sources of pollution, which is complementary to the other factors, but especially to the insistence on compliance. Indicators that can be used for evaluation include reductions in pollutant emissions, increase in satisfactory management of wastes, and the level of compliance with standards. Evaluating compliance with standards—together with evaluating changes in environmental quality and effects on health—are critical elements in evaluating the effectiveness of enforcement of environmental legislation.

Without a doubt, evaluating enforcement of environmental standards is not a trivial matter, but rather a challenge that should be carefully analyzed, especially if the goal is to achieve effectiveness and simplicity.

An Industry Perspective

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I appreciate the invitation and the opportunity to be here. As announced, I am an attorney in private practice in Washington, D.C., and as such I represent a number of corporations in the United States with environmental issues and concerns, and have been fortunate in being able to participate in a similar series of conferences in the United States, headed by Mike Stahl who will be talking with you later. Prior to being in private practice, I was Vice-president and General Counsel for an NGO in the environmental area, and prior to that I was a government attorney for the US Government, also in the environmental area.

To prepare for this presentation, I talked with approximately twenty people at companies in the United States, with operations in addition either in Canada or Mexico. I sought their thoughts and views on environmental enforcement and compliance efforts of their operations in the United States in comparison with their experience of their operations in either Canada or Mexico, and more specifically their views on the issues before us today. I found that US industries are only beginning to think about these kinds of issues, not too surprisingly, and that there is no uniformity in views. What follows are ideas and thoughts, some of them mine, some of them from the people with whom I spoke, which are not intended to be representative of any particular company or any particular type of industry. The people I surveyed came from the chemical industry, the petroleum industry, the forest and paper industry, the waste management industry, and a few others. I tried to reach out and talk with people who represented a broad spectrum of experience.

I am going to focus on two of the issues on the agenda for this morning. One is what are the outstanding significant issues that we have identified, and the second is what types of indicators might we be looking to, as well as the ancillary issue of emerging or developing environmental indicators. Again, this is eclectic. The following does not rank these issues in any sort of priority, but hopefully will be a useful and practical foundation for the discussions that ensue.

Significant Issues

In terms of identifying significant issues, there is a general perception, which is, I believe, supported by the materials we have been provided in terms of the overviews of the countries, that the three countries have quite different laws and that these laws are implemented differently. As a result, available information is likely to vary from country to country and will be difficult to compare, for example, the level of detail and scope of inspections and the type of follow-up performed.

A second significant issue is the attempt to compare some of the outcomes from environmental enforcement, and again, I think that there are differences in what data are available, how these are measured and how they compare from country to country.

Another significant issue is how to improve the environment. If we had the answer to that basic question, I think we would all focus on that and happily march forward, but we do not have the answer. Each of the countries has tried various techniques and strategies, predominantly:

- enforcing basic standards by taking enforcement action against bad actors; and

- educating companies and other polluting sources and the people of the countries to understand pollution prevention and environmental controls, and working with polluters to improve performance and to make it socially unacceptable to pollute.

This last point—making it socially unacceptable to pollute—was raised by several of the industry representatives with whom I spoke as being a significant way to move environmental performance forward.

In our country, the toxic release inventory has been a very effective measure to reduce the use of hazardous chemicals and pollution. It is not a regulatory program, but it presents to the public the levels of toxic releases. It was an effective social tool, I think, because it put the leaders of companies in a position of having to respond as to why their companies were releasing these materials.

There are significant issues with the use of ISO 14001 as an indicator, particularly in the view of US companies. There are a number of problems perceived with ISO 14001. Companies that really care about compliance management systems and improved environmental performance are already undertaking a number of measures on their own and they may successfully apply for ISO designation. But these companies are often not those most in need of improvement. So I think there is a sense of redundancy in terms of the companies that implement ISO 14001 guidelines. There is a general perception, at least in the United States, that while it is not necessary to achieve ISO certification, it may become necessary because of customer pressure. I think that there is more interest in ISO in countries other than the United States. I think there is also concern in terms of the issue on the table of potentially using ISO as a comparative measurement when we do not yet know if it works, as it is very new. Therefore, I think there is a sense of caution about latching on to ISO as a basis of comparison before we have developed the data to see that it works.

A couple of other significant issues raised include: how to measure environmental performance and is the measure of environmental performance a measure of improvement to the environment? I was questioned by various industries as to whether alternative measures can be employed before traditional measures are in place in terms of one country to another.

There was significant support for the concept of a level playing field for all three countries. Companies' representatives urged transparency in the preparation and use of indicators. I think that the government members here have expressed the same desire for public availability of information.

Possible Indicators

Let me now move to actual suggestions and ideas for indicators. The first three are perhaps the most useful. The first is that it is very important that enforcement be geared towards achieving environmental results rather than merely punishment. In developing an enforcement strategy, it is important to aim at producing an environmental result rather than seeking to produce inequity, and that we measure environmental outcomes, such as cleaner air and cleaner water, rather than focusing on how the control standards are set.

Another possibility would be to use basic health indicators. These could include life expectancy; lost work days due to accidents or pollution alerts; excursions; reportable incidents; a toxic release inventory; waste management plans; emissions management; and training.

Another set of indicators might be basic environmental and ecological incidents, such as fish advisories or beach closures.

Another suggestion is geared to measuring compliance rates. One approach might be to select a number of regulations that exist in roughly comparable form in the three countries, develop an agreed-upon inspection checklist, and have the agencies in the three countries perform random inspections within the industrial sector and publish the results. This would provide a measure of compliance with a roughly comparable set of standards or regulations, for example, the hazardous waste manifest requirements which, I believe, all three countries have. Or

alternatively, take a certain number of facility inspections within an industrial sector and calculate compliance rates in the three countries based on those kinds of statistics.

Another way to measure effectiveness might be to take the percentage of the total number of facilities inspected and the number of violations found per inspection, and group these by program area. Try to develop among the three countries a consensus of the complexity of each regulatory program so that you have some sort of structure, and the result would give you an indicator of how likely you are to find non-compliance. For example, if a program rates a ten in complexity, that being the high end of the scale, and requires a large number of inspections yielding few violations, the conclusion would be either that compliance rates are high or that inspections are cursory. At this point, you have to try to assess the true situation. However, the concept may provide a methodology for performing a comparative evaluation.

There were questions raised as to whether the indicators selected should be based on the very specific requirements used by government inspectors to evaluate compliance, or on more general performance or “do-no-harm” standards. There was a suggestion that third-party inspections might be conducted in the three countries, based on a standard developed by the three countries. In exchange for companies agreeing to submit to an international standard and inspection, they may be released from government inspections for a period of years. This could operate as an incentive to conform to a standard with which the company might not otherwise be required to comply.

As I mentioned earlier, there were expressions of doubts about ISO 14001, particularly among people in the United States with whom I spoke, to the effect that it will catch on only if it is required by customers and then works its way up the chain as a vendor requirement. I think there is more interest in Canada, and perhaps Mexico and overseas, than in the United States at present. There appears to be a concern that ISO 14000 may be redundant in situations where systems, such as compliance management systems, are in place.

There was a great deal of interest expressed among many of the people with whom I talked about compliance management systems or environmental management systems that US companies are instituting in some of their foreign operations. I do not know how you translate that into some sort of an indicator, but there is a real sense of commitment among those with whom I spoke who have operations in the United States and Mexico to employ compliance management systems and to manage their operations in conformance to those systems.

There was another issue raised with regard to ISO 14000 in terms of redundancy with industry-led standards-oriented programs presently in place, such as the Chemical Manufacturers Association’s Responsible Care Program, the National Paint and Coat Association (“NPCA”) Standard, and others that particular industry sectors have adopted.

There was also the thought that for effective environmental enforcement it is important to look at the enforcement method to ensure that it is fair and efficient. I was told, for instance, that in China the penalty for environmental transgressions can be capital punishment. Again, it is important to focus on achieving environmental results by measuring outcomes rather than on punishment. There was recognition that it is easier to measure and control point sources or stationary sources than non-point sources, and that these latter sources can cause significant pollution to rivers and damage to the ecology.

One possibility might be to take a look at the ways that insurance companies measure performance of and risks associated with companies having operations in different countries, and to see whether these might provide some sort of useful indicator.

There was some thought that it may be important to develop traditional measures first in each of the countries before seeking to use some of the voluntary measures as a means of measuring performance of the governments in each of the countries.

There was strong belief that it is important to develop indicators that provide incentives for improved performance and that are integrated with other measures, for example, economic incentives or product stewardship. Incentives for compliance should be production and cost-driven and should not attempt to force people to do something that cannot be integrated with their other goals and general purpose.

Finally, there is a strong interest in audit programs. It may be useful to try to make some comparisons in terms of audits undertaken within the three countries in order to establish a uniform basis for measurement.

Thank you very much and I hope this provides some useful ideas for later discussion.

A Public Interest Perspective

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I would like to begin by thanking you for the opportunity to participate in this discussion. I am going to comment on some of the issues I think we should consider in designing and applying indicators for measuring the effectiveness of enforcement and compliance policies and strategies, from the perspective of environmental non-government organizations and the public.

My interest in this area stems from my work for many years as a staff lawyer with a public interest environmental law organization in British Columbia. In that capacity, and now in private practice, I have worked on a wide variety of environmental issues on behalf of numerous citizens and environmental groups.

In my experience, citizens and public interest organizations remain keenly interested in enforcement and compliance issues. They want sound environmental standards, and they expect those standards to be enforced rigorously. They have also come to expect full and timely access to information about the compliance record of industry and business and about the enforcement efforts of government.

In my view, the public measures the effectiveness of enforcement policies and strategies in at least three key areas:

- first, whether they contribute to improvements in environmental quality;
- second, whether they lead to improvements in compliance generally; and
- third, whether they are able to deliver accurate, accessible information to the public about the type of enforcement actions, the amount of enforcement activity, changes to the compliance record as a result of those actions, and the linkages to improvement to environmental quality.

My comments focus on the following areas:

- specific issues of importance to the public and environmental organizations in developing and applying indicators; and
- some of the significant challenges we face in developing and applying indicators effectively.

To illustrate my points I am going to draw on my experience in British Columbia where, in the late 1980s, information about compliance and enforcement was difficult and cumbersome to obtain.

For instance, during the 1980s environmental groups pressed the provincial government to release compliance information about the pulp and paper industry in British Columbia, one of the worst polluters in the province at that time. It was almost impossible to get that information, for a host of reasons.

Since 1990 the provincial government has released a comprehensive environmental noncompliance report listing operations that failed to meet environmental protection standards in permits or regulations. It is routinely released every six months to the media and the public, without request, and now is made available through the Internet. It receives lots of attention in the press when it is released, so it acts as an incentive to anyone on the list to get off by achieving compliance with environmental standards. It is not a perfect tool, but is a far sight better than what we had to go through to get this type of information ten years ago.

Many other efforts at reporting on enforcement and compliance have been undertaken over the past decade. But clearly a more systematic and integrated approach is needed. The development and application of a set of meaningful and comprehensive enforcement and compliance indicators would substantially build on the progress made over the last decade.

Significant Issues

First, I will focus on some of the issues that are important to the public and environmental organizations.

Easy to Understand but not Simplistic

Indicators need to be simple but not simplistic. They must communicate information in a way that is clear and easy to understand, but should have sufficient scope and breadth to have real utility. They must help us to develop important linkages between environmental enforcement actions and environmental quality. Numerical statistics about noncompliance or enforcement actions should be accompanied with brief but useful supporting information. Indicators should not be so simplistic as to make it impossible to understand important underlying information and to assess trends over time. Indicators need to promote understanding without oversimplifying the information.

For example, the noncompliance report released by the province in British Columbia, in addition to listing the operations and individuals in violation of permit or regulatory standards, reports on the number of times each violator has been on the list. Chronic repeaters usually get the most public attention, a not-so-subtle encouragement to get off the list. The most recent report also announced that an offender that had been on 14 previous reports is now off the list. This type of supporting information makes the report much more useful to the public and the media.

The report also gives brief details about the nature of the noncompliance and any measures that are being taken to correct the situation. It is this type of information that a community is often keen to hear about.

So the numerical data about the number of operations in noncompliance is accompanied by some information relating to the effect on the behavior of the regulated operations.

Report on the Degree of Noncompliance and Degree of Potential Damage

Reports documenting noncompliance should reflect both the degree of noncompliance, that is, whether it is significant or minor in nature and the length of time the operation has been in noncompliance. They also should categorize whether there is a significant potential for environmental damage due to the noncompliance. Collectively, these will allow the public to know about the severity of the problem and to assess whether the regulator's enforcement activities are directed appropriately.

Link Information on Noncompliance to Information on Enforcement Response

Information about noncompliance should be linked to information about the enforcement action taken in response. This is where it is important to have noncompliance categorized as significant or less significant, as well as ranked according to its associated potential harm to the environment.

Since 1994, the Province of British Columbia has released a list of operations that have been charged, convicted or penalized for environmental violations. This is useful since you can examine the list of operations in non-compliance and the list of charges and convictions and see whether there is a correlation between the two.

However, since charges and convictions represent only one type of enforcement action, it would be useful to describe the links between noncompliance and the broad array of enforcement actions that occur. This would allow the public to see what kind of enforcement action is taken in each case of noncompliance.

In addition, a report of non-compliance should trigger a response in relation to self-reporting. For instance, if an operation is out of compliance with a regulatory standard based on self-reported data, more than one incident of non-compliance could lead to a requirement for more frequent monitoring and reporting. Likewise, a specified number of reports demonstrating a sound record of compliance with a regulatory standard might lead to a relaxation of the required frequency of monitoring and reporting.

Access to Full Information and the Ability to Verify Data

Indicators need to be clear and transparent. Communities in which businesses and industry operate expect to know—and have the right to know—if those operations are in compliance with environmental standards and whether government is enforcing those standards adequately. Further, the public can participate effectively in enforcement programs only when it is given full and easy access to compliance and enforcement information.

It should be possible for the public to understand easily how compliance information is gathered and compiled and what steps are being taken by government in the event of non-compliance. Access to material supporting the indicators should be readily available. This may become even more important if we include non-regulatory initiatives in the enforcement framework.

Goals and Targets

Indicators of effective enforcement should be developed within a framework of goals and targets. It is not enough to report on numbers alone, we need to show trends with a target for improvements to compliance and a timetable for achieving the target. One possible target is a specific improvement to the level of compliance of a particular sector or particular operation with significant or chronic compliance problems by a certain date. This assists in directing government enforcement actions where they may be most needed.

Regular Review of Indicators

To ensure that we are developing and applying a useful set of enforcement and compliance indicators, we should periodically review and assess the effectiveness of indicators and implement improvements where the need is indicated. This will involve canvassing a wide variety of parties with an interest in indicators, including the public.

We need to assess the indicators themselves to ensure they are assisting us in understanding whether enforcement policies and strategies are improving environmental quality, improving compliance, and providing accurate, accessible information.

Challenges

Next, I want to discuss some of the significant challenges we face in developing and applying indicators.

Scarce Resources

Probably the biggest practical challenge we face right now is finding adequate resources—both human and financial—to support effective compliance monitoring and take appropriate enforcement actions. A recent study in British Columbia referred to enforcement staff operating in “survival mode”.

One way to address the need for greater resources is to find innovative ways to report on the level of resources available to do the job. For instance, an indicator could be developed that is based on the ratio of the number of enforcement staff per number of permit holders in various categories, such as major industrial discharge points. It would provide some measure of a government’s commitment to enforcing its environmental laws and whether that commitment changes over time.

Linking Enforcement and Compliance to Environmental Benefits

The second major challenge we face—and this one is more difficult conceptually to solve—is how to create meaningful linkages between enforcement and compliance indicators, and indicators about the state of the environment and state of sustainability. Only when we have been able to do this will it be possible to determine if an increase in enforcement efforts yields improvements to the state of the environment.

This will involve linking compliance and enforcement indicators to environmental effects indicators in practical ways that tell us whether the environment is well served by enforcement actions. It will also require determining the relationship between trends in enforcement indicators and environmental management decisions.

If strict enforcement of existing standards does not eliminate existing environmental problems, there may be a critical gap in the environmental standards or the standards may not be stringent enough.

Interpreting Indicators

Finally, it will always be a challenge to interpret indicators accurately—since indicators are symptoms and may be the result of numerous and complex causes. For instance, a high number of enforcement visits may be the result of more resources, high media visibility, more complaints, significant environmental problems, or a change in standards.

Conclusions

We continue to face significant challenges in developing reliable, transparent and easily understood mechanisms to document and report on pollution monitoring and compliance data, and government measures to take enforcement actions.

I welcome the opportunity to hear the views around the table on these issues. Thank you very much.

Summary of Discussion

It was suggested that there is a need to differentiate between the most effective approaches to enforcement and the most cost-effective. While the most effective tool may be command and control, it may not be the most cost-effective. Therefore, with respect to enforcement, you must assess cost. If your objective is to enforce the law, the options are limited. If your objective is to improve environmental quality, the options are broad. Some enforcement may just be too costly and compliance may have to be sacrificed to lower costs. In such cases alternative approaches can be pursued such as incentives, public reporting or self policing.

While it may be agreed that more resources are needed for effective enforcement, it is less clear that more money should be dedicated to indicators. It was further suggested that it may be important to recognize the difference between activities to promote compliance and tools to measure compliance. By way of example, the compliance reports published regularly by the Government of British Columbia, are effective tools for promoting compliance but may not be useful indicators.

It is important to recognize the many actors in the process. These include the government, including elected officials who review the data; the companies (who may not welcome being evaluated); the experts who gather and analyze the information; and, the public who want to know what industry and government are doing about protecting the environment. However, care must be taken in the choice and application of any indicator to be sure the information is accurate. To this end, all of the stakeholders should be consulted in the choice of indicators, followed by testing of the efficacy of the indicators.

While it is recognized that enforcement indicators should also assess the cost of ensuring compliance, it must be recognized that the cost of data collection is already high. Consequently, we do not only want data on the cost of bringing a company into compliance; we also want information about the overall impact of the regulatory program. A program focusing purely on costs of enforcement would be wasteful.

The focus should remain on compliance and enforcement indicators that provide us with feedback about the effectiveness of management choices. Compliance and enforcement indicators are important in supporting environmental goals. Indicators must speak to the efficiency of techniques (e.g. financial assistance or other incentives vs. traditional enforcement approaches, such as penalties). We need indicators that gauge the efficacy of enforcement tools and strategies. While we cannot be certain what causes industry to comply, it is generally agreed that without a real threat of enforcement, there is no incentive for industry to comply. On the other hand, some studies suggest that administrative penalties and social stigma are the main motivating factors. Compliance and enforcement indicators could assist in more precise determination of the actual compliance triggers. It will be necessary to examine all of the various enforcement and compliance measures utilized to provide an accurate picture.

It will be important to determine what types of data the public actually want. It should also be recognized that the release of data may actually trigger public interest. Any meaningful public reporting must provide more than just raw data, the result being an unmanageable administrative load. The suggestion was made that studying the approaches adopted by the insurance industry in measuring risk may be useful.

It was suggested that both industry and the public agree that any valid system of indicators for measuring the relation between enforcement and information on environmental quality requires both access to information and enforcement. While all three countries have systems in place to enforce and to provide public access to information, they do not all provide equal access to private remedies. It was suggested that the role of the public in enforcement must be recognized in supplementing the role of regulatory agencies, particularly where there is a shortage of resources. In other words, the factor of the availability of private remedies should also be one of the indicators of effective environmental enforcement.

At least one participant felt that not all enforcement related information should be publicly accessible: it may be necessary to distinguish between what is measured and what is publicized. Others expressed the view that it is unclear that the public wants both compliance and enforcement indicators. While both compliance and enforcement are important for agencies, the public is more concerned with whether government achieves the agreed environmental result than how they get there. One suggestion was to provide greater flexibility or discretion to government agencies to experiment in alternative ways to apply their limited resources to meet an agreed environmental objective. Government would then be held accountable only for whether they protect the environment, not for their choice of strategy or tool.

Attention should be given to the functional utility of the indicator. For North America, it was suggested, the driving force for establishing indicators of effective environmental enforcement is NAAEC. One of the key purposes of the agreement is to ensure a level playing field through the requirement of efficient enforcement of the Parties' environmental laws. One cannot just walk away from that obligation. Raw enforcement numbers will not be sufficient to measure effectiveness. As a complement, we will need benchmarks. NAAEC flowed from a public concern that trade might subordinate environmental quality. However, it must be recognized that the public complaint process relates to allegations of failure to effectively enforce, not failure to ensure environmental quality. Consequently, enforcement data is needed. To decide if the enforcement actions were actually effective, the enforcement action or data must further be examined within the context of the relevant enforcement and compliance policies and the specific environmental standards. In essence, how do we determine what constitutes compliance with the laws of each country? Perhaps country A has a standard 100 times as high as Country B. This information would provide a context for the statistics. This will also lead to acceleration of the development of local regulatory and enforcement capacity.

The point was made that as NAAEC provides no precise definition of effective enforcement, both short term and long term responses by the Parties may be necessary. There is also a need to avoid a gap between environmental indicators under federal law and those developed under state, provincial or municipal laws.

It will be important to consider the immediate market effect of enforcement actions. Some studies suggest that there is a direct correlation between enforcement action and share value.

It is important to differentiate between effective regulation and effective enforcement. Perhaps what is needed are effective and efficient environmental enforcement and compliance indicators. Enforcement should be viewed as input. Compliance is then an intermediate output. Environmental quality is the final output. Enforcement indicators are needed in response to NAAEC and for bureaucratic accountability. Compliance indicators are useful to evaluate the cost-effectiveness of measures in achieving environmental quality. The public and media want this information to gauge the performance of companies. Clear information influences industrial behaviour. Finally, environmental quality indicators are needed because environmental quality is the rationale for the entire exercise. It was observed that NAAEC also requires the Parties to produce state-of-the-environment reports.

While NAAEC highlights the obligation to ensure effective enforcement and compliance programs, it was suggested that, in evaluating the respective enforcement policies and responses, equal attention should be given to the choice of management alternatives and to efforts among the three Parties related to finding common ground on what those choices should be.

While a wide diversity of indicators of enforcement, compliance and environmental quality are utilized among the various jurisdictions across Canada, there is a consistent differentiation made between indicators of effective regulation and effective enforcement. When a regulation is promulgated, compliance is evaluated only by conformity with the law. Regardless, compliance rates should be considered as only one indicator of the effectiveness of enforcement. The deterrent effect is equally important. Compliance rates can be enhanced by targeting resources to ensure the highest potential deterrent effect. It was therefore recommended that deterrent effect of alternative enforcement responses be considered as an important indicator.

An alternative perspective voiced by some Mexican delegates was that it may be more important to focus on indicators of compliance than on examining how laws are being enforced. Some indicators of enforcement already exist. While NAAEC requires enforcement of the law, it is important also to look beyond the agreement, for example, to seek means to foster efforts by industry to exceed regulatory standards. Connected to this, there is a need to explore the efficiency of various enforcement responses. This involves finding the most efficient means to control pollution, including targeted, prioritized and strategic use of enforcement responses.

Session Three:

New Directions in North America

- North American pilot initiatives for indicators or processes to evaluate performance of government environmental enforcement and compliance policies, strategies and responses.
- Alternative approaches to measuring effective environmental enforcement.

The US Environmental Protection Agency National Performance Measures Strategy

Michael Stahl

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Thank you all for the opportunity to speak to you today. Over the past several years, the United States Environmental Protection Agency's (EPA) Enforcement and Compliance Assurance Program has expanded the tools it uses to increase compliance in the regulated community. In addition to the traditional monitoring and inspection activities, as well as enforcement actions, we also use compliance assistance activities, and compliance incentive policies to encourage facilities to conduct environmental audits. So when I speak about developing a set of measures for EPA's Enforcement and Compliance Assurance Program, I am speaking of a program that now has those four different types of tools: compliance monitoring, enforcement, compliance assistance and compliance incentives.

Early last year, Steve Herman, who is the Assistant Administrator for the Enforcement and Compliance Assurance program at the EPA, asked me to lead a project to develop an enhanced set of performance measures for the Program. His instruction to me was to consult broadly with stakeholders inside and outside of EPA about the kinds of measures that would be useful to our program, bring those ideas back, sort through them, select the best measures, and begin implementing them as an enhanced system of performance measures. Today I'm going to tell you a little about the process we used to develop and identify those measures, but spend most of my time speaking about the measures themselves, so that you can have some specific examples of the types we are now in the process of implementing.

Very simply, the strategy that we followed was to hold a number of meetings with outside groups, take as many ideas as we could, and then try to adopt the measures that we thought made the most sense for our program. We started this originally because of our own concerns about using enforcement outputs (activity numbers) as the sole measure of performance for our enforcement and compliance assurance program. Although we are still going to continue to use those outputs, our feeling is that they do have some shortcomings, and they do not really tell us much about the state of compliance: they do not really tell us much about the kinds of environmental results we are achieving through our enforcement and compliance assurance activities, and they do not really tell us much about what we were contributing to the achievement of EPA's environmental mission and objectives. So for all of those reasons we felt that we needed more than enforcement outputs, even while recognizing that we were going to continue using those outputs as measures to evaluate our performance.

I have provided you with a listing of the various meetings we had with stakeholders (see Attachment 1). I call this to your attention because it was valuable for us to hear from anyone who had an idea about performance measurement. By scanning the list I think you can see that we spent a lot of time with state environmental agencies, Congressional Staff, EPA's oversight agencies (such as the General Accounting Office), industry representatives, environmental groups, Federal regulatory agencies and other agencies (like the Food and Drug Administration) that were wrestling with some of the same kinds of questions. In addition, we also heard from a number of academic experts, and made sure that we heard from our own internal staff and managers about the kinds of measures they thought would make sense for our program. So, I refer you to that list and if you have questions or particular comments about it, we can deal with those as they arise.

One of the benefits of that process was that we came up with a set of criteria that we then used to evaluate all of the measures suggested to us. I would commend them to you as criteria to use when you are trying to decide what measures make sense for your programs. The EPA judged the value of individual performance measures and systems of measures by examining whether they were:

- *relevant*—in keeping with EPA’s mission, goals, objectives, and priorities, and the needs of external stakeholders;
- *transparent*—understandable, so they enlightened users about program or agency performance;
- *credible*—data to support the measures was complete and accurate;
- *feasible*—the cost of collecting data did not outweigh their value;
- *functional*—encouraged organizations and employees to engage in effective and constructive behavior and activities; and
- *comprehensive*—important to many operational aspects of organizational performance.

I would now like to focus on the set of measures we ultimately adopted—the “Performance Profile¹ for EPA’s Enforcement and Compliance Assurance Program” (see Attachment 2). This is the set of measures we adopted as a result of all the discussions we had. We are now in the process of implementing each one of these measures. Various measures have, I think, particular implementation challenges associated with them, and again, I will be happy to elaborate on some of those, but let me highlight a few measures in the Profile for you.

Starting with the category entitled “Enforcement and Compliance Assurance Activities,” these are the traditional output measures we want to retain as part of our system of measures. In particular, Sets numbers 8 and 9 are rather traditional and count inspections and enforcement actions. Sets numbers 10 and 11 are new output measures that measure relatively new areas of our program. For example, in Set 10, we are going to try to measure how many facilities we are reaching through compliance assistance efforts. That is a very basic output measure about those activities, but we think it is worth trying to do some measurement in that area.

The next category, entitled “Effects on Behavior of Regulated Populations,” is the outcome level of measures we are now trying to implement. Among the ones I would highlight for you is Set 1. We are making a commitment to begin using compliance rates as a performance measure for our program. One of the difficult issues associated with this measure is that much of the data we currently have in our data bases do not give us a representative picture of compliance, in particular of regulated populations. That is because that data is based on inspections targeted at problem facilities or at facilities where we expected to find non-compliance, rather than on random inspections which would provide results representative of the population of interest. So one of the challenges we are facing right now is the extent to which our data systems need to be augmented in order to provide statistically valid compliance rates that allow us to characterize the level of compliance in regulated populations in a way that is actually representative.

I would also call your attention to Sets 2 through 5 in the outcome category. These are what I would call “direct result” measures from our enforcement and compliance assurance activities. For example, in Set 2, “Improvements Resulting from EPA Enforcement Actions,” for the last two or three years we have been collecting data on pollutant reductions that we are getting as a direct result of completed enforcement actions. We are going to try to use that approach to measure other kinds of results we are getting from other tools we use, like compliance assistance.

¹ For a more in-depth discussion about the Performance Profile and the National Performance Measures Strategy (“Strategy”), please refer to *Measuring the Performance of EPA’s Enforcement and Compliance Assurance Program*, the final report of the Strategy, released 22 December 1997. This report, as well as other information and related documents about the Strategy, can be found on the US EPA’s Office of Enforcement and Compliance Assurance website at: <<http://es.epa.gov/oeca/perfmeas>>.

The final category I want to talk about is “Impact on Environmental or Human Health Problems.” I would like to call your attention to this because it is our attempt to link the activities and results of the enforcement compliance assurance program to the larger environmental objectives of EPA. We plan to do this through a series of evaluation studies we intend to conduct. These studies will attempt to document or measure the contribution EPA’s enforcement and compliance assurance program makes to larger agency objectives, such as reduction in the concentrations of lead in children’s blood.

The dilemma I think any enforcement and compliance assurance program faces is that on the one hand we recognize that we are only one part of the Agency contributing to the achievement of these broader objectives. On the other hand, we also want to recognize what we do contribute to the achievement of those objectives. So we intend to undertake some retrospective studies in order to measure the extent to which the enforcement and compliance strategies adopted by EPA are contributing to the Agency’s overall environmental mission and objectives.

Let me end by saying that we think there are several benefits associated with this system of measures. The principal one is that it begins to give us a way of exploring the links and relationships between activities or outputs, outcomes or results and the achievement of environmental quality objectives. Currently, we do not have the kind of data systems or measures which allow us to examine those relationships. But we think this gives us an important management tool that we currently do not have. The second benefit we think it gives us is a tremendous accountability tool. It provides information to the public, not just about how many inspections and enforcement cases we complete, but about the level of compliance of regulated entities, the kinds of environmental results we are achieving, and the connections and contributions we think we are making to the larger objectives of EPA.

My last comment is that this is a very pragmatic set of measures. It does not deal with some of the very difficult issues about causal relationships or about proving scientifically that our activity led to a particular result. That is a conscious choice on our part. We have decided to get started on development and use of performance measures and to improve them as we gain experience. These measures may not be ones a social scientist could love. We think they are ones that practitioners and citizens will actually use, and we think they represent a big improvement over our traditional approach to measuring success strictly on the basis of enforcement outputs. Thank you.

Attachment 1

National Performance Measures Strategy

*U.S. Environmental Protection Agency
Office of Enforcement and Compliance Assurance*

Meetings and Conferences Held in Conjunction with the National Performance Measures Strategy

The following public meetings and roundtable sessions with US EPA staff and managers, regulatory partners, outside stakeholders and organizations, and other interested parties took place in conjunction with the National Performance Measures Strategy:

- 2/3/97 Comprehensive Public Meeting (Alexandria, Virginia)
- 3/10/97 US Congressional Staff Discussions (various House Committees staff)
- 3/17/97 Comprehensive Public Meeting (San Francisco, California)
- 3/28/97 US Congressional Staff Discussions (Senate—Environment and Public Works Committee)
- 5/28/97 Roundtable Session: Government Oversight Agencies (Washington, DC)
- 5/29/97 Roundtable Session: Industry, Environmentalists, Environmental Justice Advocates (Washington, DC)
- 6/4/97 Roundtable Session: State Environmental Agencies (Chicago, Illinois)
- 6/12/97 Roundtable Session: Federal Regulatory Agencies (Washington, DC)
- 6/25/97 Roundtable Session: State Environmental Agencies (Washington, DC)
- 7/22/97 Roundtable Session: Regional EPA Managers (Eastern Regions — New York, New York)
- 7/23/97 Roundtable Session: OECA Senior Managers (Washington, DC)
- 7/24/97 Roundtable Session: Regional EPA Managers (Western Regions — Denver, Colorado)
- 7/30/97 Roundtable Session: Environmental Media Associations, National Association of Attorneys General (Washington, DC)
- 7/31/97 Roundtable Session: Academic Experts, Policy Institutes (Washington, DC)
- 8/12/97 Roundtable Session: Internal Revenue Service (Washington, DC)
- 8/14/97 Roundtable Session: Performance Measures Steering Committee (Washington, DC)
- 8/28/97 U.S. Congressional Staff Discussions (House)
- 9/4/97 Roundtable Session: OECA Senior Managers (Washington, DC)
- 10/7/97 Comprehensive Capstone Conference (Alexandria, Virginia)

Attachment 2

Performance Profile for EPA's Enforcement and Compliance Assurance Program

US Environmental Protection Agency — December 1997

Impact on Environmental or Human Health Problems (Indicators)

Measured through annual evaluation studies of selected EPA objectives.

Effects on Behavior of Regulated Populations (Outcomes)

Levels of Compliance in Regulated Populations

- Set 1. Rates of noncompliance for —
 - a) fully-inspected populations
 - b) self-reported compliance information
 - c) populations targeted for special initiatives
 - d) priority industry sectors

Environmental or Human Health Improvements by Regulated Entities

- Set 2. Improvements resulting from EPA enforcement action
- Set 3. Improvements resulting from compliance assistance tools and initiatives
- Set 4. Improvement resulting from integrated initiatives
- Set 5. Self-policing efforts by using compliance incentive policies

Responses of Significant Violators

- Set 6. Average number of days for significant violators to return to compliance or enter enforceable plans or agreements
- Set 7. Percentage of significant violators with new or recurrent significant violations within two years of receiving previous enforcement action

Enforcement and Compliance Assurance Activities (Outputs)

Monitoring Compliance

- Set 8. Number of inspections, record reviews, responses to citizen complaints, and investigations conducted

Enforcing the Law

- Set 9. Number of notices issued, civil and criminal actions initiated and concluded, and self-policing settlements concluded

Providing Assistance and Information

- Set 10. Facilities/entities reached through —
- a) compliance assistance tools and initiatives
 - b) distribution of compliance information

Building Capacity

- Set 11. Capacity building efforts provided to state, local or tribal programs

The State of Florida Performance Measurement System

Michael Phillips

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Florida Department of Environmental Planning*

I have a couple of things I want to share with you. First of all, thanks to the town of Puebla for hosting this. They are most gracious and the accommodations are very nice. We appreciate the hospitality.

We have been working in the Florida Department of Environmental Protection the last three years trying to develop a performance measurement system that will help us manage the agency and measure our effectiveness. Just let me give you a quick introduction about what we considered when we launched the compliance and enforcement initiative in the agency. First and foremost, public information must be accessible, available and understandable. The public is not interested in information including raw statistics that does not help them understand what is happening in their community. Aggregate information, too, is somewhat helpful for state-wide programs, but breaking that information down to a community level is also very important. Better public accountability is something that we ourselves were interested in, and we knew that full accountability was critical to the preservation of Florida's health and welfare.

Another objective of ours was better management of the agency by really being able to target limited resources on patterns and trends of non-compliance as well as on environmental problems. We also have an objective of trying to uncover environmental problems that persist in the State of Florida, the ones that are missed by our established processes, even though the processes are working well. Sometimes, even though processes are in place, problems remain, indicating that it is time to look at the situation a little bit differently. We also want to measure the effectiveness of our integrated initiatives as we strive to protect the ecosystems in Florida and to protect the children of the State of Florida.

The Florida Environmental Performance Measurement System (EPMS) represents a new way of reporting environmental information. Reporting for environmental regulatory agencies has traditionally focused upon aggregate activity counts or "outputs" as demonstrations of effective enforcement and management. Many regulatory agencies are searching for a method to evaluate performance measures in the context of public service. EPMS represents Florida's method of meeting that challenge.

The Department, through EPMS, has developed a four-tiered system measurement system to evaluate the Department on environmental performance:

- Tier 1: *Environmental and Public Health Outcome Indicators* that track long-term trends in the condition of Florida's natural resources, public health and general environmental quality.
- Tier 2: *Behavioural and Cultural Measures* that track compliance rates, best management practices and other behaviours that have an effect on environmental quality.
- Tier 3: *Department Outputs and Activities* that track the traditional measures or program performance, such as numbers of inspections, numbers of compliance assistance activities, or numbers of violations.
- Tier 4: *Resource Efficiency Measures* that track the agency's budget, the cost of services, and the cost effectiveness of interventions used to solve environmental problems.

The tiered format of EPMS provides the analytical framework for problem identification and solution in an environmental regulatory agency. Given an issue within Tier 1, such as substandard water quality, the lower tiers

help identify the reason for the problem. They provide information on the state of compliance for all regulated facilities using the water body as well as the agency activities focusing on the water body. This allows the agency to design an appropriate intervention to improve the water quality. For example, if compliance is low, then enforcement or compliance assistance activity is warranted. If compliance is high, then other options, such as voluntary controls or incentives, become more viable. By having an in-depth understanding of the activities and compliance rates affecting the quality of a water body, the Department is able to prioritise problems, target limited resources to the most important problems, and develop workable solutions for implementation.

The goals of EPMS are to be a management tool for executive staff, a reporting and analysis tool for technical staff, and an information tool for the public and interested stakeholders.

For the executive staff, the system provides:

- a comprehensive set of data that allows for information-based decision-making;
- a focus on environmental results instead of activities, thereby increasing program productivity
- the ability to conduct trend analysis and problem solving; ;and
- contextual data to determine how each program is doing with regard to protecting the environment.

For the technical staff, the system provides:

- a linkage between activities and environmental results;
- a means to analyze the activities to ensure a positive impact on the environment;
- a mechanism to apply the ecosystem management or a multi-media approach to environmental protection; and
- a quantifiable measurement for pollution prevention projects.

For interested stakeholders, the system provides:

- open accountability of the department’s activities
- information about the quality of their environment
- information about the state of compliance of Florida’s regulated industries

Results

The two most important achievements of EPMS have been the development of a “good/watch/focus” management approach to environmental problems and open accountability of the department to the public.

“Good” areas are those in which an analysis of the tiered data indicated high compliance rates and healthy or improving environmental conditions. “Good” areas are distinguished by such characteristics as good air or water quality in Tier 1, high on-site inspection or monitoring compliance rates in Tier 2, and an appropriate number of inspections to verify compliance in Tier 3

“Watch” areas are those in which the data show only moderate cause for concern. For example, the compliance rate for drinking water standards in a particular district may be lower than the statewide average or compliance rates may be low in a district but only minimal formal enforcement has been taken. Such situations suggest monitoring for a trend and taking appropriate action. The tiered structure assists the agency in understanding at what level a problem exists and what response is required.

“Focus” areas are those which need to be closely monitored due to concern about persistently low compliance rates or deteriorating environmental conditions. For example, if compliance rates are persistently low despite high enforcement, the agency may consider compliance assistance alternatives or implementation of best management practices. In “focus” areas, it is essential that management have the flexibility and support to shift resources where they are most needed to resolve problems.

During 1997, the Department identified focus areas in various parts of the state for petroleum storage tanks, Title V facilities (major sources of air emissions), drinking water standards, and domestic and industrial wastewater surface water discharges. Action plans were formulated to address these environmental problems. By the beginning of 1998, air compliance, domestic and industrial wastewater problems moved from “focus” to “good.” Drinking water and petroleum storage tank problems moved from “focus” to “watch.” Compliance rates for the largest industrial and domestic surface water discharge facilities improved over the course of six months. Domestic sources went from 85.9% to 97% over a three-month period. The action plans developed were successful at addressing the environmental problems.

Another objective of the Secretary’s Quarterly Performance Report (SQPR) is to make the information in EPMS available in an understandable and accessible format. To meet this objective, SQPR is published quarterly and is widely distributed by mail-outs and through the public library document depository program. The report is also accessible through the department’s homepage on the Internet (<http://www.dep.state.fl.us/org/ospp/report/intro.htm>).

The department has distributed approximately 3000 copies of the first two editions of the report including 70 copies to the government depository libraries in Florida. The Internet version is in color and fully indexed. On March 24, 1988, an analysis of website statistics was conducted. As of that date, the number of downloads for the SQPR was reported to be Florida residents. EPMS is not a computer program but uses data from many of the department’s computer data systems. EPMS represents the analytic evaluation of the Department’s data systems. One of the goals of EPMS is to become a user friendly, *interactive* website for the public to access environmental information *on a regional basis*. Although available on the Internet, currently the information is not displayed in an interactive format and site specific areas are not identified. Information is reported on a statewide or districtwide basis. The goal, for example, is to have someone living in Palatka be able to access information on the water quality of the St. John’s River, air monitoring in Jacksonville, compliance rates for local landfills, the quality of their drinking water, or resource protection measures being implemented in the Ocala National Forest. Someone living in Miami or Tampa, likewise, would be able to access similar information for their respective areas.

At this time the department does not have the dedicated staff resources or the data collection to implement this type of Geographic Information System (GIS) application. Given the staff, data and technology resources, using GIS as a platform, the department would be able to provide an environmental quality snapshot of any given location in Florida. The implications for making this kind of information available to managers, planners and citizens is very far-reaching, but possible.

Florida used the following process to develop meaningful performance measures:

1. Identify the goal of the agency (e.g., “to protect, conserve and manage Florida’s environment and its natural resources”).
2. Based on the agency’s goal, develop outcome measures for program areas which can be used to assess how well the agency is achieving its goal (e.g., percent of population breathing “healthy” air; percent of surface water meeting designated use).
3. Based on each outcome measure, identify contextual measures which illustrate the agency’s performance toward reaching its goal (e.g., statistically valid, facility-based, significant compliance rates; Best Management Practice adoption rates).

4. Once the measures are identified, assess database capability to provide the information. Database enhancements were required to provide necessary data.
5. Compile measures into a report which can be used as a performance tool by managers and stakeholders.
6. Review EPMS for improvements.

The biggest obstacles encountered were staff resistance to cultural change and lack of staff specifically dedicated to developing this new approach. A strong commitment from agency leadership and perseverance by implementing staff was needed. Other obstacles include modifying existing compliance and enforcement data systems to develop statistically valid, facility-based compliance rates for environmental programs such as drinking water and petroleum storage tanks. To assist in the effort for statistically valid compliance rates, the department has developed inspection protocols which have been incorporated in a Joint Compliance and Enforcement Plan (JCEP) with EPA Region IV. The goal of the inspection protocols is to maintain the necessary “presence” at regulated facilities (random inspections) while targeting suspect facilities. By analyzing the compliance rates of the two types of inspections, the effectiveness of the department’s targeting efforts can be evaluated. Furthermore a standard definition for significant non-compliance (SNC) has been developed.

So this really has become a very effective management and public accountability tool. We have seen compliance rates improve because we have been able to target resources on those problem areas. We have also seen compliance rates improve just because the information was public and it was good, defensible information and people did not want to be seen in the light of non-compliance. This has all been possible because we have been working closely with EPA, both in Washington as well as in our Region Office in Atlanta, Georgia.

I would like to leave you with an interesting quote from Albert Einstein: “The problems we face today cannot be met with the same level of thinking we were at when we created them.” I think that is what this whole effort is all about.

Private Third Party Auditing of Government Environment Enforcement Activities: Lessons from the Private Sector?¹

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Comparing environmental enforcement activities across jurisdictions is an extremely difficult task. Environmental enforcement agencies in Canada, Mexico and the United States are each enforcing different environmental laws, operating within different legal systems, addressing sometimes quite different types of environmental actors causing different types of environmental harms, operating with different levels of resources, facing different degrees of public concern and involvement, and functioning within different socio-economic cultures. As a result, simple comparisons based on numbers of enforcement actions, total penalties assessed, effluents discharged, or changed levels of pollutants in the environment, while helpful, may not by themselves indicate an enforcement agency's effectiveness and diligence.

Further complicating matters is the concept of state sovereignty, which, though by no means constituting an absolute, invariable and insurmountable barrier, may nevertheless tend to detract from the ability to engage in meaningful cross-jurisdictional comparisons. This can occur because credible comparisons of enforcement activity of one country with that of another may necessitate that information be collected from a source other than the initial data disseminator. Thus, for example, just as governments do inspections of industry and do not rely exclusively on industry self-monitoring reports, there is enhanced credibility associated with information collected about government activity when it is verified by a third party (be it another government, an international agency, or some other entity). While there have been instances where officials from one country have been allowed to physically enter another country and inspect government operations within that country, these instances are rare, and tend to be in situations where inter-state or global security is directly threatened (e.g., nuclear facilities testing).

But in spite of the many differences in resources, laws, legal systems, and socio-economic conditions operating in Canada, Mexico and the United States, and in spite of the impediments associated with the concept of state sovereignty, there are two elements which environmental enforcement agencies in these three jurisdictions have in common. These common elements can form the basis for constructive approaches to inter-jurisdictional comparative evaluation. The first element is a shared desire to obtain maximum effectiveness and efficiency in implementing laws, given the particular capabilities, constraints, operating environment, etc. faced by the agencies. The second element is recognition that all enforcement agencies are, fundamentally, devoted to protecting the environment. (If there is not agreement on these two points, then it is difficult to imagine any subsequent efforts at cross-comparative analysis being successful).

Assuming agreement on these two common concerns, a key challenge facing environmental agencies operating under an over-arching multi-jurisdictional framework such as NAFTA, and the North American Agreement on Environmental Cooperation (NAAEC, the environmental side agreement to NAFTA), is being able to demonstrate to each other, to regulated sectors, and to the concerned public, that governments have adopted and are implementing effective and efficient approaches to protecting the environment—even though these approaches might be quite different from one agency and jurisdiction to another.

How can this be done? At first glance the task might appear insurmountable, but it may be that an approach to quality management which is increasingly being used in the private sector could be adapted for use by public

¹ This paper was prepared as an independent research work and represents the opinion of the author only.

sector enforcement agencies. This approach is most commonly known as the ISO 9000 quality management process (while the newer ISO 14000 environmental management process is now coming on stream, the ISO 9000 process will be the focus of analysis here). ISO 9000 is a quality assurance system consisting of a number of international standards concerning organizational functions such as management, training and client relations. Working with experts from outside the organization, registrants write their own standards of performance, set out the manner in which they will reach those standards, and commit to adhere to them. They are then audited on their progress in meeting those standards by recognized third party auditors who are themselves registered as having met ISO standards.

Businesses are increasingly adopting ISO 9000 quality management standards in an effort to identify and address problem areas within companies in the early stages, and to demonstrate to others, such as suppliers, customers, governments, that their company adheres to management standards and is exercising due diligence in meeting those standards. It is perhaps self-evident that even businesses producing the same products may use quite different manufacturing or production processes (indeed, customers might applaud such differences), causing markedly different management processes among producers. The ISO 9000 process can reflect these differences, since it is in itself neutral and devoid of substantive content. Each registrant defines its own objectives, standards and processes (following an agreed-upon approach), and the extent to which it meets those objectives, standards, and processes is then reported.

When used in the private sector, adherence to ISO 9000 is no automatic guarantee of better quality processes, products or services. If firms define their objectives and standards so that they are easy to meet, then subsequent adherence to those standards (as attested to by third party auditors) will not necessarily result in high quality products or services or effective processes. To take an extreme and absurd example, it would be possible for a company to produce concrete life preservers, and to have the process of life preserver manufacturing registered to ISO 9000. Essentially, registration in this circumstance would indicate that each and every one of those life preservers would sink equally well. Hopefully, however, the process of defining the objectives of a company seeking ISO 9000 -registered status would involve consultations with affected clients, where the folly of concrete life preservers would be revealed, and therefore the management process would not lead to such absurd results. In short, while it would be possible for a firm to develop very low and ineffective standards and register to the ISO 9000 process, this is not very likely. A key objective of registration to ISO 9000 is to indicate to others that a system of internal quality control is in place and is being followed, and that consistently high quality results can be expected.

While, until recently, the private sector has been the predominant user of the ISO 9000 process, governments are also starting to apply for registration under the ISO 9000 standard. The question can legitimately be asked: why would a government agency do such a thing? Two reasons come to mind. First, because some units within government recognize that they need to improve their management processes, and need outside help in making those improvements. And second, because verification by an outside auditor can assist a government unit in meeting its objectives, as well as demonstrating to others that it is doing so.

In Canada, in the early 1990s, the Legislative and Regulatory Processes Division (LRP) of the Environmental Health Directorate (EHD) of Health Canada (the Federal Department of Health) implemented its own quality management system with a view to ISO 9000 registration.² LRP provided advice on significant pieces of legislation, assisted in drafting regulations, and helped to negotiate Mutual Recognition Agreements with other countries.³ In the first year of implementation, LRP reported that it achieved “noteworthy gains in productivity and increased customer satisfaction.” Results included “reduced time to deliver services; improved accuracy in service delivery; faster resolution of customer complaints...and an ongoing commitment to measure the effectiveness of in-house procedures against generally accepted standards.”

² Subsequently, LRP was re-organized, and in the process the effort to achieve ISO 9000 registration was abandoned, although total quality management remains an integral component of the reorganized unit.

³ Dean Correll, “ISO: A Strong Prescription for Quality Management — Making it Work for Government”, Focus magazine (The Executive Management Magazine for Canada’s Public Service) Vol. 4, Issue 5 (December, 1995), pp. 10–13.

A consulting firm assisted LRP throughout the quality management transition. A phased-in implementation process was adopted. First, the appropriate management standard was selected (ISO 9001, 9002, 9003). Once this standard was chosen, a benchmark audit was then undertaken (following an ISO standard), to determine what policies and specific procedures were already in place. Out of a possible score of 100, LRP scored 23, indicating problems with the current approach and much room for improvement. Then, a “visioning” session was undertaken, where the expectations of clients were articulated. Next, a schedule to monitor progress and procedures directly related to the ISO standard was adopted. Drafting policies and procedures for each of the 20 elements was reported to be an intensive process extending over several weeks. Documents were finalized, new opportunities for improvement were identified, and a LRP Quality Manual was developed, addressing policies, procedures, areas of management control, and nonconformance issues. The next step is third party assessment and registration of the quality system.

The question can legitimately be asked, why wouldn't a unit within government simply use internal auditors? The answer would appear to be that the purpose of ISO 9000 registration is a self-generated attempt to improve the quality of management as defined and developed by the government agency concerned, to benefit from the expertise of outside management personnel, and to be able to subsequently indicate the results to both internal audiences and external “clients” alike. Government audits may not necessarily be designed to perform this combination of functions, nor may they have the same credibility with outside clients.

In theory, any government enforcement agency which wishes to improve its practices, and demonstrate its progress to external clients, could potentially benefit from such a process. In the context of NAAEC, an argument can be made that registration by environmental enforcement agencies in Canada, Mexico and the United States to ISO 9000 standards could assist those agencies in improving their enforcement practices, in building bridges of trust with the “clients” of those agencies (members of the community, non-governmental organizations, and regulated sectors), and in demonstrating to their NAFTA counterparts that they are attempting to enforce their laws in an accountable and effective manner. Enforcement agencies from the three countries could meet with their clients to work out common performance standards, and methods of implementation.

To be sure, other alternatives exist. Agencies could simply self-declare their enforcement practices and activities, government auditors could make attestations about enforcement agencies, or a neutral inter-governmental agency could perform such tasks. Nevertheless, the ISO 9000 approach has distinctive advantages. It allows each enforcement agency to work with management experts to tailor and define objectives and methods of reaching those objectives. It permits each enforcement agency to select the auditors, and it gives each agency greater control over processes of implementation while still ensuring through use of private third parties that internationally agreed-upon management standards are followed.

One possible approach to exploring the feasibility of this option in the context of the NAAEC environmental side-agreement, would be to sponsor an in-depth study on the use of ISO 9000 by governments. The author is aware of numerous Canadian government departments or units which are registering with ISO 9000 and there could conceivably be examples from other jurisdictions to draw on as well. This study could also describe how a pilot project in this area could be undertaken. In conclusion, third party auditing through the ISO 9000 process represents an option which is increasingly being adopted by the private sector to improve processes, products and services and demonstrate adherence to quality management standards. ISO 9000 is beginning to be used by government agencies in much the same manner. Although environmental enforcement agencies in Canada, Mexico and the United States are faced with widely divergent operational circumstances, application of the ISO 9000 approach to their activities could potentially assist the agencies in improving their enforcement activities and demonstrating to themselves and others that they have put in place effective and credible approaches to enforcement.

Summary of Discussion

An issue was raised regarding the capability of the United States Environmental Protection Agency (EPA) to actually quantitatively measure all of the indicators in its revised system. It was recommended that, in addition to indicators of effective enforcement, attention also be given to use of indicators of non-compliance. It was suggested that development and modification of performance measures is an iterative process in the United States; the measures are adjusted where necessary.

It was suggested that indicators be developed to measure compliance within the context of the same geographic area or sector. Too many jurisdictions respond blindly to infractions without reliance on statistics. In addition, indicators should not be restricted to assessing activities that have direct measurable effect of reducing pollution. For example, indicators are needed to measure compliance with and enforcement response to provisions related to labelling, reporting and record-keeping.

The criteria used by insurance companies, such as environmental risks of non-compliance, might prove useful as indicators. One qualifier may be that this is considered confidential business information. Since industrial activities with high risk have insurance, the implication is that an evaluation takes place. It may equally be possible for companies engaged in hazardous activities to argue for lower insurance rates if they were ISO certified.

Extensive discussion focused on the topic of how to evaluate and use information arising from environmental audits, including audits commissioned by industry, government-required audits and private audits of government performance. It was suggested, for example, that effective third party auditing of government could foster public accountability by providing feedback between public and government. This concept of performance measurement is still in its infancy. While the current focus is on auditing government for the purpose of national reporting on performance, in future years, once the Parties gain familiarity with performance audits, trans-jurisdictional audits could be considered. Others held the view that while third party audits of government policies and programs may provide an alternative to the EPA type approach, given limited resources, it may not be wise to divert resources to third-party verification. Still others felt that third party audits may be useful in some situations, for example, to determine cost-effectiveness of government policies and programs.

Yet another view was that third party audits would introduce yet another burden on governments already required to implement improved performance measures. It is unlikely that governments would want to accept third party audits as a substitute. As early as the 1970s many governments were concerned about the NAAEC related issue of establishing a level playing field by preventing pollution havens. This problem was dealt with by demonstrating that states could identify significant violations, through programs such as inspections and by responding to significant violations. What is more difficult, however, is determining overall compliance rates.

In the United States, the effectiveness of EPA enforcement and compliance policies and strategies, for example, in the Office of Enforcement and Compliance Assurance (OECA), are evaluated by independent third parties, such as the GAO and an independent inspector general. The results of these performance reviews are public. EPA additionally encourages third party auditing by regulated industry; the agency has a policy of reduced non-compliance penalties for companies undertaking such initiatives with the proviso that any compliance related information must be available to government. The debate in the United States regarding voluntary audits centers on the issue of privilege.

The program for the modernization of Mexico includes a review of government procedures but it is too early to report any results capable of useful evaluation. Mexican companies have expressed interest in third party audits and other voluntary compliance programs. An essential issue faced by government in these voluntary programs is how long the government should wait for results before intervening to enforce and, secondly, at what point the

results of these initiatives should be made available to the public. In other words, there is a need to allow a certain time lag between the introduction of standards, identification of problems and expectations of compliance.

Yet another view was that audits are more than a voluntary evaluation process: they determine whether a company is in compliance. They are a basic part of doing business. Consequently, while we should encourage audits, why grant immunity? Voluntary audits should not become a substitute for record keeping and reporting, because the public loses access to information. Consideration could be given to making audits mandatory. The question was raised why there should be different rights of access to audit results and emission reports. If there is no concern about actions arising from emission reports, there similarly should be no objection to citizen suits which are triggered by audit reports. The EPA audit policy requires a company to achieve compliance to earn any relaxation in penalties. Similarly, it was argued that, where industry does not correct any problems identified in the course of its audit, those results should be available to the public to commence a legal action.

It may be important to differentiate between the two types of audits: (1) third party audits of government; and (2) third party audits of the private sector. A third party audit should be seen as supplemental to government audits. If there are government audits, then third party audits may not be necessary. However, third party audits may be useful where there is no other audit requirement, for example, at the municipal level. Yet another perspective on third party audits was that decisions about privilege should be determined based on the nature of the industry or substance or its impact.

One reason for the apparent minimal interest by US industries in voluntary third party audits may be the threat of liability through citizen suits. In the converse, the observation was made that perhaps one reason for the greater interest by Mexican industries in participating in these programs is the fact that, under Mexican environmental law, inspection results and compliance information are public, but the details of audits are confidential. The suggestion was made that disclosure policies should reflect these possible disincentives.

Environment Canada shared that it is its policy not to require public access to the results of a private environmental audit. It is unclear how to treat information provided by industry arising from other private voluntary initiatives such as ISO 14000.

Mexico shared that, since the introduction of its voluntary audit program in 1992, over 900 Mexican companies have participated. Once a company has performed a voluntary audit, it commits itself to correcting identified problems, including those not regulated, such as labor or community relations. When a company completes an audit, it obtains an acknowledgement certificate from the government. An independent audit group performs the audits. Approximately 150 certificates are issued per year. The benefits and results of the program have included reduced use of water and fuel, and reductions in air emissions, wastewater discharges and hazardous waste generation. These results are clear indicators of the benefits of the program.

A series of issues were identified for consideration in determining the type of enforcement and compliance data to collect, including analysis of best practices, the implications for confidential business information, and the need for a special set of indicators to evaluate voluntary compliance initiatives. With respect to indicators of environmental compliance, it may be important to define the degree of severity of the non-compliance; in other words, it may not be appropriate to apply the same compliance indicator across the board to measure all activities.

US EPA advised that, in adopting indicators, it relies on objectives contained in its strategic plan developed pursuant to the Government Performance and Results Act (GPRA). The agency looks for patterns of activities and results. EPA's measurement of enforcement concerning pollutant reductions does not exclude performance measurement for other activities, such as reporting and recording. The agency uses public data to avoid potential problems associated with confidential business information. EPA examined the possibility of quantifying industry use of voluntary measures but encountered difficulty in collecting information and does not regard the exercise as feasible at this time. As the use of random inspections to determine compliance rates has potential resource implications, EPA has chosen to focus its enforcement and compliance activities on significant violators. EPA's

approach to prioritizing use of indicators is directly related to how the indicators contribute to measuring the achievement of the agency's objectives over time.

Florida advised that it has been able to do both random sampling and background targeting to develop statistically valid compliance rates, without the need for additional resources. The state defines a significant violation as any violation resulting in a clear and present threat to health or environment, for example, operating without a permit. The measure of severity of non-compliance is based on the significance of the impacts of the violation. Florida re-calculates the compliance rate following enforcement or other efforts to see if there is a lasting behavioural change. This is necessary, it was suggested, to ensure effectiveness of the program.

With respect to indicators of environmental compliance, it is important to define the degree severity of the non-compliance. In other words, it may not be appropriate to apply the same compliance indicator across the board to measure all activities.

There was also a question as to whether indicators could be developed that would not require major resource implications and would provide statistically valid compliance rates. It was suggested that, as there is a gray area between compliance and non-compliance, it may be useful to evaluate the potential deterrent effect and associated cost/benefit of any enforcement versus assistance options in each case. It is important that the evaluation process also accommodate "bad news;" we should continue to use indicators even when they uncover uncomfortable information.

Session Four:

Lessons Learned in Other Related Processes

Panel One

- Experiences with indicators for compliance with international agreements.
- Related experiences of the European Commission.

Lessons from Research on the Implementation of International Environmental Law

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This essay summarizes some results from a major multinational research project at the International Institute for Applied Systems Analysis (IIASA) on the implementation of international environmental agreements. The topic of the IIASA study—implementation of international environmental laws—was not identical to the problem that concerns this Stakeholder Dialogue, which is directed to the obligation under the North American Agreement on Environmental Cooperation (NAAEC) of enforcement of domestic environmental laws.² International law is generally weaker than national law; notably, international law is backed by few, if any, tools for strict enforcement. Moreover, the IIASA study examined the standard-setting process (at both the national and international levels), as well as its relationship to implementation and enforcement, whereas this Dialogue concerns principally enforcement. However, three results from the IIASA project are particularly relevant to efforts to develop indicators of effective environmental enforcement in NAFTA countries and thus may be valuable to this Dialogue.³

Compliance with and Effectiveness of Regulatory Standards: Implications for Enforcement

Most studies, especially those conducted by lawyers, have equated “effectiveness” with “compliance.” But in most cases that approach misses the mark. “Effectiveness” is a measure of a law’s impact on *behavior*—the most effective laws have the largest impact on the offending behavior, and the least effective have none. Increasingly, scholars are assessing “effectiveness” of laws not only by their impact on behavior but also by their cost to society. In contrast, “compliance” is merely conformity with the law. All else being equal, more compliance typically means more effective law. But it is the degree of influence that law has on behavior that matters most; compliance is a secondary indicator.

The experience with international law suggests that standards are often written so that compliance can be assured, even when standards have little or no impact on behavior. Examples include international rules in place since the 1980s to regulate sulfur dioxide in Europe (the leading cause of acid rain) and international quotas for commercial whaling adopted from the 1950s to the 1970s. In both cases, compliance was nearly perfect, although neither set of standards had much impact on behavior, and environmental problems thus grew steadily worse. Whalers emptied the oceans of great whales and the whaling industry was over-capitalized and economically inefficient, yet formal compliance with the International Whaling Commission’s quotas remained high. (Only two substantial cases of noncompliance have been detected: one concerned Panama in the 1960s; the other, excessive whaling by Russia in the 1950s and 1960s, has just recently come to light.) In some cases, effectiveness has been negative even when formal compliance with rules has been high. Examples from NAFTA countries may include

¹ The author was co-leader, from 1993 to 1996, of a project on the “Implementation and Effectiveness of International Environmental Commitments,” at the International Institute for Applied Systems Analysis (IIASA). The views expressed here are his own.

² NAAEC was entered into by Mexico, Canada and the United States in 1993 as one of two side agreements to the North American Free Trade Agreement (NAFTA).

³ For a full discussion of the project’s results see *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*, David G. Victor, Kal Raustiala, Eugene B. Skolnikoff, eds., (1998); David G. Victor, “The Use and Effectiveness of Nonbinding Instruments in the Management of Complex International Environmental Problems”, in *Proceedings of the American Society of International Law*, 91st Annual Meeting, (1997) 241–150.

the much-criticized alternate driving day scheme in Mexico City, which has had the unintended consequence of causing changes in behavior that have worsened the pollution problem.

The effectiveness of environmental standards themselves is beyond the mandate of this dialogue. But the need to define “effective” carefully and not to assume its equivalence with compliance has several implications for the development of enforcement indicators.

First, the distinction between implementation and effectiveness is partially indicative of different views about the role of law in society. Since the role of law varies across societies, it may be necessary also to adopt varied indicators for effective legal enforcement. In one view, the “rule of law” should prevail—that is, the law should govern behavior strictly and deviation should be punished. In societies governed by that view there is often a close correlation between laws on the books and actual behavior. An alternate view holds law as a guide, not an instrument for strict enforcement. Law and behavior may not correlate closely; non-compliance may be rampant even when law is influential. These and many other views of law can coexist in different societies, but when the goal is integration of those societies into a common legal framework—as some proponents of NAFTA argue is the goal of free trade in the Americas—then the different roles of law must also be integrated and homogenized.

Enthusiasts of the “rule of law” view argue that only consistent, transparent and rigorous enforcement will allow level playing fields needed for international trade between societies. I share that view, but integration of different legal systems so that they follow common standards is no easy task—often it requires a complete redesign of a society’s legal institutions. No region has progressed further than the European Union (EU), but even there the task is far from complete. The EU experience illustrates how differences in the role and culture of national legal institutions make it difficult to determine what is “effective” implementation and enforcement. Data on the rate of implementation and enforcement of EU directives are nearly useless indicators of whether those directives actually influence behavior inside EU member states. In countries with a strict “rule of law” (e.g., the United Kingdom) the measured rate of implementation of EU directives is high, which is an indicator that EU directives do strictly govern behavior. In other countries where “rule of law” is less rigorous (e.g., Italy), high rates of formal implementation of EU directives is a less meaningful indicator that those directives actually influence behavior.

Similar problems may be encountered in efforts to develop indicators for effective enforcement under NAAEC. The rule of law varies among the NAFTA countries and thus perhaps the standards for effective enforcement—i.e., enforcement that yields a particular influence on behavior—must vary across the different legal systems. It will be relatively easy to develop simple indicators of enforcement, such as number and rate of enforcement actions. But meaningful comparisons across countries will be difficult unless backed by more sophisticated data and assessments that account for different roles of law in the different NAFTA countries. Environmental objectives will probably grow more stringent in the NAFTA countries in the future. As they do the difference between “effectiveness” and “compliance” may also grow, and so may the need for enforcement indicators that are customized to a country’s type of legal institutions.

Second, when developing and assessing indicators of enforcement, it is crucial to remain mindful that enforcement actions almost always have their greatest influence on behavior as a deterrent. Enforcement matters not only because it forces the deviant party to come into line, but also because it signals to all others that deviation will be costly. However, those crucial deterrent effects are difficult to measure, and thus it is difficult to assess, from enforcement data alone, the effectiveness of enforcement actions. A single enforcement action could send a strong deterrent signal that forces all parties to obey the law in the future, which would thus require no further enforcement. In that case, indicators would show little enforcement, but the effectiveness of enforcement would be very high. In other cases, low levels of enforcement may simply reflect that a law is ignored and ineffective. It is difficult to distinguish those two situations by looking only at indicators of enforcement actions, such as the value of penalties levied or the number of cases prosecuted.

Third, while the distinction between the influence of laws on behavior and formal compliance is important to keep in mind, it is also important not to jettison the concept of compliance. Formal legal procedures, remedies and penalties are often triggered by a situation of noncompliance. Indeed, one reason why international environmental law has not been more effective is that compliance has been high and thus the trigger of noncompliance is rarely tripped. Compliance remains an important benchmark in determining acceptable behavior and coordinating societies, but it is not everything.

Fourth, and finally, because compliance is not a perfect indicator of the economic and environmental effectiveness of a regulation, it may be useful to look beyond compliance at the actual impact that laws are having on behavior. Exercises such as regular reviews of the implementation of environmental laws are already under way through the Organization for Economic Cooperation and Development (OECD) and under NAFTA. They can help identify needed improvements to environmental standards. Such reviews could also help to fill out the picture provided by simple indicators of enforcement and help to identify improved indicators. I doubt that a sophisticated set of indicators of effective enforcement can be designed, at the outset, that would be applicable in all three NAFTA countries. As I have suggested, the differences in legal systems will make comparisons difficult and will confound efforts to arrive at a common standard for effective environmental enforcement. Thus, a periodic stocktaking of experience, informed by a broader assessment of environmental regulation in the NAFTA countries, could be crucial to developing a useful set of enforcement standards over time.

Indicators of an Effective Process of Enforcement

Advocates of modern “liberal” governance seek not only the “rule of law” but also that the *process* of law-making and implementation follow liberal standards. Such standards include rights of participation for stakeholders such as access to information, a voice in the policy-making process, and access to the legal system to help enforce laws on the books.

In the IIASA project, we looked closely at public “participation” and explored whether and how new rights of participation actually influence the policy process. We found that formal efforts to open the policy process have influenced policy decisions and enforcement, but much less so than we had expected. During the 1980s and early 1990s, every country that we studied—primarily in Europe—opened the halls of power to participation by a wide array of non-state actors. Formal participation rose dramatically; many more documents were available, formal consultations held, and opinions proffered. But often we found that it was difficult to trace many changes in policy as a result. Often policies became more “green” and enforcement more active because the public became more green, not because channels of formal participation were liberalized. Why? Information provided was often not very useful; views of the new participants were often known even when formal channels for participation did not exist and thus formal access conferred little real new information; and when policy processes were opened, substantive decisions were moved away from the formal fora where public participation rights had been guaranteed. In short, formal rules for participation are at best only one factor that influences whether and how public stakeholders really participate in the policy process.

The NAFTA countries may want to develop indicators of public participation in environmental enforcement as part of the effort to develop indicators of effective environmental enforcement. If they do, the IIASA results suggest that it will be important to examine not only the formal rules of access but also the other necessary conditions for participation. In particular, the IIASA study found that actual participation and influence depends on the presence of an infrastructure that facilitates participation. Especially important is low-cost access to high-quality information. The danger in developing indicators of public participation is that it is easy to measure formal access rules, such as rules that govern access to meetings and the availability of citizen suits. But the infrastructure that allows such formal access to be used by the public is more difficult to measure, yet more important. Only a broad perspective will yield indicators for the process of environmental enforcement that are truly measures of the level and type of participation. As noted above, it may also be useful to develop an initial set of indicators and then to engage

in periodic stocktaking, especially since the indicators that are most important will probably vary across the three NAFTA countries.

Enforcement of Voluntary Agreements

National environmental law is experiencing several revolutions that will affect how standards are codified and enforced. They include shifts towards: (1) market-based instruments, such as deposit-refund systems, effluent taxes, and tradeable permit systems; (2) management of whole ecosystems rather than single sector and single species regulation; and (3) voluntary regulation of industry. All of these affect the types of indicators that will be needed to measure the effectiveness of environmental enforcement. But the last of these three shifts poses especially large challenges. Enforcement of voluntary agreements has often been ignored—indeed, the hallmark benefits of flexibility and greater support by industry exist precisely because voluntary measures are not strictly enforced through binding legal mechanisms. But minimal enforcement could become problematic as voluntary agreements are increasingly used in lieu of binding regulation. For example, the IIASA team found that in the Netherlands—a pioneer in the development of voluntary “covenants”—enforcement failures were commonplace, leading often to the country’s failure to meet environmental objectives. Although it may seem an oxymoron, indicators may be needed for proper “enforcement” of “voluntary” rules.

At minimum, efforts to identify indicators for effective enforcement must thus distinguish the type of legal instrument that is being enforced. Research has shown that there is a substantial difference between binding and voluntary measures. Those differences are integral to how standards are perceived by their targets and how effectively these standards are implemented. Indicators for environmental enforcement must therefore distinguish between these two types of legal instruments. It may also be useful to distinguish between binding standards that require strict “rule of law”—such as tradeable permits, taxes and other instruments that use market signals—and other forms of standards that are aspirational. If international standards for enforcement are to be agreed upon, then it must be recognized that law serves many purposes by many methods. Standards for enforcement must vary with those purposes and methods. Indicators of enforcement activity that lump together all types of instruments (and enforcement techniques) will not yield information that is useful to policy makers who want to track, compare and improve environmental management.

The Experience of the European Commission

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Unlike Article 5 of the North American Agreement on Environmental Cooperation (NAAEC), which requires NAAEC Parties to enforce their environmental laws and regulations effectively but does not attempt to harmonize the Parties' substantive environmental law, the European Union's (EU) action in the environmental field has so far mainly consisted of the adoption of a body of legally binding instruments² harmonizing certain sectors of environmental law. The practical implementation and enforcement of these instruments vis-à-vis the regulated undertakings and establishments has fallen predominantly within the remit of Member States' competent authorities. This does not mean, however, that the EU is not taking action with respect to the implementation of its own body of environmental law, as discussed below, nor that it is not attentive to the general question of effective enforcement, as discussed below.

Implementing Community Environmental Law: A Multi-Layer System in Essence

The institutional framework of the EU comprises the following structure and characteristics: The Commission, which is a body independent of the Member States, drafts the legislative proposals. The Council, which is composed of representatives of the Member States, is currently the main legislative body of the EU, since it not only discusses but also has the final say as regards the adoption of the legislative proposals put forward by the Commission in the environmental field.³ The European Parliament, whose members are directly elected by the citizens of the Member States, discusses the Commission's proposals and suggests amendments but may not impose its views on the Council. It is to be noted, however, that the Parliament has been given, since 1993, a right of veto (i.e., it can block the adoption of a measure by the Council) with respect to Internal Market legislation through the so-called "co-decision" procedure.⁴ This is noteworthy, since some pieces of Internal Market legislation have a significant environmental dimension.⁵ The European Parliament's powers will be increased when ratification of the new Treaty of Amsterdam is completed; the "co-decision" procedure will become the legislative procedure "by

¹ The views expressed in this paper are the author's only and do not necessarily reflect those of the European Commission.

² The EU's legislative instruments include: 1) *regulations*, which are binding in their entirety, apply directly to all Member States, and are effective immediately; 2) *directives*, which are binding on the Member States to which they are addressed as to the results to be achieved but leave to the national authorities the choice of form and methods; and 3) *decisions*, which are binding in their entirety on those to whom they are addressed, be they a government, an enterprise, or a private individual.

³ See Article 130s of the EC Treaty. According to this provision, there are no less than three different legislative procedures in the environmental field: legislation is adopted in pursuance of the so-called "co-operation" procedure where a qualified majority voting system applies in Council. A first exception is provided for provisions primarily of a fiscal nature, measures concerning town and country planning, land use, management of water resources and measures significantly affecting a Member State's choice between different energy sources and the general structure of its energy supply, for which unanimity is required in Council. Lastly, the so-called "co-decision" procedure applies for the adoption of general action programs setting out priority objectives to be attained. The details of the co-operation procedure are set out in Article 189c of the Treaty.

⁴ See Article 189b of the EC Treaty. Basically, this procedure, which also provides for a qualified majority voting in Council similar to the "co-operation" procedure, differs from the latter in that the European Parliament's powers are increased in that it may prevent the final adoption of a measure. With this "right of veto," the EP enjoys a "negative" co-decision power but not a "positive" one.

⁵ This is reflected internally by the fact that DG XI (the Environment Directorate-General of the Commission) is responsible for these directives, (for example, Directive 67/548/EEC on classification, labelling and packaging of chemicals or Directive 94/62/EC on packaging and packaging waste) rather than the Industrial Affairs and Internal Market Directorates-General (DGs III and XV).

default” in the environmental field. The European Court of Justice, composed of 15 Judges⁶ assisted by eight Advocates-General⁷ appointed for a renewable term of six years, is entrusted with the task of ensuring that “in the interpretation and application of [the] Treaty the law is observed.”^{8,9,10}

The Member States are under a duty to implement Community legislation properly. This duty is threefold:

- Member States must adapt their laws and regulations, either by adopting new ones, amending existing ones and/or repealing inconsistent ones, with a view to making them conform with the Community legislation in question.
- Member States must ensure the practical implementation of Community environmental law by applying either the Community self-executing regulations or the national measures adopted in pursuance of Community directives.
- Member States must ensure that Community environmental law and the national measures implementing it are effectively enforced. This duty implies both that the Member States provide for appropriate penalties (i.e., that, while the choice of penalties remains at their discretion, Member States must ensure that infringements of Community law are penalized under conditions, both procedural and substantive, which are analogous to those applicable to infringements of national law of a similar nature and importance and which, in any event, make the penalty effective, proportionate and dissuasive) and that they actually apply those penalties to non-compliant undertakings and establishments where appropriate.

Implementing Community Environmental Law: The Influence of the Institutional Framework on the Monitoring Role of the Commission

Article 155 of the EC Treaty entrusts the Commission with the task of ensuring that the provisions of the Treaty and the measures taken by the Community’s institutions pursuant thereto are applied.¹¹

To this end, Article 169 of the Treaty stipulates that, if the Commission considers that a Member State has failed to fulfill an obligation under the Treaty, it shall deliver a reasoned opinion on the matter after giving the State concerned the opportunity to submit its observations. If the State concerned does not comply with the opinion within the period laid down by the Commission, the latter may bring the matter before the Court of Justice of the European Communities.

Article 171 of the Treaty requires the Member State which was found by the Court of Justice as failing to fulfill one of its obligations to take the necessary measures to comply with the judgment of the Court of Justice. If the Commission considers that the Member State concerned has not taken such measures, it shall, after giving that State the opportunity to submit its observations, issue a “reasoned opinion” specifying the points on which the Member State concerned has not complied with the judgment of the Court of Justice. If the Member State concerned fails to take the necessary measures to comply with the Court’s judgment within the time limit laid down by

⁶ If there is one Judge per Member State, it is to be noted that, unlike in the International Court of Justice, for instance, there is no right for a Member State to have the Judge possessing its nationality partake in the proceedings in which this State is the respondent.

⁷ Each case submitted to the Court is first assessed by one Advocate-General, who renders an Opinion on the merits of the case, suggesting a ruling; the Advocates-General are independent and should not be assimilated, albeit their misleading name, to prosecutors under the authority of national governments. Their official duties are described in Article 166(2) of the Treaty as follows: “It shall be the duty of the Advocate-General, acting with complete impartiality and independence, to make, in open court, reasoned submissions on cases brought before the Court of Justice, in order to assist the Court in the performance of the task assigned to it in Article 164.”

⁸ Article 164 of the EC Treaty.

⁹ Legal remedies available to the Commission before the Court of Justice are set out in more detail below.

¹⁰ There is also a Court of First Instance attached to the Court of Justice, but its jurisdiction does not encompass actions against Member States, which are for the cognizance of the Court only.

¹¹ Article 155 reads as follows: “In order to ensure the proper functioning and development of the common market, the Commission shall ensure that the provisions of this Treaty and the measures taken by the institutions pursuant thereto are applied.”

the Commission, the latter may bring the case before the Court of Justice. If the Court of Justice finds that the Member State concerned has not complied with its judgment, it may impose a lump sum or daily penalty payment upon it.

The Commission is therefore properly equipped to deal with cases in which Member States do not comply with Community environmental law. Yet the specific features of the Community's institutional framework are not without influence on the performance by the Commission of its monitoring role. Indeed, the bulk of Community environmental law has been adopted in the form of directives.

According to Article 189 of the EC Treaty, a directive shall be binding upon each Member State to which it is addressed as to the result to be achieved, but shall leave to the national authorities the choice of form and methods to achieve the result prescribed.

The peculiarities of the directive, as a legal instrument which must be "transposed" into national law, lead to a three-stage scenario. At each stage, Member States' compliance must be monitored by the Commission.

At the first stage, Member States must enact the necessary laws and regulations to comply with the directive within the time-frame set out therein and communicate these laws and regulations to the Commission. Lack of communication, or partial communication, will automatically lead the Commission to resort to the above-mentioned Article 169 procedure (the so-called "infringement procedure").

At the second stage, the Commission must check whether the national implementing measures of the Member States do indeed conform with the directive. If not, the Commission will request the Member State concerned to take the appropriate remedial measure, which, in almost all cases, implies that the non-compliant law or regulations be amended or repealed. In the absence of such remedial action, the Commission will refer the matter to the Court.

The third stage concerns the duty of Member States to apply and enforce their laws and regulations implementing Community environmental directives. The Commission may pursue before the Court of Justice any case of improper application of these laws and regulations by the responsible national or regional authorities. Where the competent authority does not enforce (either deliberately or by negligence) environmental rules, the Commission can also initiate infringement proceedings.

In the first two stages, the Commission can easily act, noting that either the necessary national legislation is still missing or that this legislation is not, on the face of it, in line with Community law. Improper application cases, however, imply that the Commission is aware of the existence of a particular problem somewhere in the Community. This explains why the Commission usually initiates investigations of such cases in response to complaints and submissions lodged by citizens and nongovernmental organizations.

The Commission activities in the field of complaints investigations and the handling of infringement proceedings are summarized in the Annual Report on the Monitoring of the Application of Community Law.

Implementing Community Environmental Law and Effective Enforcement: The Roles of the Union and its Member States

As previously outlined, perspectives on the very notion of "effective enforcement" differ between the Member States and the Commission. Yet, for both, effective enforcement generally goes further than just pursuing individual cases of non-enforcement. Both would concur that it involves an assessment of whether, within the relevant jurisdiction, environmental laws and regulations are enforced on the whole and on average in a satisfactory manner.

The Member States' environmental enforcement agencies share with other similar bodies throughout the world the need to optimize the limited enforcement capabilities available to them with a view to maximizing their deterrent effect. In this context, issues such as targeting enforcement actions, identifying priority sectors for

monitoring, and defining “significant non-compliance,” constitute common concerns of many of these agencies. Since the Union cannot unduly interfere with the Member States’ internal organizational schemes, one approach which could be adopted by the Commission to assess whether they are effectively enforcing laws and regulations implementing Community environmental directives could be by means of audit-like mechanisms yet to be designed.

The Community has already demonstrated its interest, if not in enforcement indicators *stricto sensu*, at least in some kind of environmental indicators which should facilitate the Commission’s task of monitoring the application of Community environmental law. Article 3(iii) of Council Regulation (EEC) No 1210/90 of 7 May 1990 on the establishment of the European Environment Agency and the European Environment Information and Observation Network¹² specifies that the Agency will, *inter alia*, be required to record, collate and assess data on the state of the environment, to draw up expert reports on the quality, sensitivity and pressures on the environment within the territory of the Community, to provide uniform assessment criteria for environmental data to be applied in all Member States, and to use this information in its task of ensuring the implementation of Community environmental legislation. It is clear that this information is not a specific enforcement indicator.

It is important to note that the Commission, in its Communication on Implementing Community Environmental Law, adopted on 22 October 1996,¹³ discussed the question of the role and importance of inspections in relation to an effective and even application of Community environmental law (points 26 to 29 of the Communication). The Communication states that the Commission will consider making recommendations and establishing guidelines with respect to inspections, so that the currently existing wide disparities among Member States be reduced. The Commission will also assess whether there might be a need for a small Community body with auditing competencies.

Point 29 of the above-mentioned Communication is of specific relevance to the question of effective enforcement indicators since it states that inspection authorities can produce and publish annual reports on the experience acquired while carrying out their tasks. Such reports will provide useful information and could form a very important basis for future action. The Communication underlines that these annual reports could be used by the Commission to ascertain if the objective of even application is being met and whether further action is needed. Such further action could, for instance, mean the establishment of a small Community body with auditing competencies over the inspections carried out by the national authorities. It remains to be seen whether this second-line auditing-like Community body will ever be set up in the future.

Finally, it should be noted that (as far as enforcement is concerned) the Union could benefit from the informal IMPEL network (i.e., European Union Network for the Implementation and Enforcement of Environmental Law). Composed of appropriate representatives of the Member States and jointly chaired by the Commission and the Member State holding the Presidency of the Council of the European Union, IMPEL was first set up in 1992 and now has a rather wide mandate to consider the implementation of environmental legislation, including questions of how to ensure better enforcement by national, regional and local bodies. IMPEL could assist the Commission in its attempts to design enforcement indicators.

¹² 1990 O.J. (L 120) 1.

¹³ COM(96) 500 final.

Concluding Remarks

The EU is still reflecting on the role, scope and usefulness of enforcement indicators. However, it is firm constitutional thinking, in line with the so-called “subsidiarity” principle, that the Union should not act where its action would not bring an added value or, conversely, where Member States’ actions suffice to deal satisfactorily with the problem at hand. One might argue that, insofar as enforcement indicators would constitute a useful tool for helping the Commission in the fulfillment of its general monitoring task, any progress in the field would fit into the remit of the Commission as already defined by the EC Treaty. On this basis, relying on a subsidiarity argument to prevent initiatives aiming at developing compliance indicators at the Community level does not seem to be relevant.

Summary of Discussion—*Panel # 1*

A considerable portion of this discussion centered on the needs of the public in the design and use of indicators. In some instances, for example, Mexico, government has made the effort to issue pollution reports but stopped the practice due to minimal public response or feedback. It is difficult to gauge exactly what kind of information the public wants on pollution and enforcement. It was suggested that certain indicators, for example, data on number of inspections or number of cases resolved, may be of little value without additional information on how the information can or should be evaluated.

There is little doubt that society wants information about the quality of its environment, including information about potential sources of impact and whether they are in compliance. The information must also be timely, relevant and concise.

There is a need for credible information sources. There is a concern about the accuracy of data and the potential need to vet such information before it is released to the public. The point was made that the general public tends to rely on NGOs to provide credible information. The public prefers information that meets the expectations of the local community. While NAAEC has not necessarily resulted in any increased demand for indicators, many jurisdictions are introducing these programs nonetheless.

It is similarly important to develop indicators to clarify and measure the influence of NGOs on environmental policy.

Citizens tend to be more interested in environmental justice, direct impacts on their communities and environmental impacts than in indicators of compliance and enforcement. The types of indicators citizens want include: (1) facility and area-level environmental quality as well as compliance and enforcement information; and (2) national-level information aggregated and interpreted by government, that examines trends by sector, media, regulation, etc. The challenge for government is to provide aggregate and local-level data to the public in an understandable manner. Industry also tends to want information on trends.

Citizen complaints or responses can also be useful indicators of the effectiveness of an enforcement regime. It was pointed out that Article 6 of NAAEC requires the Parties to also provide private access to remedies. To ensure government accountability the public should have the right to participate in related decision-making, right of access to pollution release and compliance data and access to the courts.

In summary, citizen participation indicators could include: (1) access to information (where governments regard NGOs as users of information systems); (2) government accountability (where there is public participation in rule-making and the public can challenge activities in court); (3) ample requirements on the regulated community to report information to government; (4) access to the courts (to ensure that government does its job and to challenge violations by individual sources of pollution); and (5) ample resources for government to enforce the law (consisting of adequate personnel with broad authority to assign liability).

The discussion then moved back to the issue of how best to measure compliance. It was suggested that governments set national goals that will grant industry the flexibility to decide how to comply. This could be characterized as a progress indicator that goes beyond the measurement of compliance and enforcement (i.e. “compliance plus”). It was suggested that too much attention to enforcement of voluntary agreements would kill these initiatives. Voluntary compliance, it was suggested, works well because industry knows best how to comply as well as how to go beyond legal standards; too much attention to enforcement may be counterproductive.

For Mexico, it may be premature to talk about the concept of voluntary compliance, as there is still not the same respect for law and enforcement as in other jurisdictions. Mexico may need to focus instead on building its laws and implementation regimes, due to the endemic problems in the administration of justice. While Article 5 of NAAEC lists a series of actions that governments are to undertake to ensure effective environmental enforcement, including putting enforcement systems into place and measuring their effectiveness, it is unclear to what extent the required systems are instituted in each country. It was further suggested that while many jurisdictions have ample resources to monitor and enforce, the issue is how to convert information about those activities into indicators of effective enforcement for the purpose of measuring compliance with article 5.

While regulations are enforceable, one cannot be required to comply with a voluntary, non-binding agreement. Therefore, indicators of compliance and enforcement should not be confused with indicators of adherence to voluntary arrangements. If an arrangement is voluntary, there is, by definition, no obligation to comply. If the arrangement is voluntary, the question of how to enforce it arises, as does the question of how to develop indicators to test compliance with the voluntary arrangement. It was suggested that the entire concept of measuring adherence to voluntary initiatives is troublesome and care should be taken in combining measurement of these types of programs with indicators of the more traditional type of enforcement responses.

Finally, the comment was made that public international law is characterized by a general lack of enforcement mechanisms. It may be noted that the efficacy of standards and enforcement/compliance are different issues. The European Union, for example, has obtained a high level of harmonization of standards, yet indicators of enforcement or compliance have yet to be developed. Similar issues have been raised in Europe related to the role of NGOs and the contribution of voluntary agreements.

Session Four:

Lessons Learned in Other Related Processes

Panel Two

This session reviewed processes piloted in other nations to measure and evaluate effectiveness of environmental enforcement policies and strategies.

Differential Industry Response to Formal and Informal Environmental Regulations in Newly Industrializing Economies: The Case of Thailand¹

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Introduction

Pollution levels are rising rapidly among the high performing economies of Asia. Growing incomes have not been translated into improved environmental management. The lack of legally binding environmental regulation is often blamed for Asia's deteriorating environment. However, over the past two decades most of these countries have introduced pollution control systems, such as volume and concentration standards, and mandated abatement technologies similar to those in developed countries, but enforcement has been variable and inconsistent.

How to foster a clean production revolution among its high performing economies is one of Asia's greatest challenges as it prepares to enter the 21st century. Designing more effective pollution control policies in Asia requires a better understanding of what works and what does not in the Asian context. Casual observation suggests that environmental performance at the firm level varies considerably among firms, even those operating under similarly weak regulatory regimes. Some plants are as clean as those found in developed countries, while others are among the dirtiest in the world. Understanding the sources of this variation in plant-level environmental performance is key to designing more effective environmental policy. Information on the environmental responsiveness of firms and its determinants would be of value not only to government regulators, but also to industrial associations, communities in industrial areas and environmental NGOs.

There is growing evidence⁵ that informal regulation, such as internal management practices and external community pressures, is just as important, and in some cases more important, as formal regulation. The present study examines the drivers of environmental responsiveness of industry in Thailand, based on a survey and statistical analysis of 530 firms carried out in January 1997. The full and final results of the survey and analysis are reported in a forthcoming policy study. The present case study reports selected preliminary results as a pedagogic tool to facilitate discussion of the issues among Asian decision-makers and the public and private sectors. The presentation of main findings is followed by a set of questions for discussion of the implications of the findings for the formulation of a more effective pollution control system by public policy and civil society.

¹ We acknowledge the support of the Thailand Environment Institute and its President, Dr. Dhira Phantumvanit, the assistance of Sameer Shrestha of TEI, and the expert technical assistance of Jennifer Watts and Julia Egan of Harvard Institute for International Development. We gratefully acknowledge the financial and other support of the Environment Center for the United States Agency for International Development under a Cooperative Agreement with HIID. The reader should be advised that the regression results reported here are preliminary and that further data analysis is underway that may alter the findings.

² Fellow of the Harvard Institute for International Development and Director of its Environment Program. The paper was presented by Dr. Panayotou at the Dialogue on Indicators of Effective Environmental Enforcement, Puebla, Mexico, May 1998.

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⁵ Hettige, H., M. Huq, S. Pargal, and D. Wheeler (1996), "Determinants of Pollution Abatement in Developing Countries: Evidence from South and Southeast Asia," *World Development*, 24(12): 1891–1895; and Pargal, S., and D. Wheeler (1996), "Informal Regulation of Industrial Pollution in Developing countries: Evidence from Indonesia," *Journal of Political Economy*, 104(6): 1314–1318.

The Surveyed Firms

In Thailand there are more than 50,000 factories, of which two-thirds are concentrated in the greater Bangkok region. The sample of 530 firms was drawn from ten provinces in the greater Bangkok region. Since the focus of the study is on water pollution, the sample was drawn from eight industrial sectors that are known to be major generators of wastewater: food, textiles, tanneries, pulp and paper, industrial and other chemicals, fabricated metal products, and manufactured transport equipment. Interviewers, trained and led by the Thailand Environment Institute, visited the plants and interviewed the management personnel in person. Information was obtained on wastewater generation, environmental management, environmental investment, monitoring and enforcement as well as on enterprise characteristics and community pressures.

Firm-level Environmental Management

There are many possible measures of firm-level environmental management (or responsiveness), ranging from the formulation of environmental plans and the performance of environmental audits, through location decisions and environmental investments, to pollution control and abatement. The ideal measure is, of course, actual reductions in the pollution intensity of production. Unfortunately, information on the level of effluents at the plant level is not available from monitoring data, and a majority of firms responding to our survey were either unable or unwilling to divulge the information, for obvious reasons. All other measures of environmental management are only proxies: firms may formulate an environmental plan but not implement it; audit their environmental performance but not improve it; or invest in a waste treatment facility but not operate it. It is also possible that firms create environmental divisions, appoint environmental managers, formulate environmental plans, and perform environmental audits to give the appearance of environmental responsibility to interest groups and regulators and thereby preempt pressures for more costly environmental practices. On the other hand, if such “software” approaches to pollution control are part of improved environmental practices and better housekeeping within the firm, they may represent initial low-cost approaches to pollution control that should be exploited before more costly investment are considered. With these caveats in mind, the following measures were used as indicators of a firm’s environmental responsiveness:

- formulation of environmental plan,
- permanence of environmental audits,
- environmental initiatives by the firm’s CEO,
- investment in environmental equipment and clean technology,
- volume of wastewater generated (as a proxy for water pollution).

As is seen in Table 1, over 60 percent of the surveyed 530 firms had formulated environmental plans, two-thirds of them prior to 1991. Larger firms were almost twice as likely to have them as small ones. Similarly, larger firms were three times more likely to have a dedicated environmental officer and environmental division than smaller firms. On the average, about 40 percent of the firms had a dedicated environmental officer/division.

Table 1	Firm Environmental Management Decisions (percentage of all firms within size category)			
	Firm Size (Employees)			All Firms
	1-49	50-199	200+	
Does the Firm Have...				
• Environmental Plan?	45	69	77	63
– Plan date: pre-1991	28	38	55	42
• Environmental division?	13	38	64	38
• Environmental Officer?	10	39	63	37
• Environmental audit?	39	63	80	61
CEO environmental initiatives?	31	60	77	56
Try to comply with ISO 14000	7	18	29	18
Level of Environmental Decisions				
• Shareholder Meeting	17	10	4	10
• Managing Board/CEO	25	44	67	45
• Mid-level Management	27	23	22	24
• Factory Level	2	7	0	3
• Other	29	15	6	17

Table 2	Firm Environmental Management Decisions (percentage of all firms within industry sector)							
	Food	Textiles	Tanneries	Pulp Paper	Indust. Chems	Other Chems	Metals	Transport Equipmnt.
Does the Firm Have...								
• Environmental Plan?	66	54	67	50	68	70	61	68
– Plan date: pre-1991	44	43	38	43	40	52	34	46
• Environmental division?	39	30	19	31	49	49	34	48
• Environmental Officer?	42	28	11	38	41	50	36	47
• Environmental audit?	70	57	33	50	71	63	59	67
CEO environmental initiatives?	59	51	45	38	58	68	55	66
Try to comply with ISO 14000	16	15	10	8	15	36	14	33
Level of Environmental Decisions								
• Shareholder Meeting	3	16	22	4	6	7	12	10
• Managing Board/CEO	52	39	41	36	42	45	51	51
• Mid-level Management	23	29	22	32	32	25	7	26
• Factory Level	1	3	0	8	6	0	5	4
• Other	20	13	14	20	14	23	25	10

The majority of firms make environmental decisions at the managing board level, though mid-level management makes these decisions in about 20% of firms. A large number of smaller firms indicated “other” management levels, including the owner, all employees, and even a total lack of any environmental decisions. There is some variance in environmental management across industries: the tannery and textile industries tending to take less action, while motor vehicles and chemicals tend to take more (Table 2). This variance across industries, however, may be more due to differences in firm size or other characteristics across industries, rather than to inherent differences in the industry’s approach to environmental management.

The survey found that many firm’s CEOs undertook some environmental initiatives, though larger firms were more likely to do so. Only about 18% of firms indicated they are taking steps to comply with ISO 14000. Reasons for not taking such steps include compliance with ISO 9000 or ISO 9200, compliance not necessary, and that firms are now beginning to study feasibility of compliance.

Table 3 shows that the level of investment in environmental equipment during the previous three years increased with firm size, averaging 2,424,700 Baht. Firms replaced an average of 18% of capital with cleaner and/or more efficient technology during the previous three years. Environmental or efficiency performance, however, need not have been the sole reasons motivating replacement of this equipment. In the previous three years, 82 firms indicated having installed cleaner process equipment, 45 installed air pollution control equipment, 76 installed wastewater treatment facilities, 34 performed water conserving measures, 50 performed energy efficiency measures, and 28 performed materials recycling measures.

Table 3	Firm Environmental Management Expenditures			
	Firm Size (Employees)			
	1–49	50–199	200+	All Firms
Total Environmental Investment in last 3 years (1,000 Baht)				
• (mean)	528.9	962.7	6,413.7	2,423.7
• (observations)	39	45	35	119
Percentage of capital replaced by cleaner/more efficient technology				
• (mean)	22.7	16.7	14.2	17.7
• (observations)	46	53	53	152
Considering additional cleaner capital in next 3 years (percentage)				
• 10,000–100,000 Baht	21	18	11	17
• 100,00–500,000 Baht	17	15	16	16
• 500,001–1,000,000 Baht	9	10	7	9
• more than 1,000,000 Baht	12	22	38	24
• other	40	34	27	34

What Explains Differential Environmental Behavior?

Why have 60 percent of the sampled firms formulated environmental plans or carried out internal environmental audits, while the rest have not? Why do the CEOs of more than fifty percent of the firms feel the need to take environmental initiatives, while the rest do not? What motivated 40 percent of the firms to establish an environmental division and 20% to invest in environmental equipment or to try to comply with ISO 14000? The standard “Western” response would be environmental regulation and the threat of (formal) sanctions, such as fines, shutdowns and litigation. While Thailand has had the usual command and control regulation and pollution standards accompanied by sanctions since the early 1980s, the system lacks credibility because of lax enforcement and nominal fines. Furthermore, since Thai regulations are uniform across firms, they cannot explain the variability of response observed among firms. One plausible explanation is differential enforcement of formal regulations. Another is the presence of informal regulation in the form of internal management practices and external community pressures that act differentially upon firms. The possible internal determinants of environmental response are plant characteristics, such as size, age, location, ownership, market-orientation, industrial sector and profitability. Possible external determinants include community pressure, NGO activism, the media, etc. The firm may also be subject to internal pressures from employees, suppliers, and customers.

Table 4 reports preliminary results of regressions on firms’ decisions to make environmental plans and to perform environmental audits.⁶ In addition to the variables presented, these regressions also control for industry and province. Three specifications are tested for each decision because a number of variables—domestic ownership (*ownprido*), domestic market (*dommark*), location on water (*loc2*) and number of factories owned by firm (*numfac*)—are available for only a sub-sample of the firms. Thus, the number of observations rises as these variables are excluded.

Firm location seems to have some effect upon environmental management decisions. Location in an industrial estate seems to increase the likelihood of making environmental plans, while, somewhat surprisingly, location on a river, canal, or coast, seems to decrease the likelihood of having an environmental plan or performing environmental audits. This result seems to refute the possible hypothesis that more sensitive local environmental conditions might lead to greater levels of environmental management, although we do not know more detailed environmental conditions of the plant location. Newer firms are also less likely to undertake environmental audits, possibly because such audits may be implemented only after more critical factory operation issues are addressed. Ownership of a wastewater treatment facility increased the likelihood of a plan and performing an environmental audit, probably due to the necessity of having plans and audits for operation of the treatment facility.

⁶ Subsequent analysis will account for firms’ expectations about the likelihood that they will receive pressure from regulators or external interest groups.

Table 4	Logit Regressions of Firm Environmental Management Decisions: Environmental Plan and Audit (Preliminary Findings)					
	Explanatory variables*	Environmental Plan			Environmental Audit	
(1)		(2)	(3)	(1)	(2)	(3)
<i>(t-stats in parentheses)</i>						
employ	0.00052 (0.91)	0.00049 (1.09)	0.00074 (1.74)	0.00091 (1.01)	0.00046 (0.87)	0.00064 (1.31)
ownprido	-0.0031 (0.40)			-0.0119 (1.36)		
dommark	0.00133 (0.24)			0.00380 (0.56)		
loc1	0.73 (1.40)	0.64 (1.52)	0.91 (2.46)	0.62 (1.12)	0.18 (0.42)	0.46 (1.20)
loc2	0.78 (1.85)	0.55 (1.56)		1.21 (2.53)	0.90 (2.41)	
numfac	0.093 (0.70)			0.064 (0.48)		
monitor	0.39 (0.98)	0.21 (0.62)	0.11 (0.37)	1.02 (2.45)	0.95 (2.72)	0.83 (2.63)
compchk	0.64 (1.64)	0.77 (2.24)	0.95 (3.18)	1.40 (3.33)	1.23 (3.52)	1.56 (4.99)
press1	1.23 (2.00)	1.30 (2.33)	1.46 (2.76)	0.22 (0.36)	0.59 (1.15)	0.66 (1.37)
built	0.0079 (0.40)	-0.0090 (0.54)	-0.0082 (0.54)	-0.0503 (2.20)	-0.0384 (2.05)	-0.03 (1.74)
owntreat	1.35 (3.44)	1.24 (3.81)	1.36 (4.73)	0.30 (1.69)	0.36 (2.07)	0.92 (3.15)
observations	233	302	382	231	299	380
Pseudo R-squared	(0.19)	(0.17)	(0.20)	(0.29)	(0.24)	(0.25)

* See page 79 for key to abbreviations.

A number of firm characteristics, including firm size, domestic or foreign ownership and markets, and number of factories, seems to have little significant effect upon environmental management decisions. All industry and province dummy variables are also insignificant. Thus, rather surprisingly, firm characteristics, including industry sector, seem to have little influence upon environmental management decisions.

Pressure to address environmental issues by groups outside management—community, employees, and customers—increases the likelihood that firms develop an environmental plan, though such pressure does not seem to significantly affect whether firms perform environmental audits. This appears to indicate some responsiveness to outside pressure to address environmental problems, though whether such plans lead to actual action is uncertain. Firms that have been inspected for compliance (compchk) are much more likely to make plans and perform audits, though the causality is somewhat unclear. Do inspectors check firms with plans more frequently, or do compliance inspections lead firms to make plans and perform audits? Further analysis using the dates of environmental plans and audits, may help answer this question. Similarly, firms whose pipes have been monitored within the previous five years by regulators are also more likely to perform environmental audits, though, again, the causality is unclear.

These results suggest that firm decisions to undertake action within management through environmental plans and audits are somehow connected to regulatory agency behavior and pressure from groups outside of management. The exact relationships, particularly with regulatory agencies, are somewhat unclear since causality can run in multiple directions.

Table 5	Factors Affecting Production Technology Choice (percentage of all firms within industry sector)			
		Firms Size (Employees)		
	1–49	50–199	200+	All Firms
<i>Rating of factors influencing production technology choice: 1- very important, 7- not important</i>				
Cost considerations	1.66	1.65	1.76	1.69
Productivity/efficiency	1.77	1.65	1.49	1.64
Environmental performance	3.77	2.99	2.89	3.20
Dictated by environmental regulations	3.25	2.65	2.48	2.79
Subsidized by government	4.30	4.11	4.14	4.17
Only technology available	3.85	3.72	4.51	4.00
Other	6.14	3.80	5.38	4.86

Internal and External Pressure

Firms were asked to rate the importance of factors affecting firm decisions to consider environmental issues. Table 6 reports the average score for each size category. The most important pressures influencing firm decisions to consider environmental issues are domestic customers, employees, government regulations and community pressures. The news media, potential lawsuits, and environmental NGOs were the least important factors. Relatively few firms actually indicated they had received specific complaints from groups outside of management within the past five years: 20 complaints from the community or neighborhood, 20 objections to expansion plans, and 16 complaints from employees.

Table 6	Sources of Pressure on Firm Environmental Decisions			
		Firms Size (Employees)		
	1-49	50-199	200+	All Firms
<i>Rating of factors influencing firm decision to consider environmental issues</i> <i>1- very important, 7- not important</i>				
Customers at home	1.92	1.90	2.14	1.98
Customers abroad	3.47	2.79	2.47	2.89
Suppliers	2.88	2.68	2.57	2.71
Shareholders	2.78	2.27	2.23	2.40
Employees	2.10	2.10	2.08	2.10
Industry associations	3.09	2.84	2.65	2.85
Environmental NGOs	2.95	3.04	2.88	2.97
Community/neighborhood	2.84	2.66	2.59	2.70
News Media	3.62	3.67	3.37	3.56
Potential lawsuits	3.36	3.56	3.36	3.44
Government Regulations	2.11	2.14	1.89	2.10
Incentives (loans, grants, tax exemptions)	2.86	2.82	2.67	2.79
Costs of wasteful energy and material input use	2.36	2.34	2.41	2.37
Costs of environmental controls	2.77	2.72	2.66	2.72
Anticipated increase in import of environmental issues	2.92	2.66	2.61	2.72

Environmental Monitoring and Enforcement

Understanding the effect of enforcement upon firm environmental management decisions is critical to understanding how governments should develop their monitoring and enforcement policies to be more effective. As suggested so far, these activities may have significant influence upon firms' decisions to undertake management action, through environmental plans or audits. Tables 8 and 9 present some basic figures on the frequency of monitoring, inspection and enforcement, and how these regulatory actions are undertaken, by firm size and industry sector. The majority of firms reported having been inspected for compliance, though fewer actually report regulators monitoring emissions pipes. The likelihood of monitoring and inspection increases with firm size, probably since regulators focus on larger polluters. These inspectors are unannounced about 50% of the time, and are generally not the same inspectors each time. About 50% of firms have environmental conditions attached to operating permits. Enforcement actions have been taken on a relatively small number of firms (9%).

Regressions indicate that regulatory implementation is affected by the presence of an environmental plan and industry type (Table 9). Sensitivity to an environmental plan is consistent with the finding that environmental plans are more likely to be developed in firms that are monitored more frequently. This does not help us understand the causality. Results for compliance inspections (not reported) show similar sensitivity to presence of an environmental plan but little sensitivity to other factors. These results may indicate the regulators focus attention on particular industries rather than firms with particular characteristics. The food, textile, tannery, and part of the chemical industries are all significantly more likely to be monitored than other industries. The tannery industry is significantly more likely to be inspected for compliance than other industries (Table 9).

Most factors were found not to have a significant effect upon whether a firm has had any enforcement actions against it. One major exception, however, is pressures from groups outside of management, which had a positive, significant effect upon the likelihood of an enforcement action. Whether this is because complaints lead to enforcement actions, or because complaints are more likely when infractions are large enough to warrant action, is unclear. Location also seems to have some effect upon enforcement actions, though the parameters are unstable. These results weakly suggest that infractions are more likely for firms near water sources and outside of industrial wastes.

Table 7	Environmental Monitoring, Enforcement, and Location of Firms (percentage of all firms within size category)			
	Firms Size (Employees)			All Firms
	1-49	50-199	200+	
Monitoring and Enforcement:				
• Pipes monitored by regulators within last 5 years?	17	34	57	35
• Self-reporting to regulatory agency?	12	26	47	28
• Compliance inspection within last 5 years?	61	74	84	72
– Inspectors unannounced?	50			
– Same inspectors each time?	15			
• Environmental conditions on operating or expansion permits?	48	61	57	56
• Enforcement actions in last 5 years?	12	8	8	9
Location:				
• Industrial Estate (IEAT)	19	45	35	34
• Outside IEAT - within Bangkok	18	6	1	8
• Outside Bangkok Metro Area	63	49	64	58
• On river bank	24	12	9	15
• On canal bank	8	10	9	9
• On coast	15	3	2	7
• Other	53	75	80	69

Table 8	Environmental Monitoring and Enforcement (percentage of all firms within industry sector)							
	Firm Size (Employees)							
	Food	Textiles	Tanneries	Pulp Paper	Indust. Chems.	Other Chems	Metals	Transport Eqmnt.
Pipes monitored by regulators within last 5 years?	26	33	14	50	41	30	40	47
Self-reporting to regulatory agency?	32	18	10	24	28	31	34	38
Compliance inspection within last 5 years?	77	80	46	86	70	76	74	75
Environmental conditions on operating or expansion permits?	67	54	46	45	56	68	48	56
Enforcement actions in last 5 years?	15	11	31	4	5	5	0	5

Table 9	Logit Regressions of Environmental Monitoring and Enforcement: Monitoring, Inspections and Enforcement Actions (Preliminary Findings)		
	<i>(t-stats in parentheses)</i>	Monitoring	
	(1)	(2)	(1)
employ	0.00019 (-0.55)	0.00067 (-2.05)	-0.00051 (-0.75)
ownprido	-0.007 (-1.09)		-0.003 (-0.23)
dommark	-0.00088 (-0.17)	-0.00404 (-1.02)	-0.00578 (-0.76)
loc1	-0.52 (-1.21)	-0.16 (-0.5)	0.61 (-0.88)
loc2	0.43 (-1.09)		-1.41 (-2.46)
numfac	-0.035 (-0.81)		-0.036 (-0.47)
press1	0.51 (-1.08)	0.44 (-1.11)	1.8 (-3.04)
built	-0.022 (-1.19)	-0.011 (-0.74)	0.009 (-0.4)
owntreat	0.18 (-1.46)	0.18 (-1.44)	-0.06 (-0.42)
envplan	1 (-2.94)	0.8 (-2.99)	0.57 (-1.11)
Food	-1.65 (-2.67)	-1.19 (-2.54)	
Textiles	-1.24 (-2.03)	-0.7 (-1.5)	
Tanneries	-1.76 (-2.29)	-1.51 (-2.55)	
Pulp Paper	-0.71 (-0.97)	-0.35 (-0.57)	
Individual Chemicals	-0.13 (-0.23)	-0.24 (-0.55)	
Other Chemicals	-1.29 (-1.95)	-0.86 (-1.64)	

Table 9 (Continued)	Logit Regressions of Environmental Monitoring and Enforcement: Monitoring, Inspections and Enforcement Actions (Preliminary Findings)		
<i>(t-stats in parentheses)</i>	Monitoring		Enforcement Action
	(1)	(2)	(1)
Metals	0.05 (-0.09)	0.11 (-0.25)	
Observations	278	417	226
Pseudo R-squared	(-0.19)	(-0.16)	0.21

Wastewater Generation and Treatment

Wastewater generation is one of the most significant sources of environmental pollution from firms. While we do not have good information on firms’ emissions levels, we do have information on the amount of wastewater generated by firms. Wastewater generation averaged 365 m³ per day, with small firms averaging 222, medium-sized firms 131 m³ per day, and large firms 695 m³ per day. The low level of emissions by medium-sized firms is likely the result of industry-specific factors, as we will investigate.

Roughly 49% of firms treat their wastewater in their own wastewater treatment facility. Another 27% send wastewater to another facility, while 23% claim there is no need to treat their waste water.

Preliminary regressions of wastewater volume reveal a number of factors are important determinants (Table 10). Firms’ size increases the level of wastewater generation, while domestic ownership tends to have a weak, negative effect on the volume of wastewater. Firms with wastewater treatment facilities emit more wastewater, suggesting that it may be cheaper for high emitters to treat their own water. Another interpretation is that, not facing treatment charges, they have a low marginal cost of emission and consequently emit more. Firms in industrial estates, where Industrial Estate (IEAT) charges for wastewater treatment, have a weak, negative effect on volume. This is consistent with the significant effect of wastewater treatment, since the price charged by IEAT may be larger than the marginal cost of own treatment. Pressure from outside groups seems to have a weak, negative effect on the volume of wastewater. These results, however, are preliminary.

Table 10	Logit Regressions of Firm Environmental Management Decisions: Waste Water Generation (Preliminary Results)		
<i>(t-stats in parentheses)</i>	(2)		(2)
employ	0.15 (-2.37)	compchk	-110.6 (-1.1)
ownprido	-2.5 (-1.81)	press1	231.6 (-1.64)
dommark		built	2.52 (-0.54)
loc1	-191.2 (-1.44)	owntreat	217.2 (-2.39)
loc2		envplan	-81.8 (-0.93)
numfac		Observations	179
numenf	60.7 (-0.41)	Adjusted R-squared	-0.04
monitor	-109 (-1.2)		

Conclusion

Legally binding environmental regulation and consistent incentive structure for environmentally sound behavior have been more the exception than the rule in the rapidly industrializing economies of Asia. While on paper environmental regulations in most of these countries approximate those of developed countries, on the ground their enforcement has been weak and erratic, for reasons that range from inadequately trained personnel and equipment to backlogged courts and non-litigious cultures. However, the improvement of the Asian environment may not have to await the strengthening of Asian environmental institutions sufficiently to enforce existing command and control regulations. Nor can the growing but slow adoption of market-based instruments be relied upon to foster a clean industrial revolution in Asia. For political economy reasons, pollution taxes are not likely to be set at sufficiently high rates to induce a change in behavior in the foreseeable future.

Preliminary analysis of environmental behavior of Thai industrial firms suggests that environmental management at the plant level is not driven solely by enforcement of standards or short-term cost-minimizing behavior. Both internal management practices and external community pressures play a role, as do certain plant characteristics such as scale, age and location. Larger, more established firms and those located in industrial estates are more environmentally responsive than smaller and newer firms and those located on rivers, canals, and coastal areas outside industrial estates. Firms also appear to respond to environmental regulations, especially if they experienced monitoring and inspection, regardless of whether they have been fined or sanctioned. Image and reputational concerns are powerful drivers of environmental behavior, especially for the larger and more visible firms.

Research by others⁷ found similar results with regard to scale of plant and community pressures in countries as diverse as Indonesia and Bangladesh. The level of education and income per capita explained much of the variation among communities in the pressure they exerted on industrial firms in their territory to control their pollution. As in our study, foreign ownership and market orientation were not a factor, but public ownership was. State enterprises, despite their soft budget constraints, tend to invest very little in environmental management, apparently because of bureaucratic shielding. Similarly as in our study, it was found that formal regulations do have an effect, even when they are weakly enforced.

These findings have implications for designing a more effective environmental policy. Such policy can be more decentralized than current policies and build on existing informal regulations rather than replace them. The spatially variable pollution “standards” or “charges” implicit in informal regulation suggest considerable scope and feasibility (indeed “optimality”) of shifting from uniform quantity-based standards to spatially differential emission charges and tradable permits. Understanding and tapping informal regulations is indeed good economics, as it minimizes the costs of monitoring and enforcement, as well as good politics, as it empowers those directly affected.

⁷ Hettige et al (1996)

Abbreviations

employ	Number of employees.
ownprido	% domestic ownership.
dommark	% domestic market.
loc1	Is firm in industrial estate (IEAT)?
loc2	Is firm not located on river, canal, or coast?
numfac	Number of factories.
monitor	Have pipes been monitored by regulators within last 5 years?
compchk	Has firm been inspected for compliance within last 5 years?
numenf	Has an enforcement action been taken on firm in last 5 years?
press1	Has pressure been received from at least one of the following groups in the past five years: neighbors/community, employees, customers?
built	Year factory built.
owntreat	Does firm own wastewater treatment facility?
envplan	Does firm have environmental management plan?

The Rapid Appraisal Protocol: A Tool for Evaluation of Industrial Environmental Performance in Developing Countries

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I suppose the added value of this presentation (on the World Bank sponsored research project on environmental compliance and enforcement in East Asia) to the Dialogue on Enforcement in the NAFTA countries is to contribute a perspective on enforcement in other lower- and middle-income countries that, like Mexico, are struggling to raise the income of their people while giving attention to the environment. The World Bank is committed to strengthening environmental institutions in the countries in which we work, and we consider development of robust indicators of compliance and enforcement an essential part of this work. Most of the countries in which we work are not yet to the point where they have and can effectively utilize enforcement indicators. We want to help our client countries get to this point. What I will describe in this presentation is a methodology we have developed for helping developing countries develop an institutional framework, within which compliance and enforcement indicators can be specified.

The Protocol

I will describe the Rapid Appraisal Protocol, which is a market research tool developed at the World Bank to help environmental authorities in developing countries to formulate and implement compliance and enforcement strategies at national, provincial and local levels. This market research tool was developed within the last year and launched at a workshop held at the World Bank in September 1997. It is currently being field-tested in Indonesia. I will describe the tool, some early results of the field-test, and the fit between this initiative and the World Bank's work on environmental management capacity building.

The purpose of the Rapid Appraisal Protocol is to develop a knowledge base on the pollution abatement behavior of industrial plants at the plant level. The rapid appraisal provides information about the exposure of a sample of industrial plants to a variety of policy instruments and the plants' response to these instruments. This information allows us to analyze the relationship between: plant characteristics; pollution abatement policies; external drivers such as community pressure or business pressure; and plants' abatement behavior. With this information and analysis, we can measure and predict industrial plants' probable responses to policy instruments and other drivers before the policies are deployed. This allows us to tailor compliance and enforcement strategies to specific conditions within a country and within its industrial sector. Without a knowledge base of this nature, environmental authorities are likely to allocate scarce resources for environmental compliance and enforcement in the industrial sector with less than optimum impact on plants' behavior.

My main point here is that we are using market research the way a commercial advertiser uses research instruments to predict the responses of his target audience to a product. Our "products" are alternative policy instruments and other drivers, such as information, community and market pressures. My message is that, just as a commercial advertiser segments his target audience and pre-tests his product prior to marketing it, those responsible for environmental protection should use rapid appraisal techniques to pre-test the likely impact of alternative policy instruments on different groups of industries.

The Rapid Appraisal Protocol consists of several steps:

- a reconnaissance mission to customize the generic survey protocol to local conditions and priorities, and select the sample of plants to be surveyed;
- carrying out the survey, individual interviews and focus group interviews; and
- compiling results in the form of profiles of the combinations of policy instruments and drivers that are best suited to each segment of potentially polluting industry. These profiles become the basis of a compliance and enforcement strategy.

The building blocks of the survey are:

- plant characteristics, such as size, age, labor productivity and sector;
- drivers of pollution abatement behavior, such as community pressure, private sector initiatives and market pressure; and
- changes in plant emission levels or their proxies.

The Semarang Case

We are in the process of field testing the Rapid Appraisal Protocol in Semarang, Indonesia. Semarang is a city with a population of 1.3 million, on the industrialized north coast of Java. It has an environmental agency, *Bapedal Daerah*, which was established on local initiative about four years ago. Semarang faces the challenge that the rate of increase of industrial pollutant emissions in the city still exceeds the industrial growth rate. The city has not yet achieved the “delinking” of emissions from growth rates that is its basic environmental objective. At the request of the mayor and *Bapedal Daerah*, and working with a market research firm, we conducted a survey of 120 plants in four sectors: chemicals, textiles, food and beverages and “other.”

What did the survey show? We found that the surveyed plants’ level of abatement effort at first appeared higher than expected: 33 percent of surveyed plants said they had installed pollution control equipment, and 18 percent had elements of an internal environmental management system (EMS).¹ Measured another way, however, in terms of the amount of plant-level expenditure on pollution abatement equipment and operation and maintenance, the level of effort remained low: only a fraction of one percent of total capital and operation and maintenance expenditures. One relevant comparison is with the OECD countries, where plant-level pollution control expenditures average about two to three percent of all capital and operating expenditures. Another is with the expenditures of several other East Asian countries during the first five years of their serious efforts at pollution abatement, leading to “delinking” of pollution and industrial growth rates. During this period, these countries experienced expenditure “bubbles,” which drove their pollution control expenditures significantly higher than those in the OECD countries. Examples include Korea, where pollution expenditures reached five percent of total corporate investment during the period 1988-93, and Japan, where pollution and energy conservation expenditures peaked at 17 percent in the mid-1970s.

How do we interpret these apparently different levels of environmental performance? We think that what we may be seeing in Semarang is a threshold level of abatement behavior, at which plants respond to regulatory or community pressure with an initial gesture, such as installing pollution control hardware or introducing elements of an EMS, that may not be sustained. This threshold level of engagement is not to be confused with the more consistent, sustained level of expenditure of the OECD countries.

¹ EMS elements included specific environmental quality goals, specialist environment staff and/or third-party audits of environmental performance.

Our subsequent analysis seemed to support this interpretation. We found that, to predict whether a plant had passed this initial threshold of engagement in abatement behavior, we needed to look at plant characteristics (size, sector, age, productivity) and at the plant's actual and/or "observed" exposure to regulatory pressure, community pressure and business pressure, on a "yes or no" basis.² That is, all these factors together were significantly related to whether a plant had installed pollution control hardware and/or established an EMS.

However, for purposes of predicting the level of a plant's abatement expenditure, the only predictors were plant characteristics. That is, whether regulatory or community pressure increased or decreased was not significantly related to the level of expenditure. This meant that if regulatory or community pressure increased, there would not be any corresponding increase in abatement expenditure.

This was a sobering message for the environmental authority in Semarang. It meant that, although they were not being totally ignored, they were not able to influence the level of effort made by a plant to abate pollution, or to get real behavior changes by polluting plants.

These initial survey results are being further analyzed via focus group meetings being held in Semarang as we speak. We propose to follow up the Rapid Appraisal with technical assistance to the Semarang *Bapedal Daerah*. We propose to work with *Bapedal Daerah* to set clearer standards, better plan and execute ambient and emissions monitoring, and prepare more powerful administrative sanctions for violations of standards. An important feature of the technical assistance will be cooperation with industry. Allocation of part of the technical assistance resources to industry to support development of internal EMSs will be a condition for approval of the technical assistance. Our view is that both regulators and industry have learning curves regarding cost-effective pollution abatement. It is best that they learn in parallel, and establish a basis for dialogue in the process of moving along these learning curves.

"Professionalization" of regulators will be another key goal of the technical assistance. An important element of professionalization will be the development of performance indicators for regulators and technical capacity to evaluate industry's environmental performance. By beginning with a rapid appraisal, we establish a baseline, which can be revisited in three to five years. We also make the point that a compliance and enforcement strategy must be empirically based.

Comparative Cases in East Asia

In proposing next steps for building environmental management capacity in Semarang, we are also drawing on the results of earlier studies of industrial environmental performance in Korea and Singapore. These East Asian countries show higher levels of exposure to regulatory, community and business pressure and higher levels of abatement effort by plants, as compared to Indonesia. To place these studies in context, it helps to bear in mind these countries' relative per capita income levels: Korea at US\$8000 and Singapore at more than US\$16,000, versus Indonesia at less than US\$1000.

An important finding of the Korea study was the effect of plant characteristics, especially size and sector. Industrial sectors in Korea had different levels of exposure to external pressures and responded differently to them. Korean chemical plants, for example, showed high exposure to regulatory and community pressure, high internalization of environmental management behaviors and relatively high expenditures on pollution abatement. For textile plants, which experienced weak community pressure and low internalization of environmental management behaviors, regulatory pressure was the only significant factor (the "only game in town").

² "Observed" in the sense of a plant manager observing other plants' encounters with regulatory/community/business pressure, as opposed to actual experience of these pressures by his own plant; "yes or no" in the sense of whether the hardware and/or EMS software were present, as opposed to measuring their size or operations in a qualitative sense.

One main message here was that compliance and enforcement approaches needed to be tailored by sector. A second message of the chemical sector results was that the high costs of monitoring and compliance and enforcement validation data needed to be shared between government, industry and NGOs.

Conclusions

In closing, the World Bank is committed to capacity building for improved environmental management. However, little has been done to develop compliance and enforcement capacity under Bank-supported projects. The empirical knowledge base concerning design and evaluation of environmental compliance and enforcement systems, especially in developing countries, is very limited.

The Rapid Appraisal Protocol is part of our effort to respond to emerging demand for improved environmental compliance and enforcement capability. Our response to this emerging demand is to:

- recognize the need for environmental authorities to evaluate their portfolios of potential interventions vis-à-vis industry;
- emphasize knowledge-based strategies, which create an empirical baseline for later review and comparison of industries' and environmental authorities' performance; and
- recognize that performance measures will be an important element of the professionalization that we wish to encourage.

Finally, in adopting this approach, we are moving away from generalized environmental awareness-building toward a more targeted market research approach. With this approach, we seek to identify industry segments' perceptions and the specially tailored messages and policy packages they need. Even where general environmental awareness is high, it may be too diffuse to significantly affect behavior. Behavior change in the direction of cleaner production requires that the various actors (regulators, plants and neighbors of those plants) acquire more specific knowledge about how to recognize emission violations, especially when they are hazardous, and how to negotiate and implement improvements in environmental performance.

Summary of Discussion—*Panel # 2*

The World Bank Rapid Appraisal Protocol, as presented, may be more applicable to large or multinational corporations, not smaller, family scale businesses. There is a need to recognize the differing capacities of smaller scale operations who may need information and assistance about how to comply. There is also a need to recognize the financial, social and cultural variances among businesses in order to assess the appropriate enforcement response. Some businesses may only be capable of complying over time.

It was suggested that for developing nations (the example was given of Korea, as the newest member of the OECD), experience has shown that community pressure is very important in the development of pollution control at plants. Democratization has allowed citizens to organize to complain about environmental problems and failure to enforce. Monitoring and enforcement appear to be the only significant factors that induce firms to engage in environmentally responsible behavior, inclusive of investing in pollution control.

It may be useful to adopt different approaches to enforcement for wealthy/well-educated communities as opposed to poor/less-educated communities. For the rich, it may be necessary only to provide information, as they are more likely to be able to obtain a response from industry. For poor communities, it may be necessary to intensify education on environmental laws and rights as well as targeting enforcement actions to those disadvantaged areas. It was recommended that, given limited resources available to enforcement agencies, greater priority be given to disadvantaged areas.

Statistical studies are important, but it is difficult to establish causality for variables not measured. Monitoring actions can influence behaviour because of fear of sanctions (i.e. deterrence). Studies too often overstate the importance of monitoring and understate the effect of enforcement. It was suggested that while enforcement data is useful to establish a baseline, a valid assessment of compliance must be done over a longer time span.

Community involvement in enforcement is key to achieving compliance. Public participation and disclosure of information can be important drivers of effective enforcement. It should be recognized that both Articles 5 and 6 of NAAEC call for establishment of systems to ensure effectiveness of compliance and enforcement. The latter provision relates to citizen enforcement, but little progress, it was felt, has been made in this regard in Canada or Mexico. Rights to citizen enforcement must be implemented in all three countries to demonstrate compliance with the agreement.

An alternative view expressed was that citizen suits do not necessarily constitute effective enforcement: citizens may over-enforce regulations, by taking action in response to trivial incidents. In response to such circumstances, it was observed that the US courts have imposed rules of standing requiring that plaintiffs (1) suffer actual harm, (2) show proof that the defendant caused the harm, and (3) seek a remedy which actually redresses the alleged harm. It was suggested that subject to these kinds of conditions, citizen suits could be effective.

The Harvard and World Bank approaches may be applicable primarily in countries with limited resources, where community, social and cultural responses are more likely to be employed than litigation. Strict enforcement responses may be more appropriate for more litigious nations, for example the United States. The point was made that both initiatives appear to support the valuable role of public participation and transparency, committed to under NAAEC. It may be important to have the Parties report on progress made in implementing commitments for access to environmental information and citizen access to enforcement processes. Research in other countries suggests that the provisions of NAAEC requiring access to information and rights to file complaints or initiate legal actions are precisely the kind of indicators needed to evaluate effectiveness of the enforcement regime.

It may be appropriate and essential to examine experiences with use of alternative approaches to compliance and enforcement before trying to reach a consensus on the best measures. This applies equally to enforcement responses and indicators. It is important to recognize the value of a whole toolbox, not just one tool. While there may well be a need for some core indicators, it is also recognized that no one tool will be appropriate for every circumstance or nation.

Financial investment in environmental compliance and enforcement must not be overlooked. It is important to keep in mind the limited resources available for enforcement and compliance and, within that allocation, a decision can then be made on how much should be allocated to development and use of indicators. There needs to be recognition, as well, of the pressure on companies, particularly in Mexico, to be good environmental citizens and remain competitive.

The experience of organizations, such as OECD, in evaluating the performance of government strategies and programs suggests that more needs to be done regarding development of effective environmental indicators. Greater consideration should be given to the experiences of other nations in developing and applying measures or indicators, such the experience of the Netherlands with voluntary agreements and alternative ways of evaluating adherence to those instruments. As another example, the Parties recently agreed with other members of OECD that improvement is required in the development and use of environmental indicators, inclusive of improved linkage with indicators of sustainable development. It was suggested that progress by the NAFTA nations with indicators of effective enforcement would contribute substantially to the overall improvement of these broader indicators.

Session Five:

Dialogue Synopsis

Closing Remarks

Sylvia Lowrance

We come to the last session of our two day conference. I appreciated the summation by Bill Long. I think it made many of the points that I would make in regard to our experience of the last couple of days. I do think we accomplished our original goal, which was not to come up with the answer, but to share experiences, share perspectives on the issue of effective compliance and enforcement indicators, and to learn from one another.

Certainly from my perspective and, I think, for most of us, we leave here better informed, with some new information to take back to our respective efforts, and that is a tremendous success.

While I don't want to try to portray this as any consensus, I have a sense that there is among the participants an agreement on the importance of this issue and on the concept that we need to move forward with better understanding of our indicators and the challenge that is before us. There were many views expressed as to why we need indicators and what needs those indicators serve. They ranged from helping us better understand environmental results, to helping us evaluate the success of our law enforcement activities, to helping us understand what tools are effective to evaluate governments, to hold government accountable, as well as to provide information to citizens. That is what, I think, makes this a very complicated issue. We are trying to serve many masters when we develop indicators.

I heard a great deal of diversity in the views on what the next step should be. They ranged from questioning the utility of individual enforcement indicators, unless you can link them to ambient environmental results, to the view that indicators are of tremendous value and basic enforcement indicators in terms of our ability to begin discussions. We also heard a lot about challenges and making choices and how to move forward, both in the short term and the long term. I would like to underscore some of those challenges.

One, I think there are a number of practical challenges as we move forward. We talked about resources and the need to make choices about where we should invest in environmental indicators. There are also a number of very practical issues that I would like to highlight.

One, what data are available today. Our experience in the United States is that data are not likely available, particularly in any consistent form or format for use. If in fact there are data to be collected, who is going to collect them? Who bears the burden of the collection and the development of those data? Will it be the regulated community, will it be governments that collect new data? The quality of the data was only briefly highlighted. That is a major issue. I know in the United States we have a strong Federal data management system. Each of our states has particular needs for data, and through this Federal system we are trying to ensure that our 50 states are consistently collecting data. We are developing the information management technologies necessary to gather these data together in central data bases. To communicate and gather national data is a tremendous and costly challenge.

I think as we move forward in balancing our short term and long term goals, that we need to be mindful of these tremendous technical challenges when we are talking about collecting data that can be used for either outcome indicators or environmental indicators. Both have a tremendous level of complexity.

I would like to outline for you briefly from the perspective of the enforcement working group of the CEC what our next steps will be. Certainly, each individual country is going to take back the information and advice that we have heard from you today. As part of our role as the CEC Enforcement Working Group, we develop an annual plan of cooperative projects between the countries. This conference was part of our annual plan this year, and I think this has been a tremendous success. We will be spending some time discussing what we have learned today

amongst the governments shortly after this meeting. As we go into our planning cycle for next year's activities, we will be considering next steps to take in this regard as well, on our indicators work.

I want to thank all the participants and the presenters for the time that they spent with us in this effort. I would also like to spend a few minutes going around and seeing if there are closing comments that people would like to leave us with, regarding the next steps we will take. We value your advice on what we can do cooperatively, and the best next step. So, let me open the floor for final comments.

Summary of Discussion

It may be preferable to have vigorous enforcement of modest regulations, rather than inadequate enforcement of complex regulations.

If compliance with international environmental agreements (for example, NAAEC) is not measurable, as they are not meant to be enforced, then it may indeed be necessary to develop indicators of effective enforcement that will result in modified behavior of the Parties.

The objective of indicators is to create public confidence and knowledge of what government is doing. Indicators which only measure and report outputs, such as number of enforcement actions, may also cause confusion among the public. Education of the public on the environment, pollution sources and enforcement strategies and responses may be necessary in tandem with providing access to information.

While the development of regional indicators of effective environmental enforcement may be necessary, the different approaches adopted by each country may make this difficult to achieve.

Appendix A:

List of Participants

North American Dialogue on Indicators of Effective Environmental Enforcement

Puebla, Mexico

6-7 May, 1998

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Appendix B:

**Agenda for the North American Dialogue on Indicators of
Effective Environmental Enforcement**

May 6th

- 9:00 Opening Remarks, *Dr. Eduardo Macip Zúñiga*, Minister of Urban Development and Environment for the State of Puebla
- 9:30 **Session One:** Introduction to the Dialogue: The Challenge of Implementing Effective Environmental Enforcement Indicators
- Where does the obligation for effective enforcement arise?
 - What is the impetus for cooperative exploration of indicators?
 - Why do we need indicators?
 - What are some of the major challenges in designing enforcement and compliance indicators?
- Speakers:** *Mtro. Antonio Azuela de la Cueva*
Sylvia Lowrance
- 10:00 Discussion
- 10:20 Logistics: *Linda Duncan*
- 10:30 Break
- 11:00 **Session Two:** Issues for Consideration in the Design and Application of Enforcement and Compliance Indicators
- Synthesis of highlights of current North American policies and programs for measuring, reporting and evaluating effective enforcement.
 - Identify significant issues.
 - Challenge of measuring adherence to international obligations to deliver domestic enforcement and compliance program.
 - How do we merge indicators for effectiveness of more traditional measures of enforcement and compliance (e.g. response/ penalty/ deterrence) with measures of effectiveness of alternative or voluntary approaches to compliance (e.g. ELP, audit, ISO 14001)?
 - Reflect on initial efforts to introduce performance indicators /feedback /innovation.
- Chair:** *Linda F. Duncan*
- Panel:** *Ing. Alfredo Fuad David Gidi*
Nancy Newkirk
Ann Hillyer
[15 minutes each—presentation of key issues]
- 11:45 Discussion
- 12:55 Rapporteur: *Margot Priest*

1:00 Lunch

2:30 **Session Three:** New Directions in North America

This session will provide opportunity to present and discuss a variety of approaches and models in process of development or application including:

- North American pilot initiatives
- Models/experiences from other jurisdictions

The models presented could focus on a variety of issues, processes. For example approaches to incorporating public response indicators or models to incorporate compliance information into broader environmental or performance indicators or the reverse.

Chair: *Kal Raustiala*

Speakers: *Michael S. Stahl* proposed New directions for EPA
Kernaghan Webb—A proposed evaluation process

3:10 Discussion

4:30 Rapporteur: *Andrea Moen*

4:45 Adjourn

7:30 Dinner

May 7th

- 9:00 **Session Four:** Lessons Learned in Related Processes
- Experiences with developing and applying enforcement and compliance indicators for other international agreements.
 - Experiences in other jurisdictions by government, international commissions, private sector.
- Panel # 1**
- Chair:** *Christopher Stone*
- Speakers:** *David Victor*—Indicators for compliance with international agreements
Charles Pirotte—Policies and programs of the European Commission
- 9:45 Discussion
- 10:40 Rapporteur: *Mtra. Beatriz Bugeda*
- 10:45 Break
- 11:30 **Panel #2**
- Chair:** *Dr. Alberto Szekely*
- Speakers:** *Theodore Panayotou*—The Harvard model
Jean Aden—World Bank Rapid Appraisal Protocol
- 11:45 Discussion
- 12:45 Rapporteur: *Bill Long*
- 1:00 **Session Five:** Dialogue Synopsis
- Chair:** *Sylvia Lowrance*
- Revisit the objectives of the Dialogue and the key issues arising and a brief overview of the next phase of the CEC process on enforcement indicators.
 - Discussion
- 2:00 Closure

Part Two

Background Reports

Annex 1

**Mexican Policy and Practice
with Indicators of
Effective Environmental Enforcement**

Prepared by
Lic. Wilehaldo Cruz Bressant
Mexico City, Mexico

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Glossary of Acronyms

CEC	Commission for Environmental Cooperation
Concamin	Confederation of Industrial Chambers
CNA	<i>Comisión Nacional del Agua</i> (National Water Commission)
LFPA	<i>Ley Federal de Procedimiento Administrativo</i> (Federal Administrative Procedure Act)
LGEEPA	<i>Ley General del Equilibrio Ecológico y la Protección al Ambiente</i> (General Ecological Equilibrium and Environmental Protection Act)
LOAPF	<i>Ley Orgánica de la Administración Pública Federal</i> (Federal Public Administration Organic Act)
NOMs	<i>Normas Oficiales Mexicanas</i> (Mexican Official Standards)
Profepa	<i>Procuraduría Federal de Protección al Ambiente</i> (Federal Attorney General for Environmental Protection)
REPDA	<i>Registro Público de Derechos de Agua</i> (Public Registry of Water Rights)
Secofi	<i>Secretaría de Comercio y Fomento Industrial</i> (Secretariat of Trade and Industrial Development)
Semarnap	<i>Secretaría de Medio Ambiente, Recursos Naturales y Pesca</i> (Secretariat of Environment, Natural Resources and Fisheries)
Sicna	<i>Sistema de Índices de Cumplimiento de la Normatividad Ambiental</i> (Environmental Compliance Index System)
Siera	<i>Sistema de Empresas de Riesgo Ambiental</i> (Environmentally Hazardous Companies System)
Sinia	<i>Sistema Nacional de Información Ambiental y de Recursos Naturales</i> (National Environmental and Natural Resources Information System)

1 Legal Framework

1.1 Political Constitution of the United States of Mexico

Three main aspects of the constitutional framework will be reviewed: 1) the power vested in administrative authorities to perform inspection visits to private parties without the need for a Court order; 2) the joint jurisdiction regime shared by the Federation, the States and the Municipalities; and 3) the coordination compacts entered into by the Federation and the States.

1.1.1 Authority to Perform Inspection Visits

Under section 16, paragraph 3, of the Constitution, administrative authorities are empowered to conduct on-site inspection visits without applying for or obtaining a court order. These on-site visits referred to in the constitution are similar in nature to the inspections that may be conducted by any administrative authority for the purpose of verifying, in specific cases, that government regulations or tax laws are being adhered to. As specified by the Constitution:

Administrative authorities may carry out on-site inspections only for the purpose of ascertaining that health and police regulations are being complied with, and request all books and records as may be necessary to ascertain that tax provisions have been abided by, subject, in such cases, to the provisions set forth in the respective laws and the formalities prescribed for searches.¹

In accordance with the provisions of section 16 of the Constitution, on-site inspection orders, issued by administrative authorities, must meet the following requirements: a) be in written form; b) be issued by a competent authority; c) state the name of the party that is the subject of the inspection order and specify the site to be inspected; d) state the purpose of the visit; and e) comply with any other requirements that may be imposed under applicable laws.²

Section 16 of the Constitution empowers administrative authorities with the ability to conduct inspections, while providing legal protections. It sets forth the conditions under which the privacy of private parties may be invaded by certain State agencies, including, for the purpose of this report, the authorities charged with verifying whether environmental regulations have been obeyed. These requirements, embodied in the Constitution, must be strictly observed by administrative authorities. If the visit or inspection does not conform to constitutional requirements, it shall have no validity whatsoever and, consequently, it shall not be material for any charges against the private party involved.

1.1.2 Joint Jurisdiction in the Mexican Federal System

Section 124 of the Constitution asserts that “those responsibilities which, under the Constitution, are not expressly entrusted to federal officials, are intended to be reserved to the States;” this section creates a system of jurisdiction grants, some exclusive to the Federation, while others are reserved to the States.

In addition to the express and reserved grants of jurisdiction,³ there exists, *as an exception to such specific grants*, a system of joint jurisdiction shared by the Federation, the States and the Municipalities. The joint or coincident responsibilities are those which may be exercised by the three levels of government in accordance with the distribution of jurisdiction contemplated under federal laws.

¹ Mex. Const § 16 ¶ 3.

² See “Inspection Visits. Order for. Requirements That Must Be Observed”. J.S.C, thesis 183, (1995) at p. 126.

³ Express grants of authority are mainly contained in section 73 of the Constitution, which empowers the Congress of the Union to legislate on specific issues. Besides section 73, express jurisdiction is granted to the Federation under section 27 with respect to common lands (*ejidos*) and communities, national waters, oil, electricity, underground resources and other matters; express grants of jurisdiction are also contemplated under section 109, in regard to the responsibility of federal public servants; under section 118, over import and export duties; under section 123, in connection with labor issues; and under section 131, with respect to the circulation of goods throughout the Republic.

The Constitution provides for the following joint responsibilities which are relevant to the environment:

- Joint Jurisdiction Shared by the Federation and the States: i) public health related matters.⁴
- Joint Jurisdiction Shared by the Federation, the States and the Municipalities: i) tax matters, except those reserved to the Federation and prohibited to the States;⁵ ii) education matters;⁶ iii) human settlements;⁷ iv) environmental protection matters and those pertaining to the preservation and restoration of ecological equilibrium;⁸ and v) public law and order issues.⁹

In the Constitution the three levels of government are granted concurrent jurisdiction, leaving up to secondary laws the establishment of the manner in which they are to be exercised. This distribution of powers may be made by specifying those responsibilities that shall be exercised exclusively by the Federation, those which shall be undertaken by the States and those which remain coincident and may thus be exercised by each of the government levels in a coordinated manner, or that may be transferred through compacts or agreements. In this connection, the distribution of jurisdiction over inspection and enforcement issues, enacted by Congress, will be outlined in the sections devoted to the review of the General Ecological Equilibrium and Environmental Protection Act (*Ley General del Equilibrio Ecológico y Protección al Ambiente—LGEEPA*)¹⁰ and the National Waters Act (*Ley de Aguas Nacionales*).¹¹

1.1.3 Coordination Compacts between the Federation and the Federate States

Pursuant to section 116, subsection VI, of the Constitution, “the Federation and the States, in accordance with the law, may enter into agreements whereby the States take charge of their duties, [such as] the undertaking and management of public works and the rendering of public services, whenever economic and social development warrant doing so.” The States, in turn, have the authority to conclude such compacts with Municipalities, which may then assume responsibility for rendering public services or taking over duties transferred by the federal government to state governments.

Coordination compacts are instruments allowing federal administrative authorities to coordinate the manner in which duties are to be assumed and performed by the various levels of government. Both the express responsibilities vested in the Federation and those which are legally entrusted to it as a result of the joint jurisdiction regime may be decentralized or transferred through compacts entered into by the Federation and the governments of federate states.

1.2 General Ecological Equilibrium and Environmental Protection Act (*Ley General del Equilibrio Ecológico y la Protección al Ambiente—LGEEPA*)

The key environmental statute, related to the verification of compliance is the General Ecological Equilibrium and Environmental Protection Act (LGEEPA).¹²

⁴ Mex. Const § 73 (XVI) in conjunction with § 4.

⁵ *Id.* § 31 (IV).

⁶ *Id.* § 73 (XXV) in conjunction with § 3 (VIII).

⁷ *Id.* § 73 (XXIX-C).

⁸ *Id.* § 73 (XXIX-G).

⁹ *Id.* § 21 ¶¶ & § 73 (XXIII).

¹⁰ D.O., 28 Jan. 1988 (amended by D.O. 13 December 1996)

¹¹ D.O., 1 Dec. 1992.

¹² D.O., 28 Jan. 1988 (amended by decree published on 13 December 1996).

1.2.1 Inspection Visits

The Constitution stipulates that inspections must take place in accordance with the provisions of the “respective laws” in order to be legitimate. The Constitution does not set forth all the conditions under which inspections of an administrative character are to unfold, but leaves to secondary laws the possibility of providing additional legal protections to minimize the potential inconveniences to the affected parties. LGEEPA specifies the legal requirements to be fulfilled by authorities during inspection visits. (These requirements will be reviewed in greater detail later in the section devoted to inspections).

1.2.2 Distribution of Jurisdiction

The Federation, the States, the Federal District and the Municipalities exercise their responsibilities in regard to the preservation and restoration of ecological equilibrium and the protection of the environment, in accordance with the grants of jurisdiction provided under LGEEPA and other laws.

LGEEPA grants to the Federation jurisdiction over enforcement and promotion of compliance with the provisions of LGEEPA. The States are assigned responsibility for inspection and enforcement issues pertaining to:

- the prevention and control of pollution of waters under state jurisdiction, as well as of those national waters that are assigned to them; and
- the enforcement of the Mexican Official Standards (*Normas Oficiales Mexicanas*—NOMs) issued by the Federation¹³ on the following matters and under the noted assumptions: the prevention and control of air pollution released by industrial and non-point sources not under federal jurisdiction; systems for the collection, transport, storage, handling, treatment and final disposal of solid and industrial wastes not considered hazardous; the prevention and control of pollution generated by noise, vibrations, thermal or radiant energy, light, electromagnetic radiation and odors that pose a threat to the ecological equilibrium or the environment and are released by fixed or non-point sources not under federal jurisdiction.¹⁴

Municipalities are responsible for the enforcement of the Mexican Official Standards issued by the Federation in regard to the following matters:¹⁵

- the prevention and control of atmospheric pollution generated by fixed sources which operate as commercial or service facilities and by non-point sources not under federal jurisdiction;
- the prevention and control of the impacts on the environment caused by the generation, transport, storage, handling, treatment and final disposal of solid and industrial waste not considered hazardous;
- the prevention and control of pollution caused by noise, vibrations, thermal or radiant energy, electromagnetic radiation and odors that pose a threat to the ecological equilibrium or the environment, released by fixed commercial or service facilities, as well as the monitoring of non-point sources not under federal jurisdiction; and
- the prevention and control of contamination of those waters that discharge into the drainage and sewage systems of urban centers, as well as of those national waters that are assigned to them.

¹³ The procedure by which Mexican Official Standards are issued is defined in the *Federal Law on Metrology and Standardization*, D.O., 1 July 1992 (amended by decree D.O., 24 Dec. 1966 and D.O., 20 May 1997).

¹⁴ LGEEPA § 7 (VIII, XIII), supra n.10.

¹⁵ *Id.* § 8 (XII). These responsibilities, granted to Municipalities, are confirmed under Section 119 Bis of LGEEPA: “In regard to the prevention and control of water pollution, it is the duty of State and Municipal governments, on their own or through public agencies responsible for water management, and that of the Federal District government, pursuant to the distribution of jurisdiction established under this law and the provisions set forth in local laws: I.- To exercise control over wastewater discharges into drainage and sewage systems; II.- To enforce applicable Mexican Official Standards, and compel those who generate discharges into such systems, without complying with the said standards, to install treatment systems;...”

Aside from the express grants of jurisdiction, LGEEPA contemplates the possibility of delegation of federal responsibilities to the State level. Based on Section 116, subsection VI, of the Constitution, section 11 of LGEEPA provides that the Federation, through the Secretariat of Environment, Natural Resources and Fisheries (*Secretaría de Medio Ambiente, Recursos Naturales y Pesca*—Semarnap), may enter into coordination compacts or agreements whereby the States or the Federal District may assume, among other responsibilities, “the undertaking of actions aimed at the enforcement of the provisions of this Law.” Likewise, it is provided that, subject to the consent of the Federation, the States may enter into coordination compacts to further delegate these responsibilities to their Municipalities.¹⁶

These coordination compacts are legal mechanisms designed by LGEEPA to further the decentralization of environmental management. However, even if decentralizing inspection and enforcement duties will allow for improved environmental management on the part of government, differences in administrative development levels among Mexican States must be underlined.

1.3 National Waters Act (*Ley de Aguas Nacionales*)

The National Waters Act¹⁷ regulates inland waters and, indirectly, marine water quality. The Act provides that the National Water Commission (*Comisión Nacional del Agua*—CNA) shall be the only federal authority with jurisdiction over water issues. The CNA is a decentralized agency of Semarnap, and is fully autonomous, from both technical and administrative standpoints. Within the chapter devoted to the prevention and control of water pollution, section 95 of the National Waters Act empowers the CNA to inspect and control wastewater discharges for the purpose of enforcing the law, within the scope of federal jurisdiction.¹⁸

The National Waters Act does not specify the particulars of the procedures to be followed when inspection visits are performed. Section 95 does provide that inspection findings “shall be recorded in detailed proceedings, shall produce full legal effects and may constitute the grounds on which sanctions may be imposed by the Commission and other competent agencies of the Federal Public Administration, as provided by law.”¹⁹ The Federal Administrative Procedure Act (*Ley Federal de Procedimiento Administrativo*—LFPA)²⁰ is thus applicable in a supplementary manner.

As previously mentioned, the National Waters Act grants the CNA inspection and enforcement responsibilities over wastewater discharges within the scope of federal jurisdiction. This power allows the CNA to establish and enforce specific compliance conditions for wastewater discharges originating from property and lands under federal jurisdiction, for those flowing directly into national waters or property, or for any other discharges that are likely to contaminate the underground or the aquifers.²¹

The National Waters Act provides for sanctioning of any private parties who interfere or fail to cooperate with an inspection or enforcement activity. The Act provides for the suspension of the concession or assignment for the use or exploitation of national waters, whenever the concessionaire or assignee does not allow the hydraulic resources and infrastructure, which are the subject of the concession or assignment, to be inspected, metered or verified, until such time as the situation is remedied.²² Monetary sanctions are contemplated where visits, inspections or examinations ordered by the Commission are interfered with. Failure to provide data to the Commission to

¹⁶ *Id.* § 11 (VI) and the final paragraph of that provision.

¹⁷ D.O., 1 Dec. 1992.

¹⁸ *Id.* This power of the CNA is also contemplated under Section 40, subsection V, of the *Bylaws of the Secretariat of the Environment, Natural Resources and Fisheries*, D.O. 8 July 1996.

¹⁹ *National Waters Act*, D.O., 1 Dec. 1992, ch.10.

²⁰ D.O., 4 Aug. 1994 (amended by decree, D.O., 24 Dec. 1996).

²¹ *National Waters Act*, D.O., 1 Dec. 1992, § 86 (III).

²² *Id.* § 26 (II).

verify that the provisions contemplated under the law and the clauses governing the concession, assignment or permit titles have been complied with, is also sanctioned.²³

The National Waters Act allows for coordination agreements between the Federation, States and Municipalities, aimed at building compliance and enforcement capacity, without the necessity of delegating authority. Jurisdiction over enforcement is generally granted to Municipalities and not States. The National Waters Act provides that control over wastewater discharged into drainage or sewage systems of urban centers is the responsibility of Municipalities, with the States participating whenever it is deemed necessary and local laws so dictate.²⁴

1.4 Federal Administrative Procedure Act (*Ley Federal de Procedimiento Administrativo—LFPA*)

The provisions of the Federal Administrative Procedure Act (*Ley Federal de Procedimiento Administrativo—LFPA*)²⁵ govern all acts, procedures and decisions of the centralized Federal Public Administration, without prejudice to the provisions contained in any international treaties to which Mexico is a Party. LFPA is applied in a supplementary manner to the various administrative laws it regulates, as in the case of LGEEPA and the National Waters Act.

LFPA specifies the procedure to be followed when inspections are performed. Section 62 specifically grants administrative authorities authority to assess compliance with the provisions set forth in laws and regulations, through verification visits which may be either of an ordinary or extraordinary nature. The former are to be performed on business days and during working hours, while the latter may be carried out at any time.

It must be stated that LGEEPA as well as the National Waters Act authorize Profepa and the CNA to monitor compliance and enforcement of statutes and regulations, to administer them, to impose sanctions and to exercise any powers not reserved to the President.²⁶

In those instances where it is specified as allowable, the powers provided in one law can be used to supplement the powers provided by another law. This provision has been made in LGEEPA and the National Waters Act, to facilitate implementation of the norms through monitoring, inspections, sanctions or administrative procedures.²⁷

²³ *Id.* § 119 (X & XI).

²⁴ This distribution of jurisdiction over the prevention and control of water pollution, complements the provisions set forth in the *General Ecological Equilibrium and Environmental Protection Act*, D.O., 28 Jan. 1998.

²⁵ D.O., 4 Aug. 1994 (amended by decree D.O., 24 Dec. 1996), § 88.

²⁶ While previously, the *National Waters Act Regulation* provided the CNA with power to inspect, that power has been removed by LFPA.

²⁷ 8^a. S.J.F., 3rd Vol., at 799.

2 Government Policies and Programs

2.1 Identification of the Regulated Community

It is well understood that the success of environmental pollution prevention and control programs requires a thorough knowledge of the industrial sector subjected to environmental regulation, as well as of its characteristics, location and activities. To address this, several mechanisms have been introduced to enable environmental authorities to secure timely and relevant information. The main mechanism stems from the legal obligation imposed on industries to apply for authorizations and licenses prior to commencing operation, as well as from the requirement that they be listed in public registries set up by environmental authorities. A secondary source is other public and private registries allowing the agency to fill potential gaps in the information. Moreover, it is recognized to be essential that the information be concentrated and arranged in data bases that may be used as decision-making instruments by authorities.

2.1.1 *Information Managed by Environmental Authorities*

Mexican environmental legislation contemplates several mechanisms that allow authorities to be aware of the number of companies involved in specific activities, their location and the pollutants they release. These mechanisms include the issuance of authorizations, permits and licenses, as well as the registration of polluting companies. All such authorizations and registrations are granted in connection with environmental impact issues, risk assessment, air pollution, hazardous waste and wastewater. These authorizations and registrations set out specific conditions under which industrial activities are to be carried out, with the aim of regulating and minimizing pollutant releases and collecting the information required for inventory building purposes.

2.1.1.1 Information Related to Environmental Impact Assessments

Private parties must submit the following reports and statements:

- An environmental impact preventive report. The submission of this report must occur before any works or activities regulated under environmental legislation are undertaken, and is sufficient if the environmental impact due to these works or activities will neither cause ecological imbalances nor exceed the limits and conditions set forth under the NOMs.
- An environmental impact statement of the general type. This must be submitted prior to authorization of any regulated works or activities, and must include a description of the likely impact on the ecosystem(s) potentially affected by the intended works or activities. Account must be taken of elements that make up such ecosystems, as well as those measures deemed necessary to prevent and minimize any detrimental effects on the environment.
- An environmental impact statement of the intermediate type. This must, in addition to the above, contain a description of the potential environmental impact of the intended works or activities, as well as the proposed measures to prevent and mitigate those impacts.
- An environmental impact statement of the specific type. This requires, in addition to the above, an analysis of both the current and projected quality of the environment at the location where the contemplated works or activities are to be undertaken. There must be an identification and assessment of environmental impacts that would be caused if the project were to be carried out, in each one of its phases, as well as a description of the prevention and mitigation measures contemplated for each phase. Also a restoration and rehabilitation program for the impacted area at the end of the works' productive life or upon termination of activities must be proposed.

- A risk analysis of the following types: a) preliminary risk report; b) risk analysis, and c) detailed risk analysis. Whenever highly hazardous activities, as defined in environmental laws and regulations, are at stake, environmental impact statements must include a corresponding risk analysis.

2.1.1.2 Information Related to Air Pollution

With regard to air pollution, certain instruments allow environmental authorities to obtain information about those industrial sectors which must be subjected to verification. An operating permit must be issued by Semarnap prior to start-up of operations of fixed sources under federal jurisdiction that release or may release odors, gases, solid or liquid particulates into the atmosphere. Companies must also provide information pertaining to their pollutant releases into the atmosphere, such as their amount and composition. This information is placed in a release inventory.

2.1.1.3 Information Related to Hazardous Waste

Those who generate or handle hazardous waste must seek the following authorizations:

- Authorization for the handling of hazardous waste for any business intending to install and operate systems for the collection, storage, transport, housing, reuse, treatment, recycling, incineration and final disposal of toxic waste.
- Authorization for the import or export of hazardous materials or waste.
- Registration of businesses involved in the handling of hazardous waste. The regulations adopted under LGEEPA governing hazardous waste provide that those who generate hazardous waste must be included in the registry established by Semarnap for that purpose.

2.1.1.4 Information Related to Wastewater

The following requirements apply to wastewater:

- Pursuant to the National Waters Act, a permit from the National Water Commission is required for the continuous, occasional or accidental discharges of wastewater into receiving bodies that are national waters. Permits are also required for discharges onto public lands or for discharges which might contaminate groundwater or aquifers.²⁸
- The Public Registry of Water Rights (*Registro Público de Derechos de Agua*—REPGA) includes concession and assignment titles, and the permits pertaining to the use and exploitation of water, as well as any extensions, suspensions and revocations thereto, and the actions or contracts relating to the partial or total transfer of underlying titles.

The processing of all of these authorizations and the maintenance of the registries involve substantial costs and a heavy administrative burden. For this reason, Mexico has instituted an integrated license system, the Comprehensive Environmental License (*Licencia Ambiental Única*), concerning air pollution, hazardous waste and waste water discharges.

On 11 April 1997, Semarnap published in the Official Gazette (*Diario Oficial de la Federación*) the “Agreement Establishing the Mechanisms and Procedures for Obtaining the Comprehensive Environmental License, through a Single Procedure, as well as the Updating of Release Information through the Granting of an Operating Permit.” Under this Agreement, the Comprehensive Environmental License is considered the appropriate instrument through which approval procedures are coordinated and pollutant releases by each individual industrial facility are known, verified and updated:

²⁸ *National Waters Act*, D.O., 28 Jan. 1988, § 88. The section itself provides that the National Water Commission may substitute the required permit for discharge of wastewater with a simple notice, depending on the characteristics of the aquifers, zones, sites or water uses.

FIRST.- The purpose of this Agreement is to establish, for environmental protection purposes, the mechanisms and procedures governing the single application to be submitted in those instances where the operation and running of facilities, which carry out activities under federal jurisdiction, entail the granting of permits, licenses or authorizations by the Secretariat of the Environment, Natural Resources and Fisheries, as well as the updating of information needed to build the pollutant release and transfer inventory on a facility basis.

As a result of the mentioned procedure, the Secretariat will issue a document titled Comprehensive Environmental License, which will embody, through the coordination between the National Water Commission (*Comisión Nacional del Agua*) and the National Institute of Ecology (*Instituto Nacional de Ecología*), the various authorizations currently issued separately by the Secretariat, and which will be signed by public officials empowered to do so. This Comprehensive Environmental License will not set requirements or conditions beyond those contemplated in the applicable legal provisions.²⁹

According to Profepa, this approach is intended to have an important impact on compliance with environmental legislation. The comprehensive environmental license is intended to introduce more sound multimedia environmental management by those industrial sectors which favor the comprehensive and enhanced fulfillment of their obligations in this regard, as well as the use of less polluting process technologies within the context of **total environmental quality**. It is intended to allow generation of comprehensive data for environmental information systems and to serve as the starting point for periodic follow-up of environmental performance by industry. It will also provide an opportunity for promoting compliance programs tailored to specific industrial sectors, covering actions aimed at emission reduction at source, waste minimization, input substitution, process changes and total quality programs. According to Profepa, the underlying philosophy of the comprehensive license is to make it possible to treat businesses according to their managerial capabilities, while fostering voluntary efforts aimed at achieving regulatory compliance.

The information generated by the licenses are to form the basis of a compliance database linked eventually to the National Environmental Information System, discussed later. The information is organized to allow very specific searches and analyses. Moreover, it will be possible to screen information according to certain criteria that will assist selection of data required for planning, surveillance and control or assessment purposes.

2.1.2 Information Systems

LGEEPA contemplates the creation of a National Environmental and Natural Resources Information System (*Sistema Nacional de Información Ambiental y de Recursos Naturales*—Sinia), which will comprise relevant reports or documents resulting from scientific or academic activities, technical studies or other studies relating to the environment. This program is being developed by federal environmental authorities³⁰ and will be linked to the National Accounts System under the responsibility of the National Institute for Statistics, Geography and Information Technology (*Instituto Nacional de Estadística, Geografía e Informática*).

As provided by law, the public will have access to Sinia information on inventories of existing natural resources within the national territory, mechanisms and findings pertaining to the monitoring of the quality of air, water and soil, ecological zoning, authorizations, licenses or permits issued by federal authorities, as well as information regarding registries, programs and actions that are undertaken in order to preserve ecological equilibrium and protect the environment.³¹

²⁹ *Agreement Establishing the Mechanisms and Procedures for Obtaining the Comprehensive Environmental License, through a Single Procedure, as well as the Updating of Release Information through the Granting of an Operating Permit*, D.O., 11 Apr. 1997.

³⁰ Sinia may be accessed through the Internet at the following address: <<http://www.ine.gob.mx/INE/documentos/sinia.html>>. While the site is currently under construction, some of the components may already be accessed.

³¹ The development of information systems is contemplated for the entire federal government in the *1995–2000 Information Technology Development Program*, which states that an information infrastructure must be set up for the benefit of all public institutions, the private sector and the general public, through the development of databases on specific topics, which will include national, regional, sectoral and institutional information; this information will be made publicly available through national and international data networks. *1995–2000 Information Technology Development Program*, National Institute for Statistics, Geography and Informatics (1997), at 35.

In accordance with the Environmental Program, Sinia will include 12 components, among which stands out, for the purposes of this report, the Information System Regarding Environmental and Natural Resources Compliance (*Sistema de Información sobre el Cumplimiento de la Normatividad Ambiental y de Recursos Naturales*). This system will comprise two different information systems aimed at broadening knowledge on environmental compliance, as well as facilitating the setting of objectives and the planning of inspection and enforcement actions. The system will consist of:³²

- Strategic Information for Decision-Making
- Monitoring of Natural Resources Aimed at Environmental Legislation Compliance
- Environmental Audit
- Environmental Compliance Indicators by Industry
- Popular Complaint

2.2 Priority Setting for Inspectors

2.2.1 Criteria to be Followed by Authorities in Conducting Inspections

In performing their inspection and enforcement duties, authorities may spontaneously order inspection visits to individuals and corporations without giving reasons. Inspection and enforcement powers are discretionary, subject to the criteria and target of the inspection. The intensity and scope of each inspection specified in the work plan are determined by the Federal Attorney General for Environmental Protection (*Procuraduría Federal de Protección al Ambiente—Profepa*).

The 1997 Work Program of Semarnap³³ provides a clear indication regarding the criteria used to identify the industrial facilities to be inspected:

It is the intention of Semarnap to increase, during the course of the current year, the efficacy and the opportunity of the mentioned programs; to this end, inspections will be assigned a certain priority according to the level, quantity and type of pollutant releases; the corrective measures imposed will be followed up; the in-plant verification program for new vehicles will be implemented; strategies aimed at facing environmental contingencies will be designed; proposals submitted by businesses with respect to emission reduction measures during environmental contingencies will be assessed and their compliance with the corresponding plan verified.³⁴

According to these criteria, Profepa conducts inspection visits in accordance with the legal framework in force, in the following cases:

1. Industrial Inspection

These are inspection visits paid to industry in order to verify compliance with environmental legislation.

2. Verification

This results from the need to assess the progress achieved in fulfilling the conditions imposed as corrective measures to remedy the irregularities detected during a previous inspection visit. Once the period of time allowed for this correction has elapsed, a new visit is performed for the purpose of verifying that the measures imposed have been complied with.

³² *Id.*, pp 141-142.

³³ Secretariat of the Environment, Natural Resources and Fisheries, *1997 Work Program* (March 1997).

³⁴ *Id.* at 68.

3. Environmental Contingency

This is brought about by an accident which is likely to affect the environment. In the case of the Metropolitan Area of Mexico City, the participation of businesses in the Environmental Contingencies Program (*Programa de Contingencias Ambientales—PCI*) with respect to air pollution is verified in order to ensure that production has decreased to desired levels.

4. Legal Review

This is performed on businesses which deny access to their facilities during an environmental contingency. Such a legal review implies a higher level of scrutiny during the course of the inspection.

5. Popular Complaint

This involves processing of complaints filed by individuals or organizations, directly or indirectly affected by some fixed, pollutant-releasing source.

6. Documentary Verification

This consists of identifying businesses not registered with Semarnap by screening specific zones. Once facilities are identified, an inspection is performed for the sole purpose of obtaining documents and ascertaining whether or not such facilities are operating legally. This program involves the detection of unregistered businesses through the screening of industrial directories, the registries of industrial associations and those of the Secretariat of Finance and Public Credit (*Secretaría de Hacienda y Crédito Público*), the Secretariat of Trade and Industrial Development (*Secretaría de Comercio y Fomento Industrial*) and others.

This last category of inspections may not be ordered in the absence of certain evident signs, on the part of the private party, of some fact or activity that might generate environmental obligations, such as the inclusion in an industrial roster, the existence of facilities or the performing of regulated activities. The inspection order involving facilities that have not been previously detected by the authority as being subjected to environmental legal provisions must also specify the reasons underlying the presumption that illegal activity might have occurred. Evidence must be provided for such an order to be considered well founded.

In some cases, inspection programs are based on health and environment protection criteria, for example, the Atmospheric Contingencies Program (*Programa de Contingencias Atmosféricas*), which is currently enforced in the Valley of Mexico. This program is based on five essential principles, three of which reflect the way in which inspection and enforcement actions are conceived and fed-back during contingency periods:

- **Inspection triggered by environmental health criteria.** Since the main objective of the program is to prevent the population from being exposed to hazardous concentrations of pollutants, the contamination levels which trigger the enforcement of the program must be based primarily on environmental health criteria, with economic and political considerations becoming secondary. In addition, the program is permanently reviewed and brought up to date by including the most recent scientific information available on environmental health.
- **Correspondence with the release inventory.** The efficacy of contingency control actions is critically dependent upon two factors: the participants and the intensity of their participation. In this sense, the efficacy level will be higher if actions are directed at those industries that contribute the most to air pollution in the metropolitan area, and if the intensity of the participation by these industries corresponds to their contribution to overall toxic releases.
- **Design clarity and enforceability.** Participation rules for the transportation, industry and service sectors must be clear, and the resulting indicators must be consistent over the long term. Clarification must be

provided on those facilities which are obligated to curtail their production, including specifying the mandatory percentage of reduction. In addition, participating industries must be notified of any surveillance action.

In addition, some inspection programs are based both on geographical considerations and on the type of industry that must be monitored. This is the case for the 1996–2000 Program for the Minimization and Comprehensive Management of Industrial Hazardous Waste in Mexico (*Programa para la Minimización y Manejo Integral de Residuos Industriales Peligrosos en México 1996–2000*). Through this Program, the general public and, in particular, the industrial sector are made aware of the priorities of environmental authorities. The program is premised on the fact that, due to the limited technical and human resources of the enforcement infrastructure, it is necessary to focus on those regions and sectors which, given their associated environmental risks, constitute a priority. In terms of the regions and waste flows involved, the inspection and enforcement programs will focus on the following priorities:³⁵

Priority Regions for Hazardous Waste Inspections

- Northern Border
- Metropolitan Zone of Guadalajara
- Industrial Corridor of the Gulf
- Puebla-Tlaxcala Corridor
- Metropolitan Zone of Mexico City
- Metropolitan Zone of Monterrey
- Querétaro-León Corridor
- Lerma-Toluca Corridor

Moreover, the Program assigns priorities according to the characteristics of each industry that handles hazardous waste:

Priority Sectors for Hazardous Waste Inspections

High Priority	Medium Priority
Leather tanning	Textiles
Production of basic petrochemical products	Oil refining
Production of basic chemical organic products	Galvanoplasty of metallic parts
Production of basic chemical inorganic products	Manufacturing and/or assembly of electrical and electronic equipment

³⁵ According to the 1995–1996 Activity Report of Semarnap, the Environmentally Hazardous Companies System (*Sistema de Empresas de Riesgo Ambiental—Siera*) is still being implemented; this system contains general information about the handling of hazardous substances and waste, by facility, as well as the resources available to cope with environmental emergencies, by geographic region, with national coverage.

Regulations governing hazardous waste establish a system whereby industries must file waste shipment, reception and disposal reports which provide basic information for the tracking of waste flows “from cradle to grave”.³⁶ This information will be included in the National Hazardous Waste Tracking System (*Sistema Nacional de Rastreo de Residuos Peligrosos*), which allows the authorities to verify if the information provided by waste-generating facilities matches that submitted by waste management companies, and thus to detect those waste flows that fail to complete the generation-recycling or generation-treatment-disposal process. Periodically, the tracking system operated by the National Institute of Ecology (*Instituto Nacional de Ecología*) will inform Profepa about the waste shipments that have failed to complete the cycle up to their final disposal. With this information at hand, Profepa will be able to uncover any inconsistencies in the shipment and disposal routes of waste.

2.3 Compliance Monitoring

2.3.1 Inspections

Profepa has identified that inspections are conducted in order to: a) assess compliance levels and document violations for the purpose of taking those measures that may prove necessary in order for legal provisions to be observed; b) supervise inspection programs undertaken by other institutions, such as state authorities; c) collect information as part of an inspection plan covering the entire region/industry, with the aim of assessing if more controls are needed; d) promote voluntary compliance with legal provisions; and e) establish an official presence intended to promote compliance with regulations.

Legal Framework

LGEEPA³⁷ regulates inspections whose purpose is to verify the observance of environmental laws and regulations. Under the Act, the following conditions must be respected when inspections are to be conducted:

- i) Legal Jurisdiction. Section 32 Bis of the Federal Public Administration Organic Act (*Ley Orgánica de la Administración Pública Federal—LOAPF*) sets forth the powers of the Secretariat of the Environment, Natural Resources and Fisheries (*Secretaría de Medio Ambiente, Recursos Naturales y Pesca*). In regard to inspection and enforcement issues, this section empowers the Secretariat to:

V. In coordination with federal, state and municipal authorities, oversee and promote compliance with applicable laws, Mexican Official Standards and programs related to natural resources, the environment, water, forests, wild flora and fauna, whether terrestrial or aquatic, fisheries and other matters under the jurisdiction of the Secretariat, as well as impose the proper sanctions, where warranted.

Under section 161 of LGEEPA, Semarnap is authorized to conduct inspection and enforcement actions dealing with compliance of the provisions contained in the law itself and other provisions deriving therefrom. Semarnap is granted original jurisdiction to perform inspection duties. Such powers are exercised through the Federal *Procuraduría* for the Environment (*Procuraduría Federal de Protección al Ambiente—Profepa*), which is charged with “overseeing the observance of legal provisions relating to the prevention and control of environmental pollution, natural resources, forests, terrestrial and aquatic wild flora and fauna, fisheries and maritime-terrestrial federal zones, ocean beaches and lands reclaimed from the sea, or any other deposit of marine waters, protected natural areas.”³⁸

It is worth emphasizing that the granting of inspection responsibilities to decentralized agencies of the Secretariat does not violate the assignment of legal jurisdiction made by Congress. The regulatory authority granted under section 89, subsection I, of the Federal Constitution also includes the creation of authorities that take on the duties assigned by law and the determination of those agencies or branches of public administration which are to

³⁶ See, for example, sections 23, 26 and 34 of the *Regulation Regarding Hazardous Wastes*, D.O. 25 Nov. 1988.

³⁷ *Supra* n.10.

³⁸ *Bylaws of the Secretariat of the Environment, Natural Resources and Fisheries*, D.O., 8 July 1996, § 62(I).

exercise powers conferred by the law. When regulations become operational, strict observance of the provisions therein ensues. In this regard, the Supreme Court of Justice of the Nation has stated:

[T]he Executive Power, under special conditions and circumstances, and without exceeding the powers entrusted to it, may issue special regulations for the purpose of creating those entities that may be necessary for the undertaking of the duties that are prescribed by law and must be fulfilled in the exercise of administrative activities.³⁹

- ii) Inspection Order. Section 162 of LGEEPA sets forth the first legal formalities governing inspection visits. First, there must be a written order, duly supported and founded and issued by a competent authority.⁴⁰ In addition, any order must specify the location or area to be inspected, and the inspection must be conducted only at the location specified, even if the party has other facilities. Finally, the inspection order must state “the purpose of the procedure and its scope”,⁴¹ constituting notice to the party of its specific legal obligations and any limitations on the inspection. The issuance of inspection orders for generic or indiscriminate inspections is prohibited.⁴²
- iii) Initiation of Visit. Section 163 of LGEEPA⁴³ states that “at the time when the inspection is initiated, the authorized officials shall identify themselves to the party who is subjected to the inspection proceedings, exhibit the respective warrant and serve a duly signed copy of same, signed by two witnesses.”
- iv) Recording of Proceedings. All inspections require that official records of proceedings be made, stating the facts or omissions that may have arisen during the inspection.⁴⁴ They must also comply with section 67 of the Federal Administrative Procedure Act.⁴⁵

2.3.2 Enforcement of Compliance with the Provisions of the General Ecological Equilibrium and Environmental Protection Act

One of Profepa’s main responsibilities is to verify the observance of environmental legislation by those responsible for the operation of environmental pollution sources, by implementing inspection programs throughout the national territory.

This activity is performed by various administrative divisions of Profepa.⁴⁶ The *Subprocuraduría* for Industrial Verification (*Subprocuraduría de Verificación Industrial*) is made up of three General Directorates (*Direcciones Generales*), namely, the General Directorate of Industrial Technical Assistance (*Asistencia Técnica Industrial*), the General Directorate of Industrial Inspection (*Inspección Industrial*) and the General Directorate of Laboratories (*Laboratorios*).

³⁹ Amparo under review 1148/81, Farmacia de Cuautla, S.A.

⁴⁰ LGEEPA, supra n.10, § 162 ¶ 2.

⁴¹ *Id.*

⁴² Supra n.2.

⁴³ D.O., 28 Jan. 1988.

⁴⁴ LGEEPA, D.O., 28 Jan. 1988, § 164 ¶ 1.

⁴⁵ Section 67 of the *Federal Administrative Procedure Act*, D.O., 4 Aug. 1994, asserts that: “The records of the proceedings shall include the following: I. Name or corporate name of inspected party; II. Time, day, month and year when the inspection started and ended; III. Street, number, town or village, telephone number or other such data, municipality, postal code and federate state of inspected facilities; IV. Number and date of the resolution ordering the inspection; V. Name and position of the person hosting the inspection; VI. Name and address of persons who acted as witnesses; VII. Facts arising from the proceedings; VIII. Declaration of the party inspected, if he so wishes; and IX. Name and signature of those involved in the inspection, including those of the person, or persons, who performed it. Should the visited party or his legal representative refuse to sign, the validity of the inspection records will not be affected, provided that the auditor states the reasons underlying such refusal.”

⁴⁶ The powers of both Profepa and its administrative divisions are stated in Semarnap’s bylaws, D.O., 8 July 1996.

The General Directorate of Industrial Technical Assistance is responsible for the following actions:⁴⁷

- designing, implementing and operating an information system that will allow authorities to have updated knowledge about the technical, legal and administrative standing of each and every one of the cases subjected to verification by the *Subprocuraduría*;
- establishing, operating and updating information and follow-up systems with respect to environmental legislation enforcement procedures; and
- intervening in the issuance of guidelines for establishing teams charged with inspecting and verifying matters under its responsibility.

The Inspection Directorate is entrusted with the following duties related to the prevention and control of air and soil contamination, as well as of noise, vibrations, thermal and radiant pollution generated by industrial, commercial or service facilities under federal jurisdiction:

- setting forth and implementing general policies regarding the monitoring and enforcement of compliance with environmental regulations in those matters under its responsibility;
- enforcing the observance of the law, regulations, Mexican Official Standards and environmental programs under its responsibility, and assessing any offenses thereto;
- enforcing compliance with prevention, control, mitigation, remedial or compensation measures provided for in resolutions, authorizations, permits and licenses originating in legal provisions governing the prevention and control of environmental pollution and impact, under its responsibility; and
- performing inspections necessary to verify facts alleged in any complaints and accusations.

Finally, the Laboratories Directorate performs the following duties:

- establishing and operating quality control analysis and sampling systems; and
- performing environmental analyses and issuing the corresponding diagnoses.

Currently, the *Subprocuraduría* is developing inspection programs for the following:

- Inspection and Enforcement of Industrial Pollution Sources under Federal Jurisdiction. This program entails the undertaking of inspection visits to pollution sources under federal jurisdiction and to hazardous-waste-generating sources. These visits are essentially directed at inspecting those activities with the greatest pollution generation potential and addressing complaints and accusations filed by the community.
- In-plant Verification of New Vehicles. This program aims at ascertaining that, before they leave assembly plants, vehicles comply with prevailing legislation regarding gas and noise emissions.
- Inspections of Public Sector Industry. Within this program, inspections are conducted in the three public sector corporations that represent the highest risk and generate the greatest volumes of waste, releases and discharges: *Petróleos Mexicanos* (Pemex), *Comisión Federal de Electricidad* (CFE), and *Ferrocarriles Nacionales de México* (FNM).

⁴⁷ Supra n.18, section 69.

2.3.3 Enforcement of the National Waters Act⁴⁸

Consistent with the premise that a law achieves its purpose only to the extent that it is enforced and its application becomes common practice, the CNA (since December 1992) has displayed significant efforts to educate and train its staff for immediate implementation of the provisions of the National Waters Act. The outreach effort covered the various users and the general public. At the same time, the necessary procedures were established to continuously monitor the enforcement of and compliance with the Act. The strategy behind the 1995–2000 National Hydraulic Program (*Programa Nacional Hidráulico 1995–2000*) calls for increased monitoring of treated or untreated wastewater discharges that flow into the specified basins and zones. Thus, pollution control actions will be carried out by promoting the observance of the Mexican Official Standards that regulate wastewater discharges and the specific discharge conditions applying to the various economic activities, in accordance with the characteristics of the receiving waters and the subsequent uses of those waters.

The General Subdirectorate of Water Management (*Subdirección General de Administración del Agua*) of the CNA is the division responsible for the following inspection and enforcement duties:

- verifying users' compliance with applicable laws; to this end it may order and perform on-site visits, request various related documents, registers, records, data or reports, and require that access be provided to facilities, water uses, metering devices, registers, documents and other means contemplated under the law which might be instrumental in verifying compliance; and
- establishing and verifying compliance with the specific discharge conditions imposed on wastewater generated from sources on national property, or any other land, whenever such discharges are likely to contaminate the groundwater or aquifers; ordering the suspension of the activity which is the source of the discharge, where warranted; and carrying out inspection and surveillance of wastewater discharges.

Surveillance is performed in two directions: within the CNA, in order to ensure that legal provisions are correctly enforced by staff, and outside the agency, for the purpose of verifying that the users of the resource abide by the law. In regard to the latter, until 1995, 239 on-site inspections had been performed, in accordance with the provisions established by law. These inspections resulted in the imposition of fines of over 1.2 million new pesos, one suspension and 22 closures of hydraulic facilities.⁴⁹

As a complement to surveillance duties, the brigades of hydraulic protection and safety recorded a total of 10,063 site inspections. Sixty-six percent of the inspections involved users of groundwater, 11% users of surface waters, 8% residents of federal areas and the remaining 6% parties who extracted materials in the federal zones administered by the CNA.

The Mexican Official Standards (NOMs) play a key role in the legal framework designed for the observance of environmental legislation, since they set out the maximum permissible pollutant levels, and compel private parties to adapt their activities to these standards. It is essential that the NOMs be widely known and correctly applied, and that adequate enforcement procedures and sanctions for non-compliance be implemented. Consequently, the CNA is taking action to strengthen the legal process in the following areas:

- dissemination, enforcement and observance of NOMs;
- infrastructure for the certification of products subjected to NOMs;
- inspection and enforcement of NOMs;

⁴⁸ D.O., 1 Dec. 1992.

⁴⁹ All statistical information provided during interviews with CNA officials.

- development and revision of Mexican Standards (*Normas Mexicanas*—NMX) supporting the NOMs; and
- dissemination of policies, guidelines, specifications and handbooks associated with the NOMs being issued.

More specifically, the Drinking Water, Sewage and Sanitation Program (*Programa de Agua Potable, Alcantarillado y Saneamiento*) includes inspection visits to those users who are responsible for wastewater discharges, treated or untreated, in order to ensure that discharges meet quality criteria and that, where required, generated sludges are adequately treated and disposed of.⁵⁰ To this end, enforcement actions, aimed at controlling treated wastewater discharges and the appropriate disposal of sludges in accordance with the Environmental Program, are coordinated with the Federal *Procuraduría* for Environmental Protection.

Under the Water Uses Management Program (*Programa de Administración de los Usos del Agua*), enforcement and control of water uses and discharges are concentrated on verifying that users effectively comply with the conditions imposed in their concession titles and discharge permits and pay their dues within the terms specified in Administrative Facilities Decrees (*Decretos de Facilidades Administrativas*). These decrees are used to respond to water users who either have not obtained a permit, or have failed to pay a user fee.

In February 1998, CNA and Profepa signed an agreement of contribution by which they agreed to create mechanisms to perform environmental audits and inspections regarding the use and exploitation of water, and the pollution control and prevention of this resource. This agreement will also allow for the exchange of information between the two institutions.^{51, 52}

The agreement also provides for joint support for achieving compliance of the Mexican Official Standard NOM-001-ECOL-96, which establishes the highest limits for pollutants allowed in discharges to national waters of national property.⁵³ CNA and Profepa will join efforts to optimize control procedures through voluntary compliance schemes, in order to obtain better results in the implementation of their respective procedures.

Regarding the audits, Profepa will provide to CNA information about the preventive and corrective measures that the audited industries will take regarding water use or exploitation, with the aim of avoiding duplication of verification activities. As well, environmental auditing will promote compliance with water legislation, apart from regulation and surveillance for the conservation of currents, lakes, lagoons, and the protection of basins and flood control works.

2.3.4 Local Jurisdiction and Instruments for Water Quality Control and Pollution Prevention.

State laws define state and municipal jurisdictions over the following issues:⁵⁴

- the regulation of the rational exploitation, the prevention and control of pollution of waters within their jurisdiction, as well as those national waters for which they are assigned responsibility;
- the environmental impact assessment of works and activities that do not fall within federal jurisdiction;
- the enforcement by municipal governments of the legal provisions regarding pollution prevention and control of discharges in the sewage systems of the population centers, as well as of the national waters they were assigned;

⁵⁰ 1995–2000 *National Water Program*, Semarnap (1997).

⁵¹ See *Excelsior*, Monday 23 Feb. 1998, p. 38-A.

⁵² 1995–2000 *National Water Program*, Semarnap (1997).

⁵³ D.O., 6 Jan., 1997.

⁵⁴ See the chapter “Water Law and the Environment” in Urbano Farías, *Mexican National Waters Law. Legislation, comments and jurisprudence*, Porrúa, Mexico, (1993).

- in the matter of water pollution prevention and control:
 - control wastewater discharges to the sewage systems;
 - conduct surveillance of the NOMs regarding water quality, as well as to demand that facilities which generate discharges without complying with the standards install treatment facilities;
 - determine the fees necessary for the municipality or state authority to carry out the required water treatment, and proceed to the imposition of sanctions when necessary; and
 - put in place and update a registry of discharges to sewage systems;
- In the case of discharges by individuals or corporations to the sewage network:
 - issue wastewater discharge permits (this is established by the legislation of all the states, except for Aguascalientes, Colima and Mexico);
 - set specific discharge conditions (attribution granted, according to local legislation, to state or municipal governments of Aguascalientes, Baja California Sur, Coahuila, Durango, Hidalgo, Jalisco and Morelos; the state government in Nuevo León is charged with this authority, as well as the municipal governments from Colima, Guanajuato, Nayarit, Tamaulipas and San Luis Potosí); and
 - control and collect the quotas or fees for connecting to the sewage system (attribution granted by the environmental legislation of Baja California, Chihuahua, Puebla, Querétaro, Quintana Roo, Sinaloa and Zacatecas, as well as in the drinking water and sewage legislation of Campeche, Oaxaca and Sonora);
- supervision of compliance with local environmental legislation as well as of LGEEPA, and the imposition of sanctions for infringement of these legislations;
- treatment of urban wastewater prior to its discharge to national water bodies; and
- use of wastewater from the sewage systems, and its reuse before it is discharged.

2.4 Environmental Compliance Indicators

2.4.1 *Inspection Reports Prepared by Profepa*

Currently, Profepa discloses the results of its inspection and enforcement activities through publicly available periodic reports.⁵⁵ The information available relates to the following items:

- inspections of domestic industrial facilities,
- inspections of industrial facilities located in the northern border states,
- inspections of public sector industries throughout the nation, and
- special operations in the Metropolitan Zone of Mexico City.

⁵⁵ <<http://www.semarnap.gob.mx/profepa/>>

2.4.2 *Environmental Enforcement Monitoring System* (*Sistema de Seguimiento de la Aplicación de la Normatividad Ambiental—SSANA*)

Several administrative units of Profepa are developing information systems that will allow the establishment, development, monitoring and assessment of environmental compliance programs at the national, regional and local levels. In connection with industrial inspection issues, the *Subprocuraduría* for Regulatory Verification (*Subprocuraduría de Verificación Normativa*) is classifying pollution prevention and control information according to pollution sources. This centralized information system will be called the Environmental Enforcement Monitoring System (*Sistema de Seguimiento de la Aplicación de la Normatividad Ambiental—SSANA*). The system is already in place at the central government offices and is being installed in Profepa regional offices.

This system will be capable of storing not only easily updated data pertaining to pollution sources and their specific location, but also information on the characteristics of production processes used or activities carried out, raw materials, products, byproducts and waste managed, toxic releases, mechanisms and measures adopted for the control of such toxic releases, the relative importance of sources in terms of their contaminating potential, inspection visits performed, irregularities encountered, control measures ordered and the deadlines set for their implementation.

The information system will also be able to produce a wide variety of reports, regarding, for example: a) the number of inspection visits performed during a specific period of time and their outcome; b) inspection visits to be performed; c) complaints filed by the community and their follow-up; d) evolution of compliance by a given source, by specific types of sources or sources located in specific regions; and e) legal and administrative procedures undertaken in connection with visits already performed, as well as those which are yet to be undertaken, and the corresponding deadlines.

2.4.3 *Environmental Compliance Index System* (*Sistema de Índices de Cumplimiento de la Normatividad Ambiental—Sicna*)⁵⁶

Profepa has developed the Environmental Compliance Index System (Sicna), which is a fundamental component of the Environmental Enforcement Monitoring System (*Sistema de Seguimiento de la Aplicación de la Normatividad Ambiental*) described above. This information is one of the essential parameters for optimization of the inspection and enforcement programs.

Sicna will enable precise evaluation of compliance, not only by pollutant type (air, hazardous wastes, environmental impact, risk and noise), but by the specific legal obligations that correspond to each pollutant type. The system will serve the dual purpose of informing the community about the level of environmental compliance, and assisting Profepa to carry out its inspection programs in more efficient way.

The following basic elements are considered by Profepa in making decisions about the enforcement of environmental norms:

- those laws/norms which involve effective protection of the environment;
- effective corrective measures, adequate timetables and sanctions which deter;
- the verification of compliance with any required corrective measures;
- more frequent inspection and verification in the case of reluctance to comply or where there are repeated complaints;

⁵⁶ This section is based on the document *Environmental Compliance Index System (Pollution Sources)*, Profepa, Dec. 1997.

- inspection programs that are systematic and sufficient; and
- consideration of the compliance record in determining the necessary frequency of inspections.

For each one of these aspects to be implemented effectively, it is important to have a database that allows follow-up to assess continuing compliance.

Because of the way it has been conceived, Sicna provides for assessment of progress achieved in terms of environmental compliance by:⁵⁷

- industry;
- industrial sector;
- industrial sub-sector;
- pollutant type (air, hazardous waste, noise, risk and environmental impact);
- specific legal requirement;
- postal code;
- municipality;
- federal entity;
- nation-wide;
- combinations of the above parameters; and
- other indicators, as determined necessary.

Under this compliance index, each of the legal obligations has been assigned a relative value in the protection of environmental quality. The values assigned to each group total 100 points for each one of the control areas (air releases, hazardous waste or noise). The value of each one of the headings is the highest score that may be assigned to them. Compliance with applicable regulations must be evaluated separately. Therefore, the Sicna value for a specific company is the sum of the scores under all headings.

Sicna will serve a dual role. It will become a fundamental tool to inform the public in a simple and periodic way about the level of compliance of each pollution source. It will also allow Profepa to evaluate its inspection system in order to improve its performance. It will also enable evaluation and, where necessary, redirection of strategies and targets.⁵⁸

The system was first tested in August 1996, during each inspection conducted inside the Mexico City Metropolitan Area. Subsequently, in the first semester of 1997, it was tested in six states of the Republic. As a result of these initial experiences, some changes were introduced to expand its capabilities, clarify concepts and formulae, and to resolve a number of operating questions that arose when applying the system. Commencing 1998, Sicna was implemented nationwide.

⁵⁷ Profepa, *Id* at 3.

⁵⁸ Currently, Sicna is used inside Profepa to feedback its procedures; the information is not yet publicly available.

3 The Role of Society

3.1 Public Access to Information on Enforcement Programs and Policies

Mexican environmental enforcement policy is premised on the view that enhancing compliance with environmental laws can best be achieved by recognizing the value of balancing coercive intervention with programs supporting voluntary compliance.⁵⁹ It is also founded on the view that the majority of industries choose to voluntarily comply. In addition, the government considers it essential to expand the scope of public participation in environmental management, including expanded access to government-held environmental information.⁶⁰

This policy was evidenced in the recent reform to the LGEEPA,⁶¹ in particular the chapter entitled “Access to Environmental Information (*Derecho a la Información Ambiental*),” which represents an unprecedented progress within the national regulatory framework. It must be emphasized that access to environmental information is meant as the right of society to participate in decision-making processes, and, as such, it complements the provisions that have to do with public participation and environmental information.

The LGEEPA reform was intended to grant everyone, independently of whether he or she is directly affected by a given issue, the right to obtain relevant environmental information held by the government.⁶² In accordance with section 153 Bis 3, every individual or corporation has the right to request that Semarnap, or the State, Federal District and Municipal authorities put the requested information at their disposal. Subject to certain exemptions, only those who are or may be directly affected have access to the basic assessment report, including proposed preventive and corrective actions to be undertaken as a result of the environmental audit. This confidentiality requirement is provided under the Federal Industrial Property Act (*Ley Federal de Propiedad Industrial*). In addition, access may be denied to information involving unresolved inspections and surveillance matters.⁶³

The law prescribes the kind of information that may be requested, the official routines to be followed and the instances where authorities may deny such information. The law states that “any information, whether in written, visual or database form, in the hands of environmental authorities, pertaining to water, soil, flora, fauna and natural resources in general, as well as that relating to activities and measures which affect or might affect them,” is deemed environmental information.⁶⁴ This definition includes all information pertaining to programs, actions and reports relating to enforcement activities carried out by environmental authorities subject to the previously outlined exemptions.⁶⁵

Under LGEEPA, “red tape” is minimized.⁶⁶ The only requirement is the filing of a written request clearly specifying the information being requested, with reasons. Applicants, whether individuals or corporations, must identify themselves by name and address. This legal provision regulates, in environmental issues, the provisions established under section 8 of the Constitution regarding petition rights, which asserts the following:

⁵⁹ As per interviews with Profepa.

⁶⁰ CEC Council, Resolution 95–8, *Public Access to Information*, October 1995, Oaxaca, Mexico.

⁶¹ D.O., 28 Jan. 1988.

⁶² This legal provision accords with the decisions of the Judiciary to the effect that exercising the petition right does not require that legal standing be proven. The argument to the effect that the petition right granted under section 8 of the Constitution is subject to the petitioner substantiating his legal standing in regard to the petition is inaccurate, since the law only requires that the right be exercised in writing and in a peaceful and respectful manner. *See Amparo* under review 6176/63, José Guadalupe Arontes Blancas, 5 votes, 77(3) S.J.F. 25. (28 Nov. 1963).

⁶³ The second paragraph of Section 38 Bis 1 of LGEEPA provides that: “in any event, the legal provisions regarding the confidentiality of industrial and commercial information shall be abided by.” *The Federal Industrial Property Act (Ley Federal de Propiedad Industrial)* was published in D.O. 27 June 1991; amended by D.O., 2 Aug. 1994 and 26 Dec. 1997.

⁶⁴ LGEEPA, §159 Bis 3, ¶ 2..

⁶⁵ *Id.* § 159 Bis 4 (II).

⁶⁶ “Petition, Right of”. Section 8 of the Constitution does not subordinate the challenge or any other aspect of the petition guarantee to petitioners having or not having complied with specific regulatory requirements. *Amparo* under review 4916/58, Juan N. Canales, voted unanimously (4 votes), 19 (3) S.J.F. 63 (19 Jan. 1959).

Civil servants and public employees shall respect the exercise of petition rights, whenever the petition is filed in writing, in a peaceful and respectful manner; however, in dealing with political matters, only the citizens of the Republic may avail themselves of such right. The authority to whom the petition is addressed shall respond in writing and make its response known to the petitioner within a brief period of time.⁶⁷

One of the innovative aspects of the proposal has to do with the obligation of environmental authorities to provide a response expeditiously, within twenty days. Under the Mexican legal system, authorities may normally take up to four months to respond to requests. Section 17 of the Federal Administrative Procedure Act (LFPA) states that “unless specific laws establish the contrary or set different deadlines, the period of time that authorities may take to issue a decision shall not exceed four months; where no decision has been issued within the prescribed period of time, the applicant’s request shall be deemed refused, unless the applicable provisions provide otherwise.”⁶⁸ Before this legal definition, the jurisprudence from the Supreme Court of Justice of the Nation had only considered that the “brief period of time” referred to under the Constitution must be “that which reasonably allows a petition to be considered and resolved.”⁶⁹

Even though this provision is legally adequate, it may become ineffectual in practice. In fact, section 159 Bis 5 of LGEEPA asserts that environmental authorities must respond within twenty days after having received a given petition. In addition, it states that, where authorities provide a negative answer, the reasons underlying the decision must be given. However, immediately thereafter, the concept of **deemed refusal** is incorporated, when it is stated that, where no written response is issued by environmental authorities within the allowed time frame, “the petition shall be deemed to be refused to the applicant.”⁷⁰ This could result in authorities simply letting deadlines go by, in order not to provide legal reasons for denying the requested information, given the administrative burden faced by public offices, or due to indolence.⁷¹ In any event, when the private party receives a negative response to an information request, he or she may directly file an action for annulment before an administrative tribunal or challenge the grounds for the refusal before a Federal Court.⁷²

⁶⁷ This right is legally protected in two ways: through the *amparo* judgment, in order for the petition right to be respected by authorities, and through criminal provisions, since the Criminal Code for the Federal District (section 215, subsection III) in *fuero común* issues and for the Republic in *fuero federal* issues, provides that unduly preventing a request from being filed and processed is construed as an abuse of power.

⁶⁸ D.O., 28 Jan. 1988 (amended by Decree D.O., 24 Dec. 1996).

⁶⁹ *Amparo* under review 3609/1957, Genaro Sandi Cervantes, Bol. Inf. Jud., 1958, No. 61-62 and 1966 Report (*Informe de 1966*), Second Chamber (*Segunda Sala*), p. 135. In jurisprudence, the Court has ruled that section 8 of the Constitution is violated if, after 4 months from the date a written petition from a private party is received by the authority, no response is issued (Appendix to Vol. CXVIII, thesis 767, 188 and 470); in other decisions the Court has established the variability of the chronological duration of the “brief term” concept, since in some instances it has estimated that this may be five days, while in other instances it may be up to ten days. (*Amparo* under review 6023/1954, María Cervín de Peralta, Bol. Inf. Jud., 1955, No. 2953; and *Amparo* under review 1799/1955, Luis Valencia Rojas, Bol. Inf. Jud., 1955, No. 3286.

⁷⁰ *Deemed refusal* is the legal term used when, upon the authority failing to expressly issue a decision, within the terms provided for under this law or other laws governing the case in question, it is understood that the request made by an individual is denied.

⁷¹ The lack of legal grounds and foundation underlying the *deemed refusal* may not be challenged before the Courts, since it is not an act of power *per se* and therefore the formality requirements to be fulfilled by legal acts are not applicable. Only the essence of the refusal may be challenged, not its lack of formality. See decision rendered by the Second Collegiate Administrative Tribunal of the First Circuit “Deemed Refusal. May Not Be Challenged for Lack of Grounds and Foundation,” 7 S.J.F. 331 (June 1991). The deemed refusal resolution, since it is a legal fiction that originates in the silence of administrative authorities, is intended to provide the grounds for action, which, when implemented, allow the plaintiff to bring an action for annulment in substitution of the express act; thus, even though the negative silence constitutes the challenged act, the truth is that it is not a real administrative resolution, since it lacks the will of the issuing authority; this is why interpretation processes may not be made, and challenge may not be allowed on the grounds that the constitutional requirements of foundation and motivation are lacking, since it is merely a fiction that comes into legal existence at peoples’ will and, hence, only the essence of the refusal may be examined. *Direct amparo* 122/91, Fivisa, S.A. de C.V. (25 April 1991) (voted unanimously; Justice: Carlos Yáñez; Secretary: Mario de Jesús Sosa Escudero).

⁷² In this case, it is not proper to make an application for the revision recourse contemplated under LGEEPA, before the very authority which incurred the deemed refusal, according to the decision made by the Second Collegiate Tribunal of the Sixth Circuit. “Deemed Refusal, May Not Be Challenged Before the Very Authority Responsible for It.” *Direct Amparo* 394/91, Gloria Violeta Contreras, 14 (2) S.J.F. 671 (9 May 1991) (voted unanimously).

In addition, LGEEPA grants private parties the right to file a revision recourse whenever they consider that the authorities' denial to provide the requested information affects their interests. It is worth emphasizing that, besides administrative recourses, private parties may avail themselves of other legal instruments to demand that the information be provided: the *amparo recourse*, compelling authorities to respect the petition rights granted under the Constitution, and criminal recourses, since the criminal Code for the Federal District, in *fuero común* matters, and the entire Republic, in *fuero federal* matters, states that unduly preventing the filing or the processing of a request by public employees is construed as a misuse of power (Section 215, part III).

3.2 Disclosure of Non-Compliance Findings

The findings pertaining to industrial verifications are publicly disclosed in several ways.

Semarnap submits a Yearly Activity Report which includes a chapter devoted to the progress achieved in the implementation of the inspection and enforcement program involving industrial pollution sources. Every second year Semarnap must prepare and publish detailed reports concerning the state of the country with regard to ecological equilibrium and environmental protection, including the outcome of inspection and enforcement actions. Reports covering the 1991–1992 and 1993–1994 periods have already been published; the 1995–1996 Report on the State of Ecological Equilibrium and Environmental Protection (*Informe de la Situación General en Materia de Equilibrio Ecológico y Protección al Ambiente*) is currently being drafted.

LGEEPA provides that the Secretariat shall publish the Ecological Gazette (*Gaceta Ecológica*), an instrument which will include information regarding activities undertaken by federal environmental authorities.

The General Directorate for the Coordination of Bureaus (*Dirección General de Coordinación de Delegaciones*) of Profepa publishes a Monthly Activity Report which provides details about all inspection and verification visits undertaken.

Since August 1996, Profepa has been maintaining an Internet homepage containing information on the *Procuraduría* itself, environmental legislation, industrial verification, enforcement of regulations regarding natural resources, popular complaints filed, and training activities conducted by Profepa (<<http://semarnap.gob.mx/Profepa/index.htm>>). In addition, Profepa periodically disseminates, through mass communication media, reports on its inspection and enforcement actions.

3.3 Complaints and Denunciations as Compliance Indicators

The Environmental Program asserts that complaint and commitment follow-up is an important line of action that will allow the fostering of citizen participation in the inspection and enforcement of environmental legislation. The purpose behind this is to ensure that complaints are systematically registered and followed up in an efficient way through classification and priority assignment. In addition, the strengthening of the popular complaint system, contemplated under environmental laws, will be achieved through the creation of a social enforcement system that emphasizes the joint responsibility of government and social groups. The popular complaint procedure is the instrument through which any person may notify the competent authority of any fact, action or omission, under Federal jurisdiction, that is likely to produce ecological imbalances or cause environmental damage, in violation of the provisions of LGEEPA and other legal provisions regarding the environment.

The General Directorate of Complaints and Denunciations (*Dirección General de Denuncias y Quejas*) of Profepa is in charge of establishing and operating the popular complaint system. This program is mainly concerned with receiving, analyzing, investigating and, where warranted, forwarding to the competent authority the complaints and denunciations made by citizens and representatives from the public, social service and private sectors

in regard to ecological issues and environmental protection.⁷³ Upon complaints being received at public offices located in the state and Mexico City bureaus, either by telephone or in writing,⁷⁴ this General Directorate classifies and records them by assigning a folio number. Once the case has been analyzed and assessed, it is handed over to the competent authority or the appropriate division of the *Procuraduría*, so that it can be dealt with.

Profepa is decentralizing responsibility for responding to complaints and denunciations. Central offices will retain responsibility for program design and follow-up, as well as for comprehensive data management and assessment. The intention is to improve the capacity of Profepa's state/civil offices.

In addition, the reports show non-compliance patterns in each state, and by pollution source. The reports also include a classification of complaints according to pollution sources. Thirteen categories of contamination sources are contemplated under this classification: 1) street-selling activities; 2) activities carried out at home; 3) public spectacles; 4) clandestine establishments; 5) commercial establishments; 6) stables and barns; 7) social groups; 8) industries; 9) urban infrastructure; 10) private parties; 11) public servants; 12) transportation; and 13) unknown sources.

One of the goals pursued by the National System for Popular Complaint Management is to project, from the complaints received, an outlook of the social perception regarding the degree of environmental compliance. It must be borne in mind that complaint statistics refer exclusively to the allegations originally made by complainants and do not necessarily imply any responsibility on the part of the industries targeted, in terms of non-compliance with laws and regulations.

Popular complaints are, undoubtedly, a necessary mechanism for any legal enforcement system. Their significance lies in the fact that they constitute an instrument which involves society in enforcement tasks, thereby multiplying the institutional capacity of the *Procuraduría*. In this connection, the Environmental Program considers the strengthening of the popular complaint system pertaining to environmental matters, as a main strategy, and supports the creation of a social enforcement system.

Likewise, the National System for Popular Complaint Management aims at ensuring that complaints are systematically registered and efficiently followed up through classification and priority assignment.⁷⁵ Based on the data produced by the system, conclusions may be reached in terms of compliance levels on a resource by resource basis by comparing the number of complaints received during specific time periods. Likewise, the efficiency level in dealing with complaints and denunciations may be measured by comparing the number of complaints filed and the number of those which were processed and resolved within a specific period of time.

In order to make better use of the data produced by the National System for Popular Complaint Management, it may be useful to provide additional classification indicators. For example, it may be useful to compile data such as: a) the number of complaints processed by Profepa, as well as of those which were handed over to other agencies or government levels; b) the register of complaints, by federate entity and municipality; c) the number of complaints against private and public sector corporations; d) the classification of complaints by industrial activity; e) the complaints filed by individuals or social organizations; f) the number of inspection visits triggered by complaints; and g) decisions underlying the resolution of complaints and denunciations. This information could be presented in periodic reports publicly disclosing the particulars and follow-up of each complaint or denunciation made.

⁷³ Semarnap Bylaws § 77(II & III).

⁷⁴ In the near future, it will be possible to file complaints and denunciations via the Internet, through the Complaints and Denunciations Module available through Profepa's web site.

⁷⁵ It is important that the significant number of complaints and denunciations received be prioritized, for not doing so could cause distortions in enforcement strategies by allocating resources to solving problems which are not pressing. In the words of Stephen Breyer: "Study after study shows that the public's evaluation of risk problems differs radically from any consensus of experts in the field. Risks associated with toxic waste dumps and nuclear power appear near the top of the public's list of concerns, which more directly influences regulatory agendas." *Breaking the Vicious Circle Toward Effective Risk Regulation*, (1993) p.33.

3.4 Public Participation in Inspections. The State of Nuevo León⁷⁶

It has been considered necessary, at least by one state government, to create programs that allow citizens and social organizations to participate in industrial verification tasks. In this connection, the State of Nuevo León has devised a mechanism allowing the presence of neighbors, affected parties or complainants during the course of inspection visits, in accordance with the provisions of the Ecological Compact subscribed to in May of 1992 by the social, industrial and commercial sectors and by the state government.⁷⁷

This program has the objectives: to have the business or denounced party make a moral commitment regarding environmental compliance; to provide complainants or neighbors access to information that would otherwise be restricted, such as the causes for non-compliance and sanctions imposed; and to prevent corruption.

From a risk communication perspective, the mechanism introduced by the State of Nuevo León allows the neighboring community or complainants to be aware of what actually goes on in the business inspected, as well as measures imposed to correct any irregularities. Thus, social participation in inspection and enforcement issues contributes to the development of an environmental conscience and sound practices, not only within inspected businesses but also among complainants and neighbors.

⁷⁶ This section is based on the paper by Dr. Ma. Del Carmen Carmona: *Access to information: alternatives available in the national legislations of the Region*, delivered at the second session of the North American Conference on Environmental Law, Phase II : "Towards Effective Mechanisms for Public Participation," Coalfront, West Virginia, USA, (1993), at 43.

⁷⁷ At the federal level, Joint Committees for the Inspection and Surveillance of Natural Resources are in place; the most important social players at the local level are assembled in order to collaborate with Profepa in the surveillance of fisheries, forests and traffic of wild flora and fauna. The purpose of these committees is to organize the community's support of law enforcement. Currently, there are 32 Joint Committees for the Inspection and Surveillance of Forests, in 9 states, and 16 Joint Committees and 39 Joint Sub-committees for the Inspection and Surveillance of Fisheries, in 16 states.

4 The Role of Industry

4.1 Legal Obligations of Industry Related to Monitoring and Reporting Compliance

This section will review the laws which prescribe the obligations of industry pertaining to: a) measuring toxic releases, discharges or performance parameters; b) keeping records of activities, and c) reporting information on regulated activities. Regulations in force regarding air, hazardous wastes, noise and water pollution are reviewed.⁷⁸

4.1.1 Regulation under LGEEPA Regarding the Prevention and Control of Air Pollution⁷⁹

Section 17 of this Regulation sets forth the obligations to be fulfilled by businesses in regard to the measurement of toxic releases, the recording of activities, and the reporting of information pertaining to those activities that have an impact on the quality of air, in the area where they are located.

In connection with the **measurement** of toxic releases, the regulation requires that those responsible for fixed sources under federal jurisdiction which release gases, odors or solid or liquid particulate into the atmosphere do the following:

- set up an inventory of their toxic releases into the atmosphere in the form prescribed by Semarnap;
- install platforms and sampling ports;
- measure their toxic releases into the atmosphere, record the findings in the form prescribed by Semarnap, and forward the records to the Agency, whenever it so requests; in the Mexico City Metropolitan Area (ZMCM), the Secretariat requests the yearly presentation of operating or industrial verification records about facilities located in the area and their toxic releases; and
- perform perimeter monitoring of their pollutant releases into the atmosphere whenever the source involved is located in urban or suburban zones, borders protected natural areas, or, in the opinion of Semarnap, the facility might cause severe degradation to ecosystems, given its operating characteristics, the raw materials utilized or the products and byproducts manufactured.⁸⁰

The Regulation also requires that those responsible for fixed source releases keep records regarding the operation and maintenance of their process and control equipment.⁸¹ In terms of **reporting** the activities carried out by industrial facilities, section 21 of the Regulation states that those responsible for polluting sources shall submit to the Secretariat, in February of each year, and in the prescribed form, operating records containing documentation pertaining to the number of polluting sources, the consumption of fuel and the emissions report, among others.

This information allows the building of inventories of fixed source releases into the atmosphere, which are used for the purpose of ascertaining the quantity and trend of such releases, establishing emission levels in air quality standards, and setting toxic release control priorities. Currently, seventeen Mexican cities have their own inventories of fixed source emissions into the atmosphere.

⁷⁸ It must be pointed out that reference is made to regulations currently in force, which are yet to be amended in the light of the 1996 reform to the LGEEPA.

⁷⁹ D.O., 25 Nov. 1988.

⁸⁰ § 17 (II, IV, & V).

⁸¹ § 17 (VI).

4.1.2 Regulation under LGEEPA Regarding Hazardous Wastes.

This Regulation establishes a system requiring that statements and reports be filed in connection with the handling of hazardous waste, including activities that generate waste, the volume and type of waste transported, stored, recycled, treated or disposed of on a yearly basis, as well as of the companies involved in such activities. Thus, waste-handling statements provide the basic information needed to track down wastes, from their generation and shipment to their treatment and final disposal. Industry is required to maintain monthly records (manifests) pertaining to the generation, transfers, transport and final destination of hazardous waste within the national territory.

Specifically, industry must submit manifests for: a) hazardous waste generation; b) hazardous waste delivery, transportation and reception ; c) semiannual report on hazardous waste sent to recycling, treatment, incineration or confinement; d) semiannual report on hazardous waste received for recycling or treatment; e) monthly report on hazardous waste confined in final disposal sites; and f) manifests pertaining to spills, infiltration, discharges or flows of hazardous waste.

4.1.3 Regulation under the National Waters Act⁸²

Pursuant to the National Waters Act, industrial facilities must install and keep in good working condition metering devices and sampling ports used to verify that discharge volumes and pollutant concentrations conform to the parameters set forth in the discharge permits, and they must monitor the quality of discharged or leaching wastewater. Businesses are required to keep all monitoring records for at least three years.

Finally, industry is obligated to **report** to the CNA any changes in the industrial processes utilized, whenever such changes may alter the characteristics or volumes of wastewater that prevailed at the time the discharge permit was issued. In addition, industrial facilities must inform the CNA of any pollutants present in the wastewater they generate as a result of the industrial process used or the services carried out, that were not considered in the specific discharge conditions originally established.

4.1.4 Regulation of Noise Emissions⁸³

The Noise Emission Regulation does not impose measuring or recording duties on manufacturers. The only obligation contemplated is of a generic nature and related to providing competent authorities with the information that may be requested on excessive noise emissions, in accordance with the provisions of the law.

4.2 Industry participation

An outstanding example of Mexican industry participation in environmental compliance efforts is the **Environmental Protection and Industrial Competitiveness Program**, which constitutes a long-term commitment on the part of industry and the environmental authority to cooperation and promotion.

This Program was endorsed by Semarnap, the Confederation of Industrial Chambers (Concamin)⁸⁴ and the Secretariat of Commerce and Industrial Promotion (Secofi). The Program includes objectives, actions and commitments from the public sector as well as from the industrial sector, and it has generated a new interaction between Mexican environmental authorities and the industry. Highlights of the Program include:⁸⁵

- **environmental regulation and competitiveness**, seeking to develop a normative plan which promotes environmental efficiency and total quality in industrial processes, through a preventive approach and the

⁸² D.O. 12 Jan. 1994.

⁸³ D.O. 6 Dec. 1982.

⁸⁴ Concamin is a private organization with 67 associated chambers and 25 industrial associations. Its mandate includes the representation, defense and promotion of industry. Thus, it represents the interests of the industrial sector that generates 34% of the gross internal product, and employs 24% of the labor population.

⁸⁵ *Environmental Protection and Industrial Competitiveness Program*, at 118.

reduction of wastes and emissions, in the framework of a joint and agreed-upon effort toward long-term environmental standardization, and the analysis and design of economic instruments and incentives;

- **environmental self-regulation**, tending toward developing and encouraging industry initiatives and voluntary programs for environmental protection, through commitments regarding environmental audits, substitution of consumables, technological modernization, energy efficiency and recycling; voluntary environmental management systems will be promoted, and clean production will be encouraged;
- **environmental impact assessment**, seeking that micro and small industries and all the businesses located in industrial zones or parks, are regulated according to legislation and through Mexican Official Standards or other efficient instruments; environmental assessment will be applied only to large industrial projects of federal interest located in critical or environmentally sensitive areas;
- **administrative simplification and rationalization of the regulatory process**, aimed at the consolidation of the license and permit systems for industries, establishing the bases to fuse the required information about air emissions with the hazardous wastes generation reports; and
- **an environmental information system**, shared between industry and the authorities, that may direct decisions, document environmental processes and favor technological change.

When presenting this Program, the President of Concamin made two important assertions:

Though the government has the duty of verifying compliance with the law and to promote desirable action, discouraging undesirable ones, this cannot be done without everybody's cooperation. (...) In the transit toward sustainable development, more than ever, the participation of the private sector through mechanisms of dialogue and joint actions is required, since civil society has acquired the responsibility of perfecting the social organization and the market under state coordination.

And in relation to the enforcement of national legal norms, he emphasized:

...regarding environmental standardization and compliance, we will have to incorporate in our actions the expanded notion of sovereignty, not only in the sense of territorial and geopolitical dimensions, but that of the integrity of the territory and its biological diversity, human health and that of the ecosystems.

4.3 Voluntary Compliance Mechanisms

LGEEPA contains legal provisions allowing businesses to establish self-regulatory environmental processes to improve their environmental performance. According to section 38 of LGEEPA,⁸⁶ the Secretariat for the Environment, Natural Resources and Fisheries is responsible for:

I.- The development of adequate and environmentally friendly industrial processes, as well as that of environmental protection and restoration systems, agreed upon with industry, trade and other production activities, manufacturers associations, organizations representing a given geographical area or region, institutions devoted to scientific and technological research and other interested organizations;

II.- Compliance with voluntary standards or technical specifications relating to environmental issues, that are more stringent than the Mexican Official Standards or that cover aspects not addressed by such standards, which shall be established by common agreement with private parties or associations or organizations representing them. To this end, the Secretariat may promote the implementation of Mexican Standards in accordance with the provisions of the Federal Law on Metrology and Standardization;

III.- The establishment of certification systems for processes and products, in order to induce consumption patterns that are environmentally friendly or that may preserve, improve or restore the environment, subject to the applicable provisions of the Federal Law on Metrology and Standardization; and

IV.- Such other actions that may lead businesses to achieve environmental policy goals which surpass those contemplated under prevailing environmental laws and regulations.

⁸⁶ D.O., 28 Jan. 1988.

It is clear from the mentioned provisions that self-regulatory instruments in Mexico focus on **measures aimed at environmental improvement** (development of adequate and environmentally friendly production processes, as well as of protection and restoration systems) and **voluntary compliance mechanisms** (compliance with voluntary standards or technical specifications relating to environmental issues and certification systems for processes and products).

Two aspects must, however, be emphasized. First, section 38 is declarative but non-restrictive. This is to say that the list of self-regulatory instruments is not limited to those referred to in the Act, for subsection IV allows the undertaking of “such other actions that may lead businesses to achieve environmental policy goals which surpass those set under prevailing environmental laws and regulations,” such as tradeoffs and delegations.

Second, section 38 deals with self-regulatory instruments in a generic way, leaving the specifics to the Federal Government or the Mexican Official Standards.

For the purpose of making legal provisions operative, Semarnap set up the Environmental Protection and Industrial Competitiveness Program (*Programa de Protección Ambiental y Competitividad Industrial*). This special program involves long-term innovative changes dealing with deregulation and self-regulation aspects, with the aim of harmonizing the industrial sector and furthering its modernization according to international trends. This program recognizes that competitiveness is a key factor for economic growth, job creation and income growth in the country. Both industry and government have committed themselves, through the program, to promoting competitive development by implementing those technologies which are best suited to market conditions and environmental regulations.

According to the program, Mexico must provide businesses with opportunities for technological and process innovations which are environmentally friendly, while striving to achieve synergy between ecological regulation and competitive industrial development. This must be done through long-term concerted regulatory frameworks, self-regulation, administrative streamlining, support of technological innovation, decentralization and tax incentives.

The strategy also encompasses the promotion and implementation, by the private sector, of a new generation of voluntary standards devised by the International Standardization Office, the ISO 14000 series, which incorporates environmental management into total quality standards. These standards are increasingly gaining significance in the international arena, as they propose technological and administrative behavioral patterns aimed at pollution prevention, waste minimization and input substitution. The Environmental Program of the Federal Government considers that it is “extremely important to promote [these standards] and strive to get a growing number of businesses to adopt them, since they are more cost-effective than regulations unilaterally imposed by authorities.”⁸⁷

⁸⁷ According to the Secretariat of Trade and Industrial Development (Secofi), “the adoption of quality assurance standards by domestic companies, such as for example the ISO 9000, is just beginning.” In Mexico the number of certified businesses is slowly growing, but it is still very small in comparison with other countries. In 1994, certified companies totaled 3,960 in the United States, 870 in Canada and 85 in Mexico (according to estimates, the number of certified companies in Mexico in 1995 was around 150). “Increasing the number of businesses which implement quality systems of this nature is fundamental for the promotion of industry efficiency and the consolidation of the country’s export capabilities.”, *Industrial Policy and International Trade Program (Programa de Política Industrial y Comercio Exterior)* 103-104 (1995).

The 1997 National Standardization Program (*Programa Nacional de Normalización 1997*)⁸⁸ is aimed at promoting the development of voluntary NMXs which will be granted widespread recognition by industry and trade interests, as a self-regulatory mechanism for the business sector. As far as environmental issues are concerned, the development of the following voluntary standards is contemplated:

Technical Committee on National Standardization of Environmental Management Systems

Subcommittee 1. Environmental Management Systems

- Environmental management systems—Specification and user guidelines.
- Environmental management systems—General guidelines—Principles, systems and support techniques.

Subcommittee 2. Environmental Audits

- Environmental audit guidelines—General principles governing environmental audits.
- Environmental audit guidelines—Auditing procedures.
Part 1: Environmental management systems audit.
- Environmental audit guidelines—Environmental audit qualification criteria.
- Environmental assessment.

Subcommittee 3. Environmental Labeling

- Environmental labeling—Implementation program—Guidelines, principles, methods and procedures pertaining to the certification of multiple criteria programs.
- Environmental labeling—Environmental compliance self-statements—Terms and definitions.
- Environmental labeling—Symbology.
- Environmental labeling—Test and verification methods.
- Goals and principles of environmental labeling.

Subcommittee 4. Environmental Performance Assessment

- Environmental performance assessment—Assessment of environmental performance of the environmental management system and its relationship with the environment.

Subcommittee 5. Analysis of Life Cycles

- Environmental management—Assessment of life cycle—Guidelines and general principles.
- Environmental management—Assessment of life cycle—Inventory analysis.
- Environmental management—Assessment of life cycle—Impact assessment.
- Environmental management—Assessment of life cycle—Progress assessment.

Subcommittee 6. Terms and Definitions

- Environmental management—Terms and definitions.

Working Group 1

- Guidelines for the inclusion of environmental issues in product standards.⁸⁹

⁸⁸ D.O., 14 Apr. 1997.

⁸⁹ The Mexican Institute of Standardization and Certification (*Instituto Mexicano de Normalización y Certificación, A.C.*) is in charge of developing these NMXs.

In order for the implementation of international voluntary standards to become operative, programs aimed at encouraging the technological modernization of industry, and thus promoting environmental protection, have been devised.

This is the case of the Metropolitan Zone of Mexico City (ZMCM), where the Industrial Self-regulation Program Integrated to the Contingency Plan (*Programa de Autorregulación Industrial Acoplado al Plan de Contingencias*) was developed.⁹⁰ This program aims at bringing about more significant reductions in fixed source toxic releases into the atmosphere than those prescribed by law. The main objective is to issue voluntary compliance standards that set emission targets of nitrogen oxides (NO_x) and volatile organic compounds (VOC) at levels more stringent than those established under compulsory standards and to exempt those industries that comply with such standards from the provisions of the Environmental Contingencies Program.⁹¹

At the federal level, the first standards pertaining to the control of NO_x⁹² and VOC⁹³ were issued, thereby standardizing the two ozone precursor groups, as part of a wide-ranging package of standards that will cover several industrial processes and sectors. This will allow the introduction of voluntary contingency standards for NO_x and VOC emissions, which will be set at a certain percentage below that established by compulsory standards.

Based on the total volume of ozone precursors released into the atmosphere, a determination will be made as to what groups of companies (for example: those with monthly outputs under 5 tons) might be exempted from the provisions of Phase I of the Environmental Contingencies Program, provided that these voluntary standards are complied with.

With the integration of such standards into the Contingency Program, it is estimated that NO_x emissions will be reduced by 80% (through catalytic reduction with gas re-circulation) while VOC emissions will be curtailed by 90% (through catalytic incineration and vapor recovery). The overall reduction, in terms of tons, will depend on the significance of releases and the number of participating businesses. The goal is to reduce NO_x and VOC emissions by 6,600 tons and 6,900 tons per year, respectively, assuming that the 22 industrial facilities that are responsible for the highest release volumes of ozone precursors participate in the program.⁹⁴

Besides these compliance programs, other efforts have been made to promote self-regulatory measures. The National Institute of Ecology (*Instituto Nacional de Ecología*) has entered into self-regulation agreements with

⁹⁰ 1995–2000 Program for Improving Air Quality in Mexico City, Semarnap, Mexico City Government and State of Mexico Government (1996), at 148.

⁹¹ *Id.*, at 235–237. The *Environmental Contingencies Program* outlines the actions that are adopted in the ZMCM in the event that air pollution exceeds certain limits, thereby exposing the population to pollution levels that entail health hazards. The Program affects industries, since it mandates that activities be curtailed during atmospheric contingency periods by as much as 30% or 40%.

⁹² NOM-097-ECOL-1995, which establishes the maximum permissible levels of releases into the atmosphere of particulates and nitrogen oxides by glass manufacturing processes, in the country, D.O., 1 Feb. 1996. This NOM considers that industrial processes used in the manufacturing of glass, in Mexico, release significant amounts of particulate and nitrogen oxides which, besides contributing to atmospheric pollution, are precursors of secondary compounds such as ozone. This is why it is necessary to control them through the setting of maximum permissible limits in order to prevent, limit and reduce toxic releases, thus improving air quality and the well-being of the population. Under this NOM, the following zones are considered critical as a result of the existing high concentrations of pollutants in the atmosphere: the metropolitan zones of Mexico City, Monterrey and Guadalajara; the urban centers of Coahuila-Coahuila-Coahuila-Coahuila, in the State of Veracruz, Irapuato-Celaya-Salamanca, in the State of Guanajuato, Tula-Vito-Aspasco, in the State of Hidalgo, Industrial Corridor of Tampico-Madero-Altamira, in the State of Tamaulipas, and the Northern Border Zone.

⁹³ NOM-075-ECOL-1995, which establishes the maximum permissible levels of releases into the atmosphere of volatile organic compounds originating in the water-oil separators process in oil refineries, D.O., 26 Dec. 1995. In devising this NOM it was considered that, in their production processes, the domestic oil refineries use water-oil separators of various types which release significant amounts of volatile organic compounds that are precursors of secondary compounds such as ozone. This is why it is important to permanently control this type of release, by setting maximum permissible levels. The standard provides that at least 95% of volatile organic compounds (VOCs) must be controlled in water-oil separators, through the use of fixed or mobile roof covers. In each separator where covers or control systems are installed, for the purpose of preventing releases of volatile organic compounds into the atmosphere, industrial security aspects must be taken into account. Those responsible for the refineries must inform the Semarnap of any major maintenance work planned or unforeseen equipment breakdowns, and the estimated repair time.

⁹⁴ In addition, the 1997 Work Program of Semarnap, *supra* note 34 states that: “over 70 businesses from the Mexico Valley industrial sector committed themselves to respect the environmental self-regulation agreements subscribed with Semarnap. This means that they will voluntarily adhere to rules that are more stringent than the ones officially in force.”

various companies, calling for reduced toxic releases and improved environmental management. The agreements entered into include:⁹⁵

- *Grupo Industrial Bimbo* signed a self-regulation agreement calling for the reduction of toxic releases, the acquisition of monitoring equipment, and the intensification of the maintenance program and ecological training. A second agreement provides for the reduction and sound management of waste as well as the renewal of the motor vehicle fleet.
- *Grupo Coca Cola Femsa*, for its part, undertook to modernize its diesel-fueled vehicles and to voluntarily outperform the emission standard set in Mexican Official Standard NOM-045-ECOL-1996 by 30%.⁹⁶
- Detergent makers Colgate-Palmolive, *Fábrica de Jabón La Corona* and Procter & Gamble agreed to environmental self-regulation and set for themselves maximum permissible toxic release levels lower than the standard in force.

4.4 Environmental Audits

Pursuant to the LGEEPA, the environmental audits must include “undertaking a methodological scrutiny of operations carried out by facilities, with respect to the pollution and risk they generate, **as well as ascertaining the level of compliance with environmental regulations**, international standards and sound engineering practices, for the purpose of imposing such preventive and remedial measures which are deemed necessary for the protection of the environment.”⁹⁷ Thus, an environmental audit implies a systematic assessment of whether or not administrative procedures, production activities and commercial practices carried out by the audited company are adequate and consistent with legal obligations, institutional guidelines, standards and other applicable provisions governing environmental protection.

Within Profepa, the *Subprocuraduría* for Environmental Auditing (*Subprocuraduría de Auditoría Ambiental*) is the division responsible for this area. The policy followed by this *Subprocuraduría* in regard to such audits is intended to encourage private parties to come before Profepa and arrange for an environmental audit. The agreement between the authority and private parties is made official through two legal instruments: 1) Working Agreements, under the terms of which the audit is launched and the involved party commits itself to abide by its outcome; and 2) Ecological Compliance Agreements, subscribed to at the end of the audit for the purpose of setting out the appropriate preventive and remedial programs, as well as the implementation deadlines to be adhered to by the audited party. The deadline to comply with the programs is based fundamentally on environmental protection priorities as well as on the level of environmental compliance.⁹⁸

⁹⁵ 40 Ecological Gazette (*Gaceta Ecológica*), (Fall 1996), 5-6.

⁹⁶ This NOM was published on 22 April 1997, in the Official Gazette (*Diario Oficial*) of the Federation and contains more stringent specifications than those established in the previous standard, NOM-045-ECOL-1993, which has been repealed.

⁹⁷ LGEEPA § 38 Bis. The rest of this section states the following: “The Secretariat shall develop a program aimed at promoting the undertaking of environmental audits, and shall be able to supervise their execution. To this aim, it shall: I.- Set the terms of reference establishing the methodology to be followed when environmental audits are conducted; II.- Design a system for the approval and certification of environmental experts and auditors, stating the procedures and requirements to be met by those interested in joining the system, provided that the provisions of the Federal Act on Metrology and Standardization are complied with. To this end, it shall set up a technical committee made up of representatives from research institutions, professional colleges and associations and industry organizations; III.- Develop training programs for environmental inspections and audits; IV.- Establish a rewards and incentives program that will help to identify those industries which duly comply with the commitments arising from environmental audits; V.- Promote the creation of regional support centers for small and medium-sized industries, with the aim at facilitating the performance of audits in these sectors, and VI.- Expressly agree to or arrange for, with individuals and public or private corporations, the undertaking of environmental audits.”

⁹⁸ In those instances where the audited party is not able to fulfill the commitments set forth in the *Ecological Compliance Agreement*, Profepa may grant an extension, provided that the business satisfactorily proves that: a) it has not been able to start complying with its obligations for reasons beyond its control, or b) there have been delays in the implementation of the programs for the same reasons.

Performing environmental audits of those businesses which pose the greatest threat to the population or the environment is one of the main objectives pursued by Profepa. Whenever a facility is considered highly hazardous, is located in an environmentally fragile region, or significantly impacts on the environment, it may be subjected to an audit by Profepa. However, any business may be audited at any time. Currently, authorities try to devote their time and resources efficiently to those industries which represent a higher level of risk for the environment, public health and security. In addition, special emphasis has been placed on public sector industries. The environmental audit program has mainly focused on industrial activities deemed to be of high priority both in terms of the risk they pose and the significance of their participation in national exports. Large public sector corporations, such as Pemex, *Comisión Federal de Electricidad* and *Ferrocarriles Nacionales de México* are involved in the program, and so are private sector corporations such as *Cementos Mexicanos (Cemex)*, *Peñoles*, *Altos Hornos de México*, Nestlé, Ford Motor Company, *General Motors de Mexico*, *Nissan Mexicana* and other companies belonging to the chemical, textile, foodstuffs and leather industries, amongst others.

Nevertheless, the Environmental Program specifies that the environmental audit strategy “will be extended to all industries in general, particularly those which participate in trade flows that take place within the framework of free trade agreements, as well as those which, totally or in part, destine their production to export markets anywhere in the world.”⁹⁹ Thus, in the *1996–1997 Activity Report* of Semarnap is indicated that environmental audits will be performed in the automobile, petrochemical, chemical, mining, foodstuff and beverages industries, among the most prominent.

The results obtained by Profepa with respect to environmental audits are as follows: according to reports from Profepa, from 1992 to December 1997, 886 industrial facilities are inside the audit program in 31 states, of which 817 have been completed and 69 are still in progress. Regarding action plans, 330 are at the agreement stage, 332 are still in progress, and 155 have been complied with.

Once audits are completed, companies are subjected to a periodical follow-up for the purpose of verifying adherence to the provisions contained in the Ecological Compliance Agreements. This is a thorough follow-up, and the authority requires the industry to submit reports and copies of invoices to verify the acquisition of the agreed-upon equipment or materials, and to show the studies conducted, permits obtained, procedures, schedules, and all kinds of elements that prove compliance with the assumed commitments.

Once an industry complies satisfactorily with the technical specifications established in the action plans and has shown that it runs a permanent and specific program for environmental protection, Semarnap awards the **Clean Industry Certificate**. The main objectives of this certificate are: to protect the environment and promote the development of an environmental culture in industry; to distinguish those businesses that, through audits and compliance with the action plans, have accepted voluntarily the responsibility of protecting their employees, the neighboring community and the environment; and to encourage in consumers the habit of acquiring products manufactured by industries that observe good environmental practices in their production processes.

Of the businesses that have complied with the action plan, 115 have been awarded the Clean Industry Certificate. The certificate will be valid for one year and can be renewed for another year, subject to request of the industry and the result of a revision conducted by a specialized consultant who guarantees that the conditions under which the certificate was awarded are still in place or have been improved. Profepa has the right to cancel the certificate if the business fails to comply with the environmental legislation or the action plan resulting from the environmental audit.

⁹⁹ *1995–2000 Environmental Program*, Semarnap, 119.

Profepa highlights as an achievement of the environmental audit program the fact that no accidents have occurred in audited businesses.¹⁰⁰ In other words, where audits are performed, the level of environmental risk of an industrial facility is significantly reduced. That fact that virtually no accidents have occurred in the audited businesses means that the preventive approach of audits is working, and that risk and security issues are being dealt with adequately.

It is worthwhile underlining two of the additional advantages of environmental audits within the scope of compliance. Based on the experience of environmental authorities, Profepa can depend on some criteria for the development of compliance indicators. As a voluntary compliance mechanism, including non-regulated aspects, environmental auditing generates significant information that enables the agency to devise compliance indicators for each type of release and industrial sector involved. This is because the information resulting from an environmental audit has already been verified by the authority. It is not based on industry statements, or inspection visits that could be focused on a specific feature of an industry. The environmental audit goes through, in a very detailed and comprehensive way, all the production and administrative processes of a business, giving a comprehensive body of information. In addition to allowing for an integrated analysis of the prevailing conditions in the audited business, this procedure frees human and technical resources so that they may be allocated to inspection and enforcement tasks. Inspections now can be targeted to those industries which pose significant risks or which are not complying. Certainly, the benefit of environmental auditing is that it widens the maneuvering and action margin of environmental authorities

¹⁰⁰ Of the 817 finished audits, only in one industry did a fire occur, because of an electric short circuit. The risk of such an accident was noted among the urgent measures to be implemented by the industry, but the accident occurred before they could be put in place

Appendix A: List of Interviews

1. *Procuraduría Federal de Protección al Ambiente (Profepa)*
2. *Instituto Nacional de Ecología (I.N.E.)*
3. Lic. Aquilino Vázquez García, *Servicios de Consultoría Jurídica Ambiental*, Mexico City, Mexico

Annex 2

**United States Policy and Practice
with Indicators of
Effective Environmental Enforcement**

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Glossary of Acronyms

ACE	Any Credible Evidence Rule
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
ANSI	American National Standards Institute
CAA	Clean Air Act
Cal/EPA	California Environmental Protection Agency
CAM	Compliance Assurance Monitoring Rule
CBI	Compliance Biomonitoring Inspection
CEC	Commission for Environmental Cooperation
CEI	Compliance Evaluation Inspection
CEM	Continuous Emissions Monitoring
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CMA	Chemical Manufacturers' Association
CSI	Compliance Sampling Inspection
CWA	Clean Water Act
DEC	Department of Environmental Conservation (New York)
DEP	Department of Environmental Protection (several state agencies)
DEQ	Department of Environmental Quality (several state agencies)
DI	Diagnostic Inspection
DMR	Daily Monitoring Report
DTSC	California Department of Toxic Substances Control
ECOS	Environmental Council of the States
ELP	Environmental Leadership Program
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
ESAP	Environmental Self-Assessment Program
EPTDD	Enforcement Planning, Targeting and Data Division in OECA

FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FMF	Massachusetts Facility Master File
FOIA	Freedom of Information Act
FTTS	FIFRA/TSCA Tracking System
GAO	US General Accounting Office
GEMI	Global Environmental Management Initiative
GI	Geographic Initiative
GPRA	Government Performance and Results Act
HPV	High Priority Violator
HRS	Superfund Hazard Ranking Score
HWRP	Hazardous Waste Reduction Plan
IDEA	Integrated Data Enforcement Analysis database
IFG	Inspection Frequency Guidance
ISO	International Standards Organization
ITM	Inspection Targeting Model
LDF	Land Disposal Facility
LQG	Large Quantity Generator
MACT	Maximum Achievable Control Technology
M2P2	Multimedia Pollution Prevention Program (New York)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSWG	Multi-State Working Group on Environmental Management Systems
NEPPS	National Environmental Performance Partnership System
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollution Discharge Elimination System
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
OECA	EPA Office of Enforcement and Compliance Assurance
OIG	Office of Inspector General
PADEP	Pennsylvania Department of Environmental Protection
PAI	Performance Audit Inspection
PCI	Pretreatment Compliance Inspection

PCS	Permit Compliance System (water program database)
PIRG	Public Interest Research Group
POTW	Publicly-Owned Treatment Works
PPA	Performance Partnership Agreement
PSD	Prevention of Significant Deterioration
PSDB	Point Source Data Base (Texas air enforcement database)
QNCR	Quarterly Non-Compliance Reports
RCRA	Resource Conservation and Recovery Act
RCRIS	RCRA Information System (RCRA enforcement database)
RECAP	Reporting for Enforcement and Compliance Assurance Priorities
RI	Reconnaissance Inspection
SDWA	Safe Drinking Water Act
SEC	Securities and Exchange Commission
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO _x	Sulfur Oxides
SQG	Small Quantity Generator
STARS	Strategic Targeted Activities for Results System
TNRCC	Texas Natural Resource Conservation Commission
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage and Disposal Facility
TURA	Toxics Use Reduction Act (Massachusetts)
UST	Underground Storage Tank
WQ	Water Quality
XSI	Toxic Sampling Inspection

1 Introduction

1.1 Background

The objective of this paper is to document current and proposed policies and programs for the measurement, documentation and evaluation of environmental compliance in the United States. It consists of a review of government, industry and public initiatives to measure compliance, including the efficacy of the various compliance monitoring programs. The intent of this report is to review existing compliance measurement programs, to examine current use and evaluation of compliance data by the US Environmental Protection Agency (EPA) and state agencies in the context of their enforcement and compliance programs and strategies, and to characterize new trends in gathering and analysis of compliance monitoring information, including roles of industry and the public in compliance monitoring.

Compliance of regulated sectors with federal, state and local environmental requirements is crucial to the success of environmental management in the United States. Measurement of compliance, and of compliance trends, thus provides critical indicators of the success of federal, state and local environmental regulatory efforts. Because of the complexity of compliance monitoring and measurement and the resource limitations at all levels of government, there are a number of key issues. What should be measured/monitored, and by whom, in order to assure compliance and determine compliance levels and trends? What should be the frequency and thoroughness of these measurements? Who should determine the priorities?

Compliance monitoring and measurement in the United States is tied to the history of federal, state and local environmental regulations which developed during the last three decades. When severe environmental problems led to passage of major federal environmental laws in the late 1960s and 1970s, the result was the emergence of a federally-dominated system for defining regulatory and enforcement requirements and for monitoring the state of compliance. In 1970 the EPA was created as an independent agency in the Executive Branch of the US government, and was authorized by Congress to administer most federal environmental laws.¹ It consists of a headquarters staff and 10 regional offices. The major environmental laws which the EPA administers are the Clean Air Act (CAA),² the Federal Water Pollution Control Act or Clean Water Act (CWA),³ the Safe Drinking Water Act (SDWA),⁴ the Resource Conservation and Recovery Act (RCRA),⁵ the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund),⁶ the Emergency Planning and Community Right-to-Know Act (EPCRA),⁷ the Toxic Substances Control Act (TSCA),⁸ and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).⁹

Each federal statute and its accompanying regulations contain specific provisions regarding the EPA's authority to conduct inspections, to request information from regulated entities, and to pursue enforcement actions against persons who violate the law. In addition, many of the environmental statutes require regulated entities to provide compliance information through self-disclosure as the result of a company audit, or as the result of a citizen suit against a company for violating environmental laws.

¹ The Army Corps of Engineers administers the *Rivers and Harbors Act* and, in coordination with EPA, Section 404 of the *Clean Water Act*, 33 U.S.C. §§ 1251-1387 (1988 & Supp. IV 1994); the Department of Interior administers *inter alia*, the *Endangered Species Act*, 16 U.S.C. §§ 1531-1534 (1994), and the *Surface Mining Control and Reclamation Act*, 30 U.S.C. S. §§ 1201-1328, (1994); the Department of Agriculture administers the Swampbuster and Sodbuster programs; and the US Coast Guard administers, in coordination with the EPA, the *Oil Pollution Act*, 33 U.S.C. §§ 2701-2761 (1994).

² 42 U.S.C. §§ 7401-7671 (1990).

³ 33 U.S.C. §§ 1251-1387 (1988 & Supp. IV 1990).

⁴ 42 U.S.C. §§300f-300j-26 (1994).

⁵ 42 U.S.C. §§ 6901-6992 (1976).

⁶ 42 U.S.C. §§ 9601-9675 (1986 & Supp. IV 1994).

⁷ 42 U.S.C. §§ 11001-11050 (1986).

⁸ 15 U.S.C. §§ 2601-2692 (1997).

⁹ 7 U.S.C. §§ 136-136y (1988).

Increasingly, however, the preponderance of actual environmental management, enforcement and monitoring of compliance with environmental regulations occurs at the state level, because most of the responsibility for carrying out the statutory programs has been delegated to the states. Nevertheless, much of the decision-making which determines state priorities is guided by the EPA. EPA's oversight and control of the setting of many priorities for the state programs has been assured through a range of program-specific federal grants to the states, which involve agreements between the EPA's regional offices and state agencies on detailed work-plans. With respect to compliance monitoring, for example, these work-plans spell out, program by program, the number of inspections to be conducted and at what types of facilities.

While the EPA and the states administer federal environmental laws and determine levels of compliance, major opportunities for roles in compliance monitoring have also been established for industry and the public. For industry, numerous compliance monitoring requirements have been established, both statutory and regulatory, for self-reporting on discharges, emissions and releases. The public is encouraged to participate as a watchdog in compliance monitoring; varying degrees of information are publicly available, with technical support available to public organizations under some statutes.

Many of the patterns which have characterized federal-state relationships are now undergoing substantial change. The pattern of federal dominance is giving way to a system in which states and EPA regional offices will negotiate priorities, particularly with respect to compliance-monitoring priorities. At the same time, both the states and the EPA are experimenting with flexible approaches to companies which meet specified environmental criteria in order to allow regulatory flexibility in return for internal controls and public reporting which may lead to superior environmental results.

Although these changes are emerging rapidly and the states are working together to increase control over defining priorities, the patterns of the last two decades provide the starting point for understanding compliance monitoring and measurement in the United States. The following discussion will review past, current and emerging patterns of compliance monitoring as they involve federal and state governments, industry and the public.

1.2 Methodology and Organization

The research for this report was drawn from a variety of sources, including interviews, principally with EPA and state environmental agency officials; reports, policy documents, and studies from EPA, state environmental agencies, industry, public interest groups and academic sources; and on-line searches of EPA, state agency, public interest organization and other web sites.

The paper is divided into three main sections: Government Role in Compliance Measurement; Industry Role in Compliance Measurement; and Public Role in Compliance Measurement. These roles are not always clearly distinguishable, hence are characterized in terms of which entity plays the lead role with respect to the subject under discussion.

2 Government's Role in Compliance Measurement

2.1 Overview

As previously outlined, while there are important general patterns and discernible trends in the measurement of compliance in the United States today which extend across the media-specific and other environmental management programs, whether state or federal, it is also important to recognize the differences which result from the separate statutory origins of those programs. In addition, because of differing state priorities and, in some cases, substantial environmental programs which pre-date the major federal statutes, some significant variations also result from the differing philosophies between and within the various federal and state environmental protection programs. Some states also have significant state environmental statute requirements which they monitor in addition to federal requirements, e.g., solid waste regulatory requirements in several states, non-federal hazardous waste rules in states such as California and Washington, or Massachusetts' Toxics Use Reduction Act.¹⁰

EPA's enforcement programs have developed some common approaches and focuses for determining and tracking environmental compliance by regulated facilities: for example, differentiating categories of significant non-compliance for special attention and tracking, or targeting more frequent compliance inspections to facilities designated as major sources of pollution. The compliance monitoring and assessment strategies of the various media programs (air, water, solid/hazardous waste) nonetheless remain distinct and separate due to the fundamental dissimilarities in their underlying statutes. Differences in approaches to characterizing and measuring compliance exist not only between programs, but the actual determinations of compliance at the state level can vary substantially within programs. Some state inspection and enforcement programs, for example, appear far less likely than others to regularly track non-compliance or to take enforcement actions, choosing instead to emphasize working informally with out-of-compliance facilities to correct the violations.

EPA's Office of Enforcement and Compliance Assurance (OECA) is currently undertaking efforts to link information about facility, company, and sector compliance across programs, and to ascertain where state programs appear to have unusually low non-compliance rates. This is part of an effort to provide more coherent and useful information regarding the state of compliance for those responsible for targeting efforts to improve compliance—whether through formal inspection/enforcement processes or through compliance assistance. At the same time, however, there is an increasing trend toward decentralization of compliance measurement and environmental management generally (e.g., through Performance Partnership Agreements), providing the states with greater authority in determining their own priorities and objectives.

This section will discuss in more detail US governmental environment compliance measurement strategies under the following topics: federal and state roles in measuring compliance; systems and methods for determining compliance; criteria for determining the seriousness of non-compliance; systems or methods for recording compliance data; encouraging voluntary self-monitoring of compliance; and future directions, including efforts to broaden the scope of compliance data.

2.2 Federal and State Roles in Measuring Compliance

2.2.1 *Federal and State Responsibilities for Federally-Mandated Programs*

In the United States, environmental protection is undertaken at all levels of government: local, tribal, state and federal. Federal law establishes minimum standards designed to protect the environment and human health and safety. These minimum federal standards ensure that no matter where in the country a regulated entity is located, that entity will be subject to the same federal rules and regulations. This helps ensure a level playing field nationally between businesses. In addition to the minimum federal standards, states may—and often do—impose more stringent standards. Thus, while baseline programs achieve national uniformity, the added wrinkles of more stringent

¹⁰ MA ST 21I §§ 1–23.

state standards, as well as the existence of unique state environmental statutes (laws with no counterpart at the federal level) tend to make the playing field slightly more undulating.

Although EPA is ultimately responsible for administering most environmental laws, the principal statutes EPA administers, such as the Clean Air Act (CAA),¹¹ the Clean Water Act (CWA),¹² the Safe Drinking Water Act (SDWA),¹³ and the Resource Conservation and Recovery Act (RCRA),¹⁴ allow states to administer parts of the statutes if the states adopt federal standards as their minimum standards. In addition, states have many of their own environmental laws which they operate independently of federal law. If a state is administering a federal environmental program, both the state and EPA have the authority to ensure compliance with the law. States with programs approved by the EPA implement the programs, including the permitting, compliance and enforcement aspects. If a state is not approved to administer a program by the EPA, the implementation role is undertaken by one of EPA's Regional Offices. A substantial portion of the funding for administration of the state-delegated programs is received from EPA in the form of grants, though the actual proportion of federal vs. state funding varies substantially from state to state.

In a recent memorandum,¹⁵ the core EPA functions in the areas of compliance and enforcement were identified as the following:

- setting national priorities;
- monitoring compliance on a national basis;
- assuring national consistency in the implementation and enforcement of federal environmental requirements;
- taking enforcement actions against corporate violators in significant non-compliance at facilities in several states, or where states do not address particular violations;
- offering incentives for violators to come into and remain in compliance;
- conducting compliance assistance for high-priority sectors and federally-implemented programs; and
- evaluating state performance.

In the same memo, Mr. Herman states that the two key roles for EPA in compliance monitoring are to:

1. develop and enhance tools for states and EPA to use in identifying patterns of non-compliance and conducting risk-based targeting; and
2. develop and maintain compliance monitoring systems and enforcement response policies to guide national civil/criminal enforcement programs.

2.2.1.1 EPA Organizational Structure

The EPA has a central headquarters and 10 regional offices. In October 1993, EPA reorganized the Agency's compliance and enforcement programs, consolidating and strengthening compliance and enforcement functions in one central office, the Office of Enforcement and Compliance Assurance (OECA). One of the key features of the new structure is an Office of Compliance organized by commercial sector, rather than by media, with an emphasis on

¹¹ 42 U.S.C. §§ 7401–7671 (1990).

¹² 33 U.S.C. §§ 1251–1387 (1988 & Supp. IV 1994).

¹³ 42 U.S.C. §§ 300f–300j-26 (1994).

¹⁴ 42 U.S.C. §§ 6901–6992 (1976).

¹⁵ Memorandum from Steven A. Herman, Assistant Administrator of OECA, to Regional Administrators, *Core EPA Enforcement and Compliance Assurance Functions* (Feb. 21, 1996).

tracking sector compliance and providing sector-based compliance assistance. In a memo outlining the reorganization, EPA Administrator Carol Browner, stated the following with respect to the strategic role of the Office of Compliance:

One of the key delivery mechanisms for sector strategies will be a new Office of Compliance. Working closely with the other OECA offices, other programs, and the Regions and states, this office will have the lead role for enforcement strategic planning (including targeting for ecosystem protection and environmental justice), inspection targeting, data management and integration, compliance monitoring, and compliance assistance. As reflected by the proposed divisional structure for this office, the strategic vision for enforcement will be fed by integrated enforcement data and driven by a combination of sector, ecosystem and population-based planning.¹⁶

In EPA's statement¹⁷ of enforcement and compliance assurance priorities for FY 1996, it states that:

The Office of Compliance is responsible for building an OECA-wide consensus on enforcement and compliance sector priorities. Headquarters and regional offices incorporate these priorities into their annual planning, generally through the Memorandum of Agreement (MOA) process.... The three national priority sectors (for FY 1996) are petroleum refining, dry cleaning, and primary non-ferrous metals, for which both enforcement and compliance assistance initiatives are underway.... In addition to the three national sectors, OECA and the regions have identified fourteen additional high-risk sectors that will receive priority attention (in FY 1996). These include: industrial organics, iron and steel, municipality Combined Sewer Overflows/Sanitary Sewer Overflows (CSOs/SSOs), agriculture practices, plastics and synthetics, auto service repair, printing, mining, coal-fired power plants, pharmaceuticals, high chemical releases, electronics, metal finishing, wood products, and boilers and industrial furnaces.

2.2.1.2 State Organizational Structures

States have set up their own bureaucratic structures to handle their varying federal environmental responsibilities as well as their own state environmental laws. These structures vary greatly from state to state. In many states where the primary environmental management agency was established subsequent to the creation of EPA, the design of the state system mimics the federal bureaucratic organization, with offices organized by program: air, water, toxics and hazardous waste.¹⁸ These offices may have regional offices or districts within the state to which are delegated certain activities. Some states delegate portions of programs to the local level of government (i.e. counties, municipalities, regional air or water boards, etc.). California, discussed below, is an example of one state with a highly decentralized system and considerable delegation to the local level.

Either for historical reasons or because of more recent efforts to reorganize the environmental agency to meet more effectively the implementation needs of changed state priorities, some states have unique organizational structures. Among the examples:

- Washington State Department of Ecology is organized around key state industry sectors (aerospace, pulp & paper, cement, etc.), rather than by media.
- Massachusetts has an integrated, multi-media organizational structure; inspections, rather than being carried out on the single-media basis common for most state programs, follow a multi-media protocol negotiated between the Massachusetts Department of Environmental Protection (DEP) and EPA.
- California is an example of a highly decentralized structure. While California created a central state agency, Cal/EPA, a few years ago, compliance measurement and analysis activities take place at multiple levels. Regulation of air pollution, for example, is assumed by 34 different local Air Boards which operate autonomously, with their own unique rules and policies within the general requirements established by EPA and Cal/EPA. These Air Boards may span several political boundaries such as counties, cities, or towns and may cut across others. California's water concerns are handled by nine

¹⁶ Memorandum from Carol Browner, EPA Administrator, to *All Employees, New Strategic Enforcement Organization* (Oct. 12, 1993).

¹⁷ Steven A. Herman, "EPA's FY 1996 Enforcement and Compliance Assurance Priorities", *Nat'l Envtl Enforcement J.* (Mar. 1996).

¹⁸ Many of the delegated responsibilities under the FIFRA program are commonly managed by state agricultural departments.

different Water Resources Control Boards. Regulation of hazardous waste management, site restoration activities, pollution prevention and waste minimization promotion is undertaken by the Department of Toxic Substances Control (DTSC), a part of Cal/EPA, with its headquarters staff and 4 regional offices; but much of the actual inspection and enforcement activities are the responsibility of local governmental units, such as county health departments and fire marshals.

2.2.2 Differences in Environmental Priorities between States and Federal Government

In the United States, environmental problems and environmental priorities vary dramatically among states and regions. For example, in California the greatest concerns are with air quality and drinking water. Other states in the west (e.g. Nevada) are concerned with nuclear and hazardous wastes because they have become dumping grounds for these substances. Agricultural runoff and pesticide contamination are the greatest water problems in the Midwest, with hazardous and solid waste problems also being of concern. The Great Lakes region is faced with the challenges of groundwater contamination, agricultural runoff, and aging nuclear facilities, as well as by zebra mussels which block intake systems at water treatment plants. The industrial Northeastern United States has problems with non-point and point source water pollution, and with the effects of smog and acid rain. In the Atlantic States, the protection of bays and estuaries is a top priority, while in Florida, where the water table is so high all pollution affects drinking water, control of agricultural runoff is a primary concern.

While federal statutory requirements are imposed on the diverse industries, natural environments and political cultures of the states, actual implementation of compliance monitoring for federally-based requirements necessarily varies substantially with these differences. The development of the National Environmental Performance Partnership System (NEPPS) to increase the extent to which states can establish their own priorities for compliance monitoring and other environmental management activities in implementing the federally-mandated programs reflects these disparate state and regional situations. In cases where there are strong local environmental programs and agencies, there may be similar divergences between various local implementation practices within the state.

Where states have significant environmental requirements beyond those mandated federally, monitoring and measurement resources are also allocated to determining compliance with those statutes. In Massachusetts, for example, DEP inspections include review of compliance with the state's Toxic Use Reduction Act (TURA) requirements.

In addition to differences in environmental problems and priorities, states and regions have differing economic and political considerations from the nation as a whole, which affect the implementation, level of enforcement and compliance with environmental laws. So although one of the goals of EPA's enforcement and compliance assurance program is to bring about "full compliance with laws intended to protect human health and the environment",¹⁹ the reality is that individual states and regions have limited budgetary resources. As a result, each region or state gives priority to the environmental problems it considers most pressing in its compliance and enforcement activities. In addition, as a practical matter, regional and state regulators may take into consideration economic and political conditions within their jurisdictions when deciding how much of their limited resources to allocate to compliance activities for a specific facility or for a sector.

2.2.3 Federal and State Roles in Discovering Non-Compliance

Because both federal and state agencies have jurisdiction over environmental matters, it is hard to make generalizations about which level of government is responsible for specific compliance and enforcement activities throughout the United States. However, in most US environmental programs, compliance and enforcement activities take place primarily at the state and local level. The Clean Air Act gives the EPA the authority to set and enforce national standards to protect human health and the environment from polluting air emissions. Air

¹⁹ EPA, *EPA Strategic Plan*, EPA/190-R-97-002, at 56 (19).

compliance and enforcement at the federal level is carried out largely by the regional offices, which delegate portions of these responsibilities to the states. Most RCRA and CWA inspections and enforcement activities are also undertaken by the states. The regional EPA offices perform inspections and enforce when the state is not delegated for a specific program or portion of the program. In addition, EPA regional offices perform inspections, either independently or jointly with the states, at selected high priority facilities.

The EPA's Office of Enforcement and Compliance Assurance (OECA) has the responsibility for ensuring that the Regions enforce federal environmental laws. To facilitate this effort, OECA and the regions craft detailed Memoranda of Agreement (MOAs) which specify the compliance and enforcement activities the region and its states agree to undertake. These MOAs include information on the number of inspections to be undertaken by the regions, as well as the sectors expected to be targeted specifically for compliance activity. They also contain agreements about the measurement of compliance and enforcement activities.

A major new focus is to try to measure the environmental **impact** of compliance and enforcement activities, in addition to the practice of counting the number of compliance and enforcement activities (e.g. the number of inspections, number of cases completed) that have occurred in the previous Fiscal Year. For example, EPA's new Case Conclusion Data Sheets require compliance and enforcement personnel to attempt to quantify volumes of waste, emissions, discharges, etc., avoided through successful completion of enforcement actions.

2.2.4 The National Environmental Performance Partnership System (NEPPS) and Performance Partnership Agreements.

In 1995, in order to recognize and accommodate the differences in environmental problems and priorities among the states, and to address the problems inherent in the media grant process, the EPA and State Environmental Commissioners joined to establish a National Environmental Performance Partnership System (NEPPS) as a framework for individual Performance Partnership Agreements between the states and EPA. These Partnerships establish a new working relationship whereby the states determine their overall environmental priorities, and the EPA and the states negotiate, on an annual basis, the compliance and enforcement work which will be required and how it will be carried out.

One of the key outcomes of Performance Partnership Agreements is that states now can combine two or more single-media grants into a single Partnership Grant. Such flexibility allows the state to set its own goals according to its priorities and needs, and to allocate resources accordingly. It also reduces the time spent on administrative and managerial oversight activities. One of the challenges of this initiative, however, is how best to achieve a balance between flexibility and accountability. The key to this will be finding better ways to inform and involve the public. To be successful, the Performance Partnership Agreements should fully reflect the environmental concerns and interests of the community, and inform the public regarding compliance progress.

Over half of the states negotiated Performance Partnership Agreements for 1997.²⁰ The Performance Partnership process begins with a comprehensive assessment of a state's problems and conditions so that the state can: 1) propose environmental and public health objectives; and 2) develop an action plan as a basis for negotiating an annual agreement with EPA. The major components of an Agreement include: environmental goals and indicators; environmental performance agreements; measures of program and environmental performance; public involvement; and joint system evaluation. The annual agreement includes specific roles for EPA and the state, including how EPA's oversight will be reduced in those areas of strong performance.

As part of the continuing effort to fulfill the NEPPS undertaking, the EPA and the Environmental Council of the States (ECOS) have developed core performance measures for FY 1998 which can be incorporated into individual state/EPA agreements, and which provide a basis for tracking EPA and state progress. These core

²⁰ EPA, *Performance Partnerships*, 100-F-96-024 (June 1997).

performance measures have been developed for each major program area. The measures for enforcement and compliance assurance include:

1. Outcome measures:
 - rates of significant non-compliance by industry sector and media;
 - percent of significant violators in each media that have new or recurrent significant violations within 2 years of receiving a formal enforcement action;
 - environmental and public health benefits achieved through inspection or enforcement activities; and
 - results or impact of using state audit privilege or immunity law, state audit policies and state compliance assistance policies and initiatives for small businesses or particular sectors.
2. Output measures:
 - number of inspections conducted, and percentage of total universe of regulated sources inspected in MOA priority areas;
 - enforcement activity initiated, by program;
 - average number of days for significant violator cases to return to compliance or to enter enforceable compliance agreements; and
 - enforcement activity concluded, by program, including penalty amounts for each category of action.

The joint EPA/ECOS memorandum explains that the core performance measures can be used by both the EPA and the states to track performance and to explain accomplishments to the public, and by the EPA to meet the requirements of the Government Performance and Results Act (GPRA).²¹

2.3 Systems and Methods for Determining Compliance

Overall, both federal and state compliance assurance systems depend on on-site inspections by federal or state (and sometimes local) officials to determine if facilities are complying with federal and state environmental regulations. The water program is the one area where self-reported data, in the form of Discharge Monitoring Reports (DMRs), play a larger role than inspections. Parts of the other media programs also tend toward a reliance on self-reported data. For example, electric power-generating utilities must use continuous emission monitoring (CEM) to demonstrate compliance with certain aspects of the Clean Air Act; and hazardous land disposal facilities, which are required to conduct groundwater monitoring, must submit quarterly and annual monitoring reports to demonstrate that no hazardous constituents have leaked into aquifers due to their waste handling and disposal activities.

The following sections discuss in more detail the role inspections, self-reported data and statutory information requests play in compliance assessment programs. Not every program is profiled. For example, detailed information on air inspections is provided as an illustration of the range of activities conducted under different inspections. Each program has its own specific inspection requirements and accompanying guidances. The section is not meant to be comprehensive as to program-level details.

²¹ Memorandum from Fred Hansen, Deputy Administrator, EPA, and Harold Reheis, President, ECOS, to Senior EPA and State Environmental Officials, *FY98 Core Performance Measures* (Aug. 20, 1997); Memorandum from Carol Browner, Administrator, EPA, *et al.*, to Senior EPA and State Environmental Officials, *Joint Statement on Measuring Progress Under the National Environmental Performance Partnership System* (Aug. 14, 1997).

2.3.1 Inspections

2.3.1.1 Role of Inspections

In the air pollution field, on-site inspections remain the most important source of compliance information. Nevertheless, with changes in the Clean Air Act and advances in monitoring technologies, self-monitoring and reporting are now gaining ground. Inspections, long the backbone of EPA and state compliance programs, are designed to:²²

- assess the compliance status of air pollution sources and verify proper self-monitoring and reporting;
- detect and document violations;
- collect evidence to support enforcement actions;
- identify environmental problems and provide information on ways to maintain—and go beyond—compliance; and
- determine whether compliance orders have been carried out.

While these are the principal purposes of inspections, other functions include:

- obtaining data to support the issuance of permits;
- oversight (in the case of federal inspectors) of state air programs;
- providing information to assist compliance and technology transfer (including pollution prevention alternatives); and
- providing a presence in the regulated community to deter violations.

To date, the RCRA program, at both the federal and delegated state level, has relied on traditional compliance monitoring tools and techniques (including inspections). According to a 1990 EPA program-wide study of RCRA,²³ this may not be the most effective means of evaluating the compliance status of facilities. RCRA relies heavily on on-site inspections, yet due to resource limitations and the extremely large number of entities in the RCRA-regulated universe,²⁴ inspectors can only visit a small percentage of facilities in any given year. It is estimated that only about one-third of all hazardous waste generators has ever had even a single RCRA inspection. Traditionally, the program uses inspection resources to focus on treatment, storage, and disposal facilities (TSDFs), which due to statutory requirements, must be inspected not only every two years, but also whenever they receive significantly different types of hazardous waste or Superfund waste. The result is that many TSDFs are inspected repeatedly, even if they have been and continue to stay in compliance.

As mentioned earlier, at the national level the water program relies less on inspections and more on self-reported data as the first step in determining compliance. However at the state and local level—especially in the pretreatment program for Publicly Owned Treatment Works (POTW)—on-site inspections play an essential role. Many POTW inspectors get to know the industries in their service area very well, and some—either working alone, or within the context of an innovative POTW program—use these established relationships to promote pollution prevention. Massachusetts was one of the innovators in this regard, with its ground-breaking Blackstone

²² Arnold Reitze Jr. and Carol S. Holmes, “Inspections under the CAA”, *Environmental Lawyer* (Sept. 1994).

²³ US EPA, *The Nation’s Hazardous Waste Management Program at a Crossroads: the RCRA Implementation Study*, EPA/530-SW-90-069 (July 1990).

²⁴ Nationwide, the United States has over 120,000 hazardous waste handlers: 81% (97,800) are waste generators; 14% (16,500) are waste transporters; and less than 5% (5,700) are waste treatment, storage, and disposal facilities (TSDFs). All are regulated by RCRA. There are also over 1 million underground storage tanks (USTs) in the RCRA program.

Project which utilized teams of inspectors not only to assess compliance within a multi-media framework, but to provide both regulatory compliance assistance and pollution prevention technical assistance.

2.3.1.2 Types of Inspections

The EPA has three general categories of inspections within its air program. Most states follow this model. The three types of inspections are:²⁵

1. *Walk-Through Inspection*. The inspector checks the existence of pollution control equipment, observes work practices, and determines if records are available. This may be used as a screening tool for a higher level inspection.
2. *Compliance Evaluation Inspection (CEI)*. This category of inspection involves record review and evaluation, personnel interviews, and review of monitoring methods and data.
3. *Sampling and Measurement Inspection*. This may involve pre-planned sample collection, such as stack testing and is resource intensive because it requires significant pre-inspection preparation and planning, as well as post-inspection analytical work. It is used mostly for development of evidence in building enforcement cases.

At present, the EPA's Clean Air Act Compliance and Enforcement Guidance Manual specifies five levels of air inspections. Level 0 is a simple drive-by and can only be used to check on opacity of smokestack emissions. Level 1 is a walk-through performed on-site, but is limited to simple observations (e.g., visible emissions, odors, presence of new emission points). Neither is adequate for determination of compliance. The minimum acceptable compliance inspection is a Level 2, or CEI, discussed above. The last two, Levels 3 and 4, involve measurement of pollution control device parameters and actual sampling of emissions (e.g., via a stack test).

Under the National Pollution Discharge Elimination System (NPDES) program,²⁶ there are two basic ways EPA and state personnel evaluate the compliance status of permitted facilities: compliance reviews and compliance inspections. Compliance reviews involve the review of records, including Daily Monitoring Reports (DMRs) submitted by the facilities. This method is discussed in more detail in Section I.B of the program. Compliance inspections are conducted on-site at a NPDES permitted facility. They arise from the routine compliance review process, which is used as a screening tool to determine who should be inspected. The types of NPDES compliance inspections are:

- Reconnaissance Inspection (RI)—a preliminary overview of compliance consisting of a brief visual inspection;
- Compliance Evaluation Inspection (CEI)—a non-sampling inspection to verify permittee's compliance which forms the basis for other, more intensive inspections;
- Compliance Sampling Inspection (CSI)—a CEI, plus effluent sampling;
- Toxic Sampling Inspection (XSI)—a CSI that focuses on toxics and may also look at upstream toxic inputs in raw materials, process operations, etc.;
- Performance Audit Inspection (PAI)—a CEI, plus extensive procedural review of the permittee's self-reporting program;
- Compliance Bio-monitoring Inspection (CBI)—a CEI, plus toxicity testing via bioassay techniques;
- Pretreatment Compliance Inspection (PCI)—reviews a POTW's pretreatment program and may be supplemented with inspections of POTW industrial users; and

²⁵ Reitze, *supra* note 22.

²⁶ EPA, NPDES, *Compliance Monitoring Inspector Training Handbook*.

- Diagnostic Inspection (DI) – performed at a municipal treatment facility that fails to achieve compliance with NPDES permit limits or which is experiencing design or operational problems.

2.3.1.3 Targeting Strategies for Inspections

Targeting strategies vary by region, state and local area, as well as by program. Generally, EPA provides federal guidance in the form of Program Plans, which may change annually or every two years. Regions implement the guidance by negotiating program-specific work-plans with the states and incorporating them into official Memoranda of Agreement (MOAs). The MOAs specify who gets inspected, when, at what level, and how often. Some programs have more flexibility than others in defining the inspection targets.

The RCRA program requirement to inspect hazardous waste Treatment, Storage, and Disposal Facilities (TSDFs) once every two years is a statutory one which cannot be modified via guidance or Memoranda of Understanding (MOUs). The resources committed to RCRA TSDF inspections in any given Fiscal Year reduce the resources available for inspections of hazardous waste generators (especially small quantity generators [SQGs]) or transporters. Traditionally, these segments of the RCRA-regulated universe are rarely inspected. However, with the new Performance Partnership Agreement (PPA) process, increased flexibility can be built in to allow states to do more SQG/transporter inspections, because they can now borrow funds from other program areas (whereas, in the past, grants were designated to particular programs and money could not be pooled and then allocated according to priority and need). It should be noted, however, that the RCRA program has provided some flexibility in recent years, allowing states to prioritize SQG inspections over LQG inspections when the states identify specific priority compliance objectives. Oregon's Department of Environmental Quality (DEQ), for example, conducted a "blitz" program of compliance assistance inspections of all the SQGs in the state's two major industrial regions. Allocation of hazardous waste inspection resources to this project required agreement with Region 10 on changes to inspection priorities.

In the air program,²⁷ selection of sources for inspection usually follows one of four techniques:

- the Inspection Targeting Model (ITM);
- another quantitative analytical tool;
- qualitative rankings; or
- Inspection Frequency Guidance (IFG).

The ITM is a model for the personal computer that determines priorities using state-generated data on plant emissions, compliance information, and air quality. A state may develop its own alternative quantitative model or qualitative ranking methodology, subject to EPA approval. The IFG approach may be used as an interim tool for determining inspection commitments, while other more structured tools are being developed. IFG balances the need of national databases with limited resources of states and local agencies. With the arrival of the Title V permitting program, larger portions of already stretched state and local inspection resources will now be devoted to compliance assessment of Title V facilities, with less resources available to inspect minor air emission sources or area sources. EPA has identified as a priority for its FY98-99 guidance, however, compliance assessments of synthetic minors—facilities which have agreed to restrictions on their operations in order to fall within the Title V category.

2.3.1.4 Adequacy, Effectiveness and Consistency of Inspections as a Mechanism for Assessing Compliance

There are a number of pros and cons to using inspections as a means of compliance assessment. Over-reliance on inspections can lead to shortcomings in a compliance monitoring program. Inspections constitute an assessment of compliance for only one point in time, rather than a measurement of continuous compliance—a limitation which many inspectors regard as particularly significant when inspections are announced prior to the inspector's arrival.

²⁷ Reitze, *supra* note 22.

Criticism of inspections as a tool for measuring compliance tend to center on problems with over-rigidity and with inspections fostering a bean-count mentality. Inspector turnover and training are also a concern. A 1987 General Accounting Office (GAO) audit of the RCRA inspection program cited lack of training as a major factor contributing to poor inspector performance, and a 1990 EPA study found the average RCRA inspector had only two years of experience.²⁸

Nevertheless, for most environmental statutes, inspections remain the most important compliance tool available. In circumstances where a state makes a determination not to take an enforcement action under federal law, this does not preclude EPA from instituting action to enforce. So, while some states are inconsistent in their use of violation information generated from inspections, EPA may undertake enforcement.

The advantages of inspections are: 1) they have been the most reliable determiners of compliance status; and 2) inspectors can function as good compliance assistance providers, given the appropriate authority and training.²⁹ Being close to industry, they can develop strong relationships and foster mutual understanding. There will always be a place for inspections in compliance monitoring and measurement, but inspection programs need to be provided sufficient flexibility to take initiatives to inspect facilities often not captured in the traditional compliance monitoring network, or to target sources of the most serious environmental problems.

2.3.1.5 Innovations/Trends in Inspections

While the traditional federal-state relationships have tended to emphasize repeated monitoring of those sources defined by EPA as being “major” sources of pollution, there have been a number of state initiatives to target compliance monitoring of other sources which may be of major importance to the state. In addition, EPA is also identifying mechanisms to focus resources on specific problems.

The Massachusetts Department of Environmental Protection (DEP) has a state-wide, pollution prevention-based approach to compliance and enforcement called Waste Prevention Facility-wide Inspections to Reduce Sources of Toxics (FIRST). All environmental inspections throughout the state are pollution prevention-based, process-centered, multimedia, and facility-wide. The inspections are based on a protocol developed jointly by DEP and the EPA, designed to ensure that all national guidance is considered within the multimedia inspection framework.

Under Compliance Assurance Demonstration Grants from the EPA in 1995 and 1996, DEP has conducted approximately 1,000 multimedia inspections per year, with reductions in inspections of traditional EPA priority targets (generally the largest sources), and increased targeting of state-identified priorities (e.g., sectors with historically high rates of non-compliance, facilities in geographically sensitive areas, facilities managing substances with high toxicity). Two interesting results of this approach have been that the non-compliance rates have been substantially higher at state-targeted facilities than at EPA-targeted facilities, and that there have been high rates of facilities found to have violations in more than one media program (20% in 1995, 40% in 1996). Specific sectors targeted by DEP include printers, photo processors and fuel dispensers.³⁰

New York Department of Environmental Conservation (DEC) has developed a multimedia pollution prevention (M2P2) program, targeting inspection resources on the largest 400 facilities, responsible for about 95% of New York’s waste generation and/or Toxic Release Inventory (TRI) releases. In each of DEC’s nine regions, staff

²⁸ EPA, *The Nation’s Hazardous Waste Management Program at a Crossroads*. (July 1990).

²⁹ A study of the field practices of inspectors in New York state showed that many inspectors frequently fulfill an assistance and information role in the course of their work, even if not in the context of a formal compliance assistance program. Their approach often depends on the characteristics of the facility and the attitude towards compliance of the facility owner/operator. “While inspectors generally follow the formal controls, they also solve a broader array of problems. They are both ‘cops’ and ‘advisors,’ supplementing their police role with an advisory role.” Martin Spitzer, *The Dynamics of Environmental Inspections and Enforcement: Pollution Prevention and the Resource Conservation and Recovery Act (1992)* (unpublished thesis, State University of New York (Buffalo)).

³⁰ Massachusetts DEP Bureau of Waste Prevention, *An Evaluation of the Massachusetts Compliance Assurance Demonstration Grant* (Apr. 1997).

selected at least ten percent of the 400/95 Program facilities located in their region to focus on in the first year of the program. The criteria (developed by NY DEC headquarters) included TRI and hazardous waste generation data, applicability of New York's pollution prevention facility planning requirements, location of sensitive receptors, public concern, ongoing enforcement, compliance records and other factors.

For each of the designated facilities, the region selects a facility coordinator and a multimedia team. The teams then design and carry out comprehensive, in-depth multi-media inspections. DEC developed cross-program training for inspectors so that they are broadly educated in the other media for which they have not previously been responsible. Inspectors doing M2P2 inspections will be acquainted with pollution prevention planning requirements so that they can review the facility plans (HWRPs) stored on-site as part of their inspections.³¹

Washington's Department of Ecology has initiated a series of compliance assistance inspections, or "Sweeps," of selected industry sectors—primarily sectors such as automotive repair and printing, involving many smaller facilities. The first of the shop sweep campaigns focused on automotive repair hazardous wastes. The goal of the shop sweep campaign was threefold: 1) education—to help the Department of Ecology and local governments understand the complexities of day-to-day management of automotive hazardous wastes; 2) compliance—to help the automotive repair industry understand and voluntarily comply with hazardous waste requirements; and 3) pollution prevention—to promote waste reduction and recycling as a compliance and environmental quality tool. The idea was to conduct numerous on-site shop visits that would be short, basic, and to-the-point, while disseminating easy-to-read educational materials targeted to a variety of auto shop specialties. Shop sweeps streamlined the conventional hazardous waste inspection to allow for a greater number of on-site visits in a non-threatening atmosphere.

To assess improvements in compliance rates following the campaign, inspectors re-visited five percent of the original shop sweeps campaign facilities. The re-inspections revealed that 82% had tried to comply with at least one recommendation of an inspector, and another 15% were in the process of trying to comply. Overall, 61% of recommendations had been complied with, and attempts had been or were being made with respect to an additional 25%.³²

One of the newest EPA targeting strategies is geographic targeting. In FY 1992, the EPA began using Geographic Initiatives (GIs) to strengthen funding for specific program priorities. The first of these regional priorities was addressing pollution associated with the Great Lakes. In FY 1993, this was expanded to include the Gulf of Mexico, the Mexican Border, and the Chesapeake Bay. Geographic Initiatives are expected to play a large role in the new NEPPS process.

2.3.2 Self-Reported Data

2.3.2.1 Role of Self-Reported Data in Compliance

The use of self-reported data refers to self-reporting requirements imposed by Statute or regulation, as opposed to the practice of industry self-audit, discussed later on in the section examining the role of industry (s. 3.0). Traditionally, self-reported data have played a small, yet important role in compliance assessment under a number of EPA programs, such as the CAA's Prevention of Significant Deterioration (PSD) program; RCRA's groundwater monitoring program for permitted TSD facilities; as well as RCRA's Underground Storage Tank (UST) program. Its largest role, however, has been in the water program, in the acid rain program, and in SARA Title III, also known as EPCRA, the nation's Community Right-to-Know Act.

Required as a self-reporting mechanism under the CWA, daily discharge monitoring reports (DMRs) serve as the backbone of the discharge permit compliance system. State and EPA compliance personnel review DMRs

³¹ Memorandum from Edward O. Sullivan, Deputy Commissioner, NYDEC, to Jorling, Commissioner, NYDEC, on the Department's M2P2 Program (Apr. 7, 1993).

³² Washington Department of Ecology, *Hazardous Waste and Toxics Reduction Program, Automotive "Shop Sweep" Campaign: Summary Report*, No. 94-05 (Jan. 1994).

and develop Quarterly Non-Compliance Reports (QNCRs) to identify and highlight facilities in reportable non-compliance with their NPDES permit requirements. The Director of each state permit program is responsible for the preparation of the QNCR based on the information compiled in the DMRs and any other information obtained either through other self-reporting or via inspections. But the QNCR only contains information on major facilities; it does not monitor the vast majority of minor facilities which operate as indirect dischargers to municipal water treatment plants under pretreatment permit programs.

Facilities (largely coal-burning power plants) regulated under the acid rain program must install continuous emissions monitoring (CEM) systems to provide continuous measurement of emissions of NO_x and SO_x. Such units must sample, analyze and record data every 15 minutes, and provide one-hour averages. This provides a continuous data record which can be used to assess facility compliance with emission requirements.

Another example of a self-reporting requirement with both direct and indirect links to compliance is the Emergency Planning and Community Right-to-Know Act (EPCRA).³³ In 1986 Congress passed EPCRA, in recognition that hazardous chemicals are a fact of life in every community in the United States. The law reflects the principle that citizens have a right to know about the chemicals in their communities. EPCRA has two purposes: encouraging planning for response to chemical accidents and providing information to the public and government about potential chemical hazards in their communities. EPCRA represents a new approach to environmental protection, compared to traditional command and control schemes like the Clean Air Act. To comply with EPCRA, facilities must self-report chemical information instead of meeting a government set permit limit on the releases. EPCRA is based on the premise that publicly accessible information can create a powerful impetus for environmental improvement without the prescriptive qualities of command and control regulations. This approach is widely viewed as a success story by both industry and environmental groups.

The key to EPCRA's success is Section 313, the Toxic Release Inventory (TRI). Section 313 requires that certain facilities complete a Chemical Release Inventory Form (Form R) for releases of any of the more than 600 specified toxic chemicals. Form R must be submitted to the EPA and designated state officials for any releases occurring in the preceding year. The purpose of the 313 reporting requirement is to inform the public and government about routine chemical releases and to assist in the development of regulations, guidelines and standards. Manufacturing facilities³⁴ with 10 or more full-time employees and which manufacture, process or otherwise use a listed toxic chemical in excess of specified threshold quantities must submit a Form R for chemical releases. While the only specific direct compliance requirement is submission of accurate data, several states and public groups use the data in conjunction with air permit limits to provide another indicator of compliance with air regulatory limits.³⁵

³³ 42 U.S.C. §§ 11001-11050 (1986).

³⁴ SIC codes 20 through 39. The scope of 313 reporting will expand in January 1998 to include metal and coal mining facilities, RCRA commercial TSD facilities, chemical and petroleum distribution facilities, and electric generating facilities; 61 Fed. Reg. 33,588 (June 27, 1996); EPA Office of Pollution Prevention and Toxics, *EPCRA Section 313 Questions and Answers*, EPA 745-B-97-008 (Nov. 1997).

³⁵ For example, New Jersey DEP compared TRI data and air-permitted releases of TRI-covered VOCs in the development of compliance and baseline data for several multimedia permits developed under the state pollution prevention program. Information from Steven J. Anderson, formerly with DEP's Pollution Prevention Office.

2.3.2.2 Types of Self-Reported Data

There is tremendous variety in the types of data required to be self-reported under the various programs. A common feature is that self-reported information is usually both highly numeric and of large volume. In other words, it involves information that lends itself to development of and reporting in databases, e.g.: hourly sulfur dioxide values as measured in area-wide ambient monitoring networks around power plants³⁶ (PSD program, CAA); daily effluent values for permitted constituents and parameters³⁷ (NPDES program, CWA); quarterly testing results for 225 hazardous waste constituents in groundwater monitoring networks around hazardous waste disposal sites³⁸ (Subpart F program, RCRA); and raw chemical usage/emission/transfer data required for the Toxics Release Inventory.³⁹ The installation and maintenance of highly complex monitoring networks, as well as the sampling and analysis of the data generated, is a cost no state or federal agency wants to bear. The requirement to provide self-reported data shifts this burden to the pollution generators.

2.3.2.3 Adequacy, Effectiveness and Consistency of Self-Reporting as a Mechanism for Assessing Compliance

Certain technical issues arise from reliance on self-reported data, such as whether the sample or the monitored area truly represent environmental conditions (e.g., a monitoring well sited upgradient of the prevailing groundwater flow would not be capable of adequately detecting leaking hazardous waste). Likewise, there may be some technical difficulties and limitations associated with measurement or analysis. On the whole, these issues are addressable via regulatory oversight by the Agencies. For example, the specific location of air monitoring stations, the quality control/quality assurance plans for equipment and sample analysis, and the methodologies whereby data are collected, analyzed and reported are all subject to EPA or state approval before the facility is allowed to submit such compliance data. Moreover, compared to inspections, which only capture conditions at a single point in time, self-reported data tend to provide a continuous picture of compliance.⁴⁰

2.3.2.4 Use of Additional Information for Assessing Compliance

Early in 1997, EPA promulgated a rule which establishes a new and wider range of information which can be used for determining compliance with air regulations. The rule, implementing requirements of the 1990 Clean Air Act, allows use of “any credible evidence” (and thus has the acronym of the “ACE” rule) to determine whether facilities are in compliance with their emission limits. This would allow use of information other than reference tests to determine compliance. EPA’s objective is to provide a better means for assessing compliance on a more continuous basis than the discrete compliance evaluations provided by the tests. Information on operating parameters, for example, could be used to determine whether a test would show the facility to be out of compliance. The rule applies to a wide range of sources covered by federal regulatory limitations or by federally enforceable state regulators.⁴¹ In combination with the anticipated Compliance Assurance Monitoring (CAM) rule, which requires facilities to develop plans for tracking the operation of control equipment, ACE provides a new mechanism for use of self-monitoring data to determine compliance. The rule is a reduced version of EPA’s original 1993 proposal to expand the universe of facilities required to use CEM.

³⁶ Under the *Prevention of Significant Deterioration (PSD) Program* of the *Clean Air Act*, which is designed to protect less polluted areas.

³⁷ Required by the National Pollution Discharge Elimination System (NPDES) permits under the *Clean Water Act*, 33 U.S.C. §1342.

³⁸ RCRA program, 40 C.F.R., Part 267, Subpart F.

³⁹ EPCRA, Section 313.

⁴⁰ In some cases, the quality of DMRs may be uneven because of inadequate oversight of the laboratories which evaluate self-monitoring samples. In a December 1996 draft report by a commission of the Virginia General Assembly, poor performance was found in Virginia’s DMR Quality Assurance program. In 1995, fewer than 50 percent of the state’s NPDES permittees had all of their submitted chemical analyses deemed acceptable. The report also found that Virginia’s oversight of DMR reporting to be inadequate, and that there was no certification program for laboratories conducting effluent analyses for NPDES permitted facilities. It is important to note, however, that Virginia is not necessarily representative of the United States as a whole.

⁴¹ These include, for example, NSPS, NESHAPS and SIP requirements.

2.3.3 *Statutory Information Requests*⁴²

Many environmental statutes allow the EPA to request, from a company or individual, information related to a facility's compliance with the law. For example, under the Safe Drinking Water Act, the EPA may collect information from every person who is subject to any requirement of this title or who is a grantee. By regulation, the EPA may require information to assist in developing standards, determining compliance, and evaluating health risks or advising the public of risks. The EPA may require information without a rulemaking to determine, on a case-by-case basis, whether a person has or is acting in compliance.

Another example is the Clean Water Act.⁴³ Under Section 308 of the Act, the EPA can require the owner or operator of a point source to provide the EPA with records and information related to discharges or potential discharges from a facility into waterways and wetlands in order to determine whether a facility is in compliance with the CWA. The EPA can also request any information necessary to develop or assist in the development of effluent standards under the Clean Water Act. In the enforcement context, a Section 308 letter can be used by the EPA to obtain information necessary to determine whether a company has violated the Act, to determine the steps necessary to comply with the Act, and to obtain additional information that would support an enforcement action (i.e. information on whether the facility has received any economic benefit from the violation that should be addressed through a penalty assessment.) A similar provision is found in Section 114 of the Clean Air Act.⁴⁴ Section 11 of the Toxics Substances Control Act (TSCA)⁴⁵ provides the Agency with authority to issue subpoenas, in addition to conducting inspections of manufacturers and handlers of chemical substances, to obtain information necessary to determine compliance with the Act. In addition, EPA has the right to enter a facility at any time to inspect the company's records and environmental monitoring equipment.

2.4 Criteria for Determining Seriousness of Non-Compliance

2.4.1 *Systems for Characterizing Significant Non-Compliance*

Each of EPA's major programs has developed criteria for identifying what the Agency regards as the most serious form of non-compliant behavior by regulated facilities. Where a facility's failure to comply meets these criteria, the result is a designation as a Significant Violator (SV) or as being in Significant Non-Compliance (SNC).

These characterizations may take into account such factors as the type or size of the facility, the type of violation, the environmental seriousness of the violation, and/or the failure to provide adequate information to detect non-compliance. Such violations may result in tighter scrutiny of, and/or more formal enforcement proceedings against, the responsible facilities. Where such violations are identified by state agencies, the information must be reported to EPA. EPA uses SNC/SV data to help shape its enforcement objectives and its compliance and enforcement analyses of facilities and sectors.

There are formal definitions of SNC in each of the major media programs. Application of those definitions, however, can leave much to individual media program judgment. States sometimes interpret the term "significant" in either the narrowest or broadest way possible. This has been problematic in the air program, because of the general nature of the guidance on what is meant by significant, and what criteria should be used to place a facility on the Significant Violator (SV) list in the federal database. The NPDES program provides parameters for inspectors and compliance officers when making a SNC determination under the Clean Water Act (though the guidance is fairly new). A new SNC redefinition implies risk-based considerations under the Resource Conservation and Recovery Act (RCRA).

Each of the media programs' current definitions of SNC are given below. Discussions of the definitions are in the following section.

⁴² Information and summary on statutory information requests was provided by EPA's Office of Regulatory Enforcement (ORE).

⁴³ 33 U.S.C. §§ 1251–1387 (1988 & Supp. IV 1994).

⁴⁴ 42 U.S.C. §§ 7401–7671 (1990).

⁴⁵ 15 U.S.C. §§ 2601–2692 (1997).

2.4.1.1 Air Program Definition of Significant Non-Compliance

EPA's Office of Enforcement and Compliance Assurance (OECA) provides the following definition of SNC under the Clean Air Act in the FY 98/99 memorandum on "Reporting for Enforcement and Compliance Assurance Priorities (RECAP)":⁴⁶

Agencies shall deem a source to be a Significant Violator (SV) if it is:⁴⁷

1. a **major source** (as defined by the Clean Air Act, except for asbestos demolition and renovation [D & R] NESHAP), **and** it violates any one or more of the following:
 - SIP emission, monitoring, or substantial procedural requirements, regardless of pollutant or designation status,
 - NSPS emission, monitoring, or substantial procedural requirements,
 - NESHAP emission, monitoring, or substantial procedural requirements for existing NESHAP standards and promulgated MACT standards,
 - SIP, NSPS, NESHAP emission, monitoring, or procedural requirements violated **repeatedly or chronically** (e.g., exceeds emission limit or gets no monitoring data for 5% of the time in a calendar quarter),
 - any provision of a Federal Consent decree or Federal Administrative Order,
 - any substantive provision of a State Judicial Order or a State Administrative Order which has been issued for an underlying SIP violation, or
 - any requirement of Part C or Part D of Title I of the Clean Air Act (e.g., new construction of a major source, major modification of a major source); or
2. any synthetic minor source, **and** is in violation of any one or more of the following:
 - avoiding PSD while violating an emission limit or permit condition which affects PSD status, or
 - exceeding its permitted emission standard above the amount that would classify the source as a non-attainment area major source.

2.4.1.2 Water Program Definition of Significant Non-Compliance

EPA defines SNC for wastewater as encompassing seven types of violation:⁴⁸

1. Effluent violations of monthly average limits
 - 40% exceedance of limits on conventional pollutants (e.g., oxygen demand, solids, nutrients, detergents and oils, minerals, non-toxic metals) or 20% exceedance of limits on toxic pollutants (e.g., most metals, cyanides, residual chlorine, most organics) for any 2 or more months during 2 consecutive quarters.

⁴⁶ Office of Enforcement and Compliance Assurance, EPA, "Reporting for Enforcement and Compliance Assurance Priorities (RECAP)", *FY1998/FY1999*, Section V in the MOA *Consolidated Technical Guidance* (June 1997), pp. V-25–V-26.

⁴⁷ Office of Enforcement and Compliance Assurance, EPA, Enforcement Planning, Targeting and Data Division, *REPORTING FOR ENFORCEMENT AND COMPLIANCE ASSURANCE PRIORITIES (RECAP)*, FY1997, Section III, pp. 6–7.

⁴⁸ Memorandum from Assistant Administrator Steven A. Herman to Water Management Division Directors, *Revision of NPDES Significant Non-compliance (SNC) Criteria to Address Violations of Non-Monthly Average Limits* (Sept. 21, 1995).

- Violation of any monthly limit at a given pipe by any amount during 4 or more months of consecutive quarters.
2. Effluent violations of **non**-monthly average limits
 - Criteria for SNC are the same, except that if a facility has both monthly and non-monthly average limits, “a facility would be only considered in SNC for the non-monthly limits if the monthly average is also violated to some degree (but less than SNC).”
 3. Other effluent violations
 - “Any effluent violation that causes or has the potential to cause a water quality or human health problem is SNC.”
 4. Non-effluent violations
 - Unauthorized discharges which cause or have the potential to cause water quality or health problems, including failure of a POTW to implement or enforce a pretreatment program, is SNC.
 5. Permit schedule violations
 - Failure to meet permitted construction deadlines within 90 days is SNC.
 6. Permit reporting violations
 - Failure to submit required reports (e.g., DMRs) within 30 days of due date is SNC.
 7. Violation of enforcement orders
 - Any violation of a Judicial Order.
 - Any violation of an effluent limitation in an Administrative order (AO), except that, where the AO limitation is stringent as an applicable permit limit, criteria in 1–6 above must be met.

2.4.1.3 RCRA Program Definition of Significant Non-Compliance and Secondary Violators

For the hazardous waste program, EPA defines SNC as follows:⁴⁹

Classification of non-compliance: Violators are classified based on an analysis of the facility’s overall compliance with RCRA which includes prior recalcitrant behavior or a history of non-compliance. The Enforcement Response Policy established two categories of violators: Significant Non-Compliers (SNCs) and other Secondary Violators (SVs).

1. **Significant Non-Compliers (SNCs)** are those facilities which have caused actual exposure to hazardous waste or hazardous waste constituents; are chronic or recalcitrant violators; or deviate substantially from the terms of a permit, order, agreement or from RCRA statutory or regulatory requirements. The actual or substantial likelihood of exposure must be evaluated using facility-specific environmental and exposure information whenever possible. This may include evaluating potential exposure pathways and the mobility and toxicity of the hazardous waste being managed. However, it should be noted that environmental impact alone is sufficient to cause a facility to be a SNC, particularly when the environmental media affected require special protection (e.g., wetlands or sources of underground drinking water). Facilities are evaluated on a multi-media basis; however, a facility may be found to be a chronic or recalcitrant violator based solely on prior RCRA violations and behavior.
2. **Secondary Violators (SVs)** are violators which do not meet the criteria listed above for SNCs. Secondary Violators (SVs) are typically first time violators and/or violators which pose no actual threat or a low potential threat of exposure to hazardous waste or constituents. A facility classified as a SV should not have a history of recalcitrant or non-compliant conduct. Violations associated with a SV should be of a nature to permit prompt return to compliance with all applicable rules and regulations.

⁴⁹ EPA, *Hazardous Waste Civil Enforcement Response Policy* (Mar. 15, 1996) p. 4, available at: <<http://es.epa.gov/oeca>>

2.4.2 Analysis of SNC Characterizations

2.4.2.1 Air Program

The air program guidance was revised in 1992 to broaden the definition of Significant Violator (SV) in keeping with the Clean Air Act amendments of 1990. It consolidated previous guidance documents related to SVs, “Timely and Appropriate and Federally Reported Violations,” and attempted to include a greater degree of Agency flexibility in identifying and resolving SVs. The guidance also attempted to promote a more complete and accurate compliance picture and provide for the prioritization of SVs so that the most environmentally important violators could be addressed first.

The purpose of identifying and tracking SVs via the Aerometric Retrieval System (AIRS) is to prioritize Agency (and state) enforcement efforts and to ensure accountability with EPA’s “Timely & Appropriate” guidance. Nevertheless, EPA’s definition of SV has come under attack. Pennsylvania was subject to a recent contentious EPA Office of the Inspector General OIG audit because it had failed to report SVs appropriately.⁵⁰ In the state’s response to the audit, James M. Seif, Secretary of PADEP, wrote the following critical comment on SV designation:

The definition of a significant violator and the procedures for EPA involvement in SV cases are not derived from statute or regulations, but rather from EPA guidance. . . If one followed EPA’s guidance, any violation at a major source would make it a significant violator, regardless of its real significance. Once reported, an SV becomes subject to extensive EPA micro-management... Based on information available to us, it appears that most other states do not identify any more SVs than Pennsylvania. Perhaps this suggests that the place to look for the problem is with the EPA policy, not with the states’ reporting.

2.4.2.2 Water Program

There is a possibility that the number of serious violations of NPDES permits may be underestimated for various reasons—including the fact that only major facilities are included in the PCS database, and that the system relies on self-reported information (Discharge Monitoring Reports [DMRs]). In 1997, using data acquired from the NPDES PCS under the Freedom of Information Act (FOIA), US PIRG produced a report on significant non-compliers. It found that nearly 20 percent of the nation’s over 6,884 major industrial, municipal and federal facilities were in significant non-compliance with the CWA during at least one quarter from January 1995 through March 1996.⁵¹ A 1996 GAO study found that in fiscal year 1994, 63% of the facilities in significant non-compliance had violated effluent limits, while the remainder had violated other permit conditions such as missing milestones or failure to submit required reports.⁵² But these and other studies which show rates of significant non-compliance (SNC) with the CWA of between 10 and 20 percent have actually underestimated the rate of significant non-compliance, considered in light of the new definition, because the past definition of SNC did not include violations of non-monthly average effluent limits. The new definition (effective the first quarter of 1997) characterizes facilities with violations of non-monthly limits as being in SNC.

2.4.2.3 Resource Recovery and Conservation Act (RCRA)

Older RCRA definitions of SNC (1984-87) focused almost exclusively on land disposal facilities (LDF). A SNC was any LDF with a Class I violation of groundwater monitoring, financial responsibility, or closure/post-closure requirements (in the later years this also included violation of a corrective action requirement). From 1987 to the current re-definition, the term High Priority Violator (HPV) was used, according to criteria laid out in the Enforcement Response Policy.

⁵⁰ EPA Office of Inspector General, *Validation of Air Enforcement Data Reported to EPA by Pennsylvania*, No. 7100115 (1997).

⁵¹ US PIRG, *Dirty Water Scoundrels: State-by-State Violations of the Clean Water Act by the Nation’s Largest Facilities* (last modified Mar. 25, 1997), <<http://www.pirg.org/pirg/enviro/water/dws97/index.htm>>.

⁵² GAO, *Water Pollution: Many Violations Have Not Received Appropriate Enforcement Action*, GAO/RCED-96-23 (Mar. 1996).

The new definition is broader and more risk-based. In practice, an evaluation similar to a Superfund Hazard Rank Scoring (HRS) must be completed for each facility before a facility can be classified as a SNC due to *potential* for exposure, whether or not there has been an actual violation (i.e. a release). Conversely, if distanced from groundwater sources and downgradient of populations, an *actual* release may be considered a Secondary Violation (not the higher category SNC), due to its lower potential for exposure.

2.5 Current Systems or Methods for Recording Compliance Data

Both the EPA and the states maintain databases containing compliance and enforcement information. Since states are required to report specified compliance and enforcement information to the EPA under the terms of EPA/state grants, some of the state databases are modeled to a significant degree on federal databases, as well as including additional state-specific information. Other states (e.g., Massachusetts) have developed databases significantly different in structure from the federal databases, which sometimes leads to difficulties in providing required data to the EPA. Most of these databases are program- or media-specific. There have been increasing efforts, however, by both the EPA and several states, to develop databases which can access information on a facility-specific multimedia basis.

2.5.1 Federal Compliance Databases

The EPA maintains 17 databases which contain compliance information. Some are media-specific, while others integrate compliance and enforcement information from all media. Provisions in each of the media statutes, including the CWA, RCRA and CAA call for the collection of compliance information on facilities regulated by federal environmental laws.

Historically, the information has been collected and organized by media. The database systems have been maintained and updated separately. The compliance information collected in each database depends on the requirements of the applicable statute as well as the specific policies relating to data collection and organization.

2.5.1.1 Federal Media-Specific Databases

The major media-specific databases are:

- *AIRS Facility Subsystem (AFS)*—AFS contains emissions, compliance and enforcement data on stationary sources of air pollution regulated by the EPA, state and local air pollution agencies. Compliance data in AFS are maintained at two levels: plant and point. Plant-level compliance data track the compliance and classification status of the plant, inspections, and other compliance actions taken against the plant. Similar data can be tracked at the point level. The point source data in AFS are collected and updated by state and/or local agencies.
- *Permit Compliance System (PCS)*—PCS contains information from permits granted to facilities to discharge into navigable waters of the United States, as required by regulations of the National Pollution Discharge Elimination System (NPDES) under the Clean Water Act. It contains information about requirements contained in the issued permits and inspection, and about compliance and enforcement. The specific data categories include: permit facility data and identification outfall (pipes); monitoring requirements for each outfall; reported measurement values; compliance schedule violations; inspection information; pretreatment audit; enforcement actions; and permit tracking events.
- *RCRA Information System (RCRIS)*—RCRIS is the national program management and inventory system of the RCRA hazardous waste handlers. Handlers include treatment, storage and disposal facilities (TSDFs), large quantity generators (LQGs), small quantity generators (SQGs), and transporters. The system contains general information on all handlers, permitting and correction action program status, and enforcement and compliance information.

- *Other databases*—enforcement and compliance information for other programs are contained in databases such as the FIFRA Toxics Tracking System (FTTS), the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)/ Toxic Substances Control Act (TSCA) Tracking system; the Asbestos Contractor Tracking System (ACTS), and the National Asbestos Registry System (NARS).

2.5.1.2 Multimedia Integration of Federal Compliance Data—the IDEA Database

In 1991, EPA began to develop a new database, the Integrated Data Enforcement Analysis (IDEA) database, to allow for integration of data across the various program office databases. In 1996, IDEA became available for public access.

Currently, IDEA integrates compliance information from 17 of the EPA's databases. From IDEA, users can retrieve data for performing multimedia analyses of regulated facilities. The IDEA database can be used to produce the compliance history of a specific facility, identify a group of facilities that meet users' criteria, and produce aggregated data on selected industries. The IDEA database allows the Office of Enforcement and Compliance Assistance (OECA) to report compliance rates on a multimedia basis by Standard Industrial Classification (SIC), and to uncover industrial sectors with low compliance rates or low inspection rates.

OECA is also working to improve the IDEA database so that it will be able to report compliance statistics not only by facility, state, region, or SIC, but also by corporate ownership. This tool will allow OECA to look at patterns of compliance on a corporate basis since it is likely that many compliance weaknesses or strengths will be similar within corporations. OECA can then target its compliance and enforcement resources more efficiently.⁵³

2.5.1.3 Federal Use and Analysis of Compliance Data

OECA uses data from IDEA and the media-specific databases to set national compliance assurance and enforcement priorities. Its Enforcement Planning, Targeting, and Data Division (EPTDD) is responsible for providing planning, targeting, evaluation and information resources, products and services to maximize compliance with environmental laws. EPTDD produces data analyses to support compliance and enforcement efforts. It also compiles Reporting for Enforcement and Compliance Assurance Priorities (RECAP) statistics, which measure compliance by media, region and sector. These statistics allow comparison of compliance data—including the number and percentage of significant violations, inspection frequency, and state and EPA enforcement information. The compliance data is also used to measure and evaluate processes, outputs and outcomes of the EPA's enforcement and compliance programs, and to assess and compare the relative compliance rates of the various regions and states with environmental laws. The data and analysis tools provide OECA with the ability to oversee the results of compliance activities at the regional and state level.

Examples of data analyses include:

- using Toxic Release Inventory (TRI) data in combination with compliance data to uncover industrial sectors with environmental risks;
- using the IDEA database in conjunction with Toxic Release Inventory releases ranked by degree of hazard to analyze compliance data by sector; such an analysis, recently undertaken by the OECA, has uncovered industrial sectors which might be overlooked because of size, but which might pose significant environmental risks; and
- comparing compliance among regions or states.

OECA's RECAP statistics allow for the comparison of the results of compliance activities across Regions. EPA has traditionally used these and their predecessor, Strategic Targeted Activities for Results System (STARS), statistics, combined with counts of other activities such as enforcement actions initiated or penalty dollars

⁵³ Background information from EnviroSense, <<http://es.epa.gov>> (visited July 13, 1998).

assessed, to measure success both nationally and on a regional level. OECA is making an effort, with the states, to develop mutually agreed-upon “core” reporting measures that will be used to evaluate State performance in carrying out their delegated program responsibilities, as well as to assess federal performance.⁵⁴

2.5.1.4 Issues/Limitations Identified in Federal Databases

EPA and the states are currently involved in an extensive effort to develop better measures of the state of compliance. In the course of these efforts, a number of limitations in data coverage, utility or accuracy have been identified by both EPA and state stakeholders. Sources of comments and suggestions include both the Roundtable sessions with stakeholders for OECA’s National Performance Measures Strategy, and a survey of EPA Regional employees by OECA’s Data Quality Workgroup. Among the concerns which have been raised are:

- Many participants in the survey were concerned that the national systems contain too little information useful for regional purposes. One observer remarked that the data is irrelevant to their day-to-day work and that negative impacts arise from devotion of resources in the region and the states to feeding the databases.
- Low in-house staffing, low priority for data-gathering and a lack of adequate data entry/maintenance support to the Regions undermine data quality.⁵⁵
- The number of facilities which are not included in the EPA’s compliance databases is not known. Efforts have been made from time to time and in various locations and for various media to discover facilities which are not reporting under TRI or are unpermitted. Every year, as evidenced in OECA’s annual Accomplishments Reports, companies are fined for not reporting or for not obtaining required permits.
- The federal databases are biased towards large facilities which are subject to frequent inspections. Small quantity generators, minor and area air emission sources, minor dischargers, etc. are not well represented. Nationally, it is very difficult to get a picture of compliance for these sources. Gaps in the compliance information system occur because states are not required to input data into national databases for minor facilities. For example, information on the compliance status of minor NPDES facilities (less than 3.7 millions litres of discharge per day) is not captured in the Permit Control System (PCS) database.
- Another reason for gaps is that certain facilities may be subject to infrequent inspections. Until recently, in the water program, only major NPDES dischargers (over 3.7 millions litres discharged per day) were required to be inspected every year. Therefore, there was little compliance information on minor dischargers, whose discharges might have major localized impacts, particularly when combined with other minor dischargers in a small body of water. Now, regions are being allowed some flexibility so that they can choose to inspect minor dischargers in lieu of annual inspections of all major dischargers, if they can justify the change.
- Another gap in the compliance information system is that it only captures the compliance status of certain dischargers indirectly. The compliance status of individual industrial facilities discharging to publicly owned treatment works (POTWs) is not separately reported in the PCS database and is not readily available to the EPA for analysis. In 1992, the EPA performed a statistically significant study which evaluated non-compliance at 640 industrial facilities discharging into 60 POTWs across the

⁵⁴ *Id.*; interview with Richard Duffy (Feb. 27, 1997).

⁵⁵ Regions which use the data for assessment and which monitor data quality report better results. For example, one respondent from Region 4 stated that “We do not have any large data quality problems, because: (1) by now our states (who input 90% of the data) all understand the data and the data entry procedures quite well; and (2) we have a set of data assessment reports in our Region IV RCRIS reports menu that we run at least once a year as a part of the mid-year review of the states’ work under their grants.” According to the commentator, the states correct errors quickly.

country. This study was to serve as a baseline for the measurement of future trends in industrial compliance. To date, no further analysis has been performed.

- For some facilities, total reliance on inspections or on infrequent reference tests, each of which constitutes compliance monitoring for only a point in time during the year, rather than providing either more regular or continuous monitoring information, may constitute a gap in the compliance information system.

2.5.2 State Compliance Databases

State databases sometimes gather much the same data as the EPA databases, though often more, and with more detailed information than is required by EPA. For example:

- Illinois EPA's air compliance database is similar to the federal AIRS database, but includes information on smaller facilities. It flags all the EPA SV criteria, and also flags state-specific "sensitive impact criteria" (for example, that the violation has the potential to trigger environmental justice concerns, or that the violation resulted in injury to company personnel or to the public). There are additional minor violations flagged in the Illinois database – for example, untimely reporting from a minor source. Since Illinois had an air permitting system before the creation of the Title V program, and the permitting level includes sources which would fall below the Title V thresholds, many more facilities are covered in the Illinois database than are reported to the EPA.⁵⁶
- The Texas Natural Resource Conservation Commission (TNRCC) has single-media databases to track compliance monitoring which are independently operated and managed. In the RCRA program, information on inspections and inspection results are entered into separate databases in each regional office—the only place where all the data is located. Information required for the federal RCRA Information System (RCRIS) is sent to the central TNRCC office and to Region 6. All water and air compliance data are maintained in central databases in TNRCC's Austin headquarters. Since TNRCC has not been delegated by the EPA to manage the federal water permitting (NPDES) program, none of its water compliance data is uploaded to the EPA. The majority of uploads of air program-related data to the EPA's AIRS database is via the air compliance database—the Point Source Database (PSDB). A separate TNRCC database tracks enforcement actions under all programs. Data regarding air-related enforcement cases, for example, are entered from the enforcement database into both TNRCC's PSDB and into the EPA's AIRS database.⁵⁷

Some states, however, either have developed, or are in the process of developing, data systems which make facility-level analysis possible. For example, Massachusetts' DEP has developed a Facility Master File, which was constructed to parallel the state's multimedia inspection program. Each facility has a single facility ID number, and the file for a facility includes information on its permits, history of inspections, and current compliance status across all programs. The FMF computer system will track the fact of a violation, but does not specify the nature of the violation; for the specific violation, it is necessary to access the paper files. The system does not use flags like SNC or SV, which creates problems in transferring data to EPA. The FMF database facilitates tracking compliance information by sector.⁵⁸

2.6 Encouraging Voluntary Self-Monitoring of Compliance

As discussed previously, while requirements for facilities to monitor and report compliance-related data have always been a major component of federal and state compliance monitoring, the EPA and the states have more

⁵⁶ ILLINOIS EPA, VIOLATION DETECTION AND CLASSIFICATION (May 1997); interviews with Miles Zamco and John Kolash; IEPA, ENFORCEMENT RESPONSE PLAN, Section 3.

⁵⁷ Information from Anne Dobbs and Jeffie Barbee, TNRCC, (Dec. 1997).

⁵⁸ Information from Kim Kreiton, Massachusetts DEP, (June 1997).

recently focused considerable attention on promoting voluntary monitoring and reporting of compliance information by regulated facilities. Programs and policies to promote self-monitoring and self-reporting are intended both to encourage facilities to internalize more thoroughly the focus on achieving and maintaining compliance with federal, state and local environmental requirements, and to allow re-direction of limited government compliance assurance resources to maximize their effective use.⁵⁹ Voluntary programs are also generally designed to expand use of and strengthen existing practices of the regulated community. The government initiatives to promote voluntary compliance monitoring summarized below are based on industry practices and initiatives related to environmental auditing and the development of environmental management systems.⁶⁰

2.6.1 Government Programs to Promote Self-Auditing of Compliance by Regulated Facilities

Since 1986, the EPA and several states have developed policy and enacted legislation attempting to encourage companies to conduct voluntary environmental audits to monitor their compliance with environmental laws.⁶¹ These government initiatives are intended to provide incentives for self-monitoring, in addition to the incentive created by these environmental agencies' strong enforcement programs. They focus on promoting a trend initiated by the private sector in response to corporate concerns about avoiding major financial liability for environmental damages or the costs and public perception problems related to fines for environmental violations (see additional information on environmental auditing in Section 3 below).

EPA and state efforts to promote environmental auditing by regulated facilities have been based on two primary concerns:

- that increases in legal requirements combined with regulatory agencies' shrinking budgets have led to a need for government to supplement its compliance monitoring program with compliance monitoring by companies (a realization which has also contributed to efforts to expand the scope of monitoring required by regulation, as under the CAM and previous enhanced monitoring rules); and
- that industry perceptions of the potential use of compliance self-auditing reports by government agencies could inhibit or limit the expansion of private sector environmental auditing; for example, concerns that:
 - a compliance audit report revealing violations might act as the “smoking gun” needed by a prosecutor to upgrade a civil action to a criminal one; or
 - such a report could serve as the basis for major punitive fines in civil enforcement cases.

The need to fix this perceived conundrum for corporate managers is one reason the EPA and several states have introduced various policies and enacted legislation restricting the conditions under which audits conducted by companies could be used in enforcement actions.

2.6.1.1 EPA Policy on Self-Auditing

On December 18, 1995, the EPA issued the final policy statement, “Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations”.⁶² The policy statement is intended to increase compliance with environmental laws by providing incentives for companies to discover, disclose, and correct violations through voluntary environmental audits. The incentives created by the policy statement are designed to supplement the incentive to conduct audits provided by EPA's strong enforcement program without undercutting EPA's ability to enforce federal environmental laws.

⁵⁹ See EPA, *Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, Final Policy Statement*, 60 Fed. Reg. 66,707 (Dec. 12, 1995).

⁶⁰ These sections focus on government programs and initiatives; more information on industry's role in environmental audits and environmental management system initiatives is included in Section 3.

⁶¹ In 1986, EPA published an *Environmental Auditing Policy Statement*, 51 Fed. Reg. 25004-25010 (July 9, 1986).

⁶² 60 Fed. Reg. 66,706-66,712 (Dec. 22, 1995).

To encourage self-auditing, the final policy eliminates gravity-based penalties and does not recommend criminal prosecution of companies where violations are found through voluntary audits or efforts that reflect a regulated entity's due diligence, and are promptly disclosed and expeditiously corrected. The EPA, however, retains the discretion to recover economic benefits derived by delaying investments in compliance.

In particular, companies must meet nine conditions in order not to face gravity-based civil penalties and criminal prosecution:

- The violation must have been discovered through either an environmental audit that is systematic, objective and periodic, or a documented, systematic procedure or practice which reflects the regulated entity's due diligence in preventing, detecting and correcting violations. The EPA may require disclosure to the public of a description of the company's audit or due diligence efforts as a condition of penalty mitigation. This will allow the public to judge the adequacy of compliance management systems, and foster public trust in these systems.
- The violation must be voluntarily discovered and promptly disclosed to the EPA. The violation must have been identified voluntarily, and not through monitoring, sampling or auditing procedures required by statute, regulation, permit, judicial or administrative order, or consent agreement. The penalty elimination applies if discovery was voluntary, regardless of whether there is a general obligation to report violations.
- The violation must be disclosed to the EPA within 10 days of discovery.
- The violation must be discovered and reported on the initiative of the company and not in reaction to a pending enforcement action or third-party complaint.
- The violation must be expeditiously corrected, and any harm caused by the violation remedied.
- The company must agree to take steps to prevent a recurrence of the violation, including improvements to its environmental auditing or due diligence efforts.
- The same or closely-related violation must not have occurred within the past three years at the same facility, or be part of a pattern of violations over the past five years.
- The violation must not have resulted in serious actual harm or have presented an imminent and substantial endangerment to public health or the environment.
- The company must cooperate with the EPA by providing the information necessary to determine the applicability of the penalty mitigation.⁶³

Some industry observers have maintained that the EPA's approach would not do enough to encourage companies to monitor their compliance through voluntary audits. They argue that companies would not conduct audits because the EPA is not legally required to mitigate penalties for violations discovered through audits, given that EPA policy is not legally enforceable as are regulations and legislation. They also claim that the fact that the policy still allows EPA to collect an economic gain-based penalty for violations discovered through voluntary audits would act as a disincentive to conducting voluntary audits. In addition, companies argue that the potential that audits will be used in third-party citizen suits would also act as a disincentive to auditing. Finally, observers argue that the nine conditions for penalty reduction are too convoluted and restrictive to encourage companies to voluntarily monitor their compliance with environmental laws through audits. Many of these companies have advocated protection of environmental audits through an evidentiary privilege which would prevent the use of audits in enforcement actions and immunity from enforcement actions when a company conducts an audit—a position which a number of states endorsed through legislation, but which EPA has opposed for a number of reasons (see discussion in next section). In spite of the reservations articulated by these companies, vast segments of industry

⁶³ See also EPA, *Office of Regulatory Enforcement, Audit Policy Interpretive Guidance*. (Jan. 1997).

have supported the EPA's policy—as evidenced by the more than 500 facilities that had disclosed violations to the EPA under the policy by August 1997.⁶⁴

2.6.1.2 State Laws and Policies on Self-Audits and Audit Privilege/Immunity

States have taken a range of approaches toward self-auditing. As of December 1997, eleven had adopted self-disclosure policies more or less consistent with the EPA's approach (see example of California below), while legislation to protect the results of corporate environmental audits from disclosure and/or to provide immunity from penalties or other enforcement actions had been passed in 24 states. Some of these state laws differ from the EPA's policy of penalty reduction in that they protect audit results from disclosure through a privilege mechanism and/or provide immunity for violations discovered through audits. The EPA is in the process of negotiating with states over those provisions, which it feels could adversely affect its ability to enforce federal requirements.⁶⁵

The EPA objects to many of these laws because they undermine the enforcement authorities a state is required to have by federal law in order to qualify for program delegation or authorization. Because of the effect these laws have on a state's ability to monitor compliance with and enforce federal environmental laws, the EPA has delayed approval of some states' federal programs.

The EPA has issued a guidance to help determine which state audit laws interfere too greatly with the enforcement authority a state needs to adequately enforce federal environmental laws, therefore preventing program delegation or approval. The guidance, which is based on statutory delegation requirements, specifies the following:

Immunity Laws:

- must not eliminate a state's ability to obtain immediate and complete injunctive relief against polluters; and
- must allow a state to collect civil fines for significant economic benefit gained through violations, repeat violations, violations of judicial or administrative orders, serious harm, and violations that may pose imminent and substantial danger to health or the environment; and

Privilege Laws:

- must provide for the state's retention of sufficient information-gathering authority to carry out federal programs;
- must protect the public's right to monitor non-compliance and bring citizen suits for violations of federal law; and
- must not allow the privilege to apply to criminal investigations, grand jury proceedings, and prosecutions, or it must exempt evidence of criminal conduct from the scope of the privilege.

The EPA's concerns with, and response to, efforts to promote self-auditing by regulated entities through audit privilege and immunity laws which do not meet these standards are illustrated through its response to the Texas Environmental, Health and Safety Audit Privilege Act (discussed below).

⁶⁴ See, for example, comments and responses on CAL/EPA's similar policy by the California Manufacturer's Association and the Environmental Auditing Roundtable. Memorandum from Gerald G. Johnston, CAL/EPA Assistant Secretary for Law Enforcement and Counsel, to Directors, Executive Officers, Chief Counsel, Enforcement Chiefs, *CAL/EPA Policy on Incentives for Self-Evaluation* (July 8, 1996). Information on disclosures from Gary Jonessi, OECA.

⁶⁵ OECA, EPA, *State Audit Privilege and Immunity Pending and Enacted Legislation/Policies Fact Sheet* (Dec. 1997).

California: Self-Auditing Promotion Based on EPA Policy

The California Environmental Protection Agency (Cal/EPA) developed a policy to encourage voluntary auditing by companies by treating the audits as mitigating factors in the exercise of environmental enforcement discretion. The Cal/EPA policy is very similar to the EPA's audit-incentive policy. The motivation behind Cal/EPA's audit policy was the recognition that the dramatic increase in regulated entities requires that voluntary compliance monitoring and violation disclosure must become a major part of Cal/EPA's law enforcement strategy.

Cal/EPA's policy is similar to the EPA's policy in that it:

- eliminates gravity-based penalties;
- does not recommend criminal prosecution against companies where violations are found through voluntary audits or efforts that reflect a regulated entity's due diligence, and are promptly disclosed and expeditiously corrected;
- does not provide an evidentiary audit privilege or immunity for disclosed violations; and
- incorporates the EPA's definition of "due diligence" and the requirement that nine conditions be met for penalty mitigation to be considered under the policy.

Cal/EPA has modified the EPA's policy by providing a mechanism to address some concerns of industry regarding a more specific delineation of what constitutes an acceptable auditing program under the policy. For example, the EPA's policy encourages companies to initiate self-audit or due diligence programs but provides limited guidance as to what type of programs will qualify. Cal/EPA's policy tries to provide companies with greater certainty that their programs qualify under the policy by offering a fee-for-service audit/due diligence review. This fee-for-service review will provide certification of the audit or due diligence program prior to any reporting of violations discovered through the program.⁶⁶

Texas: Audit Privilege Legislation

On 23 May 1995, Texas passed an immunity and privilege law for voluntary environmental audits conducted by companies. The law has garnered praise from industry but EPA and environmental groups have expressed major concerns. The stated intent of the law is to encourage companies through privilege and immunity incentives to voluntarily audit their operations to determine compliance with environmental laws. By August 1997, 635 regulated facilities notified the Texas Natural Resource Conservation Commission (TNRCC) of their intent to conduct a voluntary environmental audit under the Act. Of those, 102 disclosed the results of the audits to the Commission.⁶⁷

After passage of the Texas Audit Privilege Act, the EPA was petitioned by the Environmental Defense Fund to withdraw the Texas Underground Injection Control (UIC) program, due to the potential impact of the Act on TNRCC's ability to enforce UIC requirements. Subsequent negotiations between EPA and the TNRCC led to amendments (signed by the Governor in May 1997, and effective 1 September 1997) by the state to meet the following EPA concerns:

- eliminate immunity and privilege provisions in criminal actions;
- eliminate immunity where a violation results in serious threat to human health or the environment;
- eliminate immunity where the violator has obtained a substantial economic benefit, giving it a clear competitive advantage;

⁶⁶ Memorandum from Gerald G. Johnston, *supra* note 64.

⁶⁷ Tnrcc, Litigation Support Division.

- clarify that individuals will not be sanctioned for reporting violations of environmental law to law enforcement authorities;
- clarify that privilege does not impair the state's review of information required to be made available under federal or state law; and
- provide public access to information required to be made public under federal or state law, irrespective of whether it is privileged.⁶⁸

In addition, Texas offered written assurances to the EPA that the audit law does not impair its authority or ability to obtain injunctive relief or issue emergency orders, and that there is no impairment of the state's ability to independently obtain or use evidence of a violation. The EPA indicated that, with these modifications and agreements, the Texas program met the requirements necessary for federal program delegation.⁶⁹

2.6.2 Government Programs to Promote the Development of Environmental Management Systems (EMSs) by Regulated Facilities⁷⁰

Environmental management systems (EMSs) are plans for companies and facilities to follow in order to assure they are making sound environmental decisions and managing their environmental programs in the most efficient and protective manner. Almost all EMSs utilize some form of self-auditing as a key management tool. In general, however, they go beyond a basic audit program goal of finding and correcting non-compliance by formalizing management systems designed to prevent non-compliance and continuously improve environmental performance.

As in the case of compliance self-auditing programs generally, the development of EMSs originated as a private sector initiative. Government organizations, however, have played a role in advancing the concept, and are exploring its potential benefits with respect to compliance assurance and monitoring and longer-term improvement of environmental performance by regulated facilities.

The EMS model that has become most widely known is the ISO 14001 international voluntary standard for environmental management systems, which was developed under the auspices of the International Organization for Standardization (ISO), a non-government international organization whose members are the national standards organizations from over 100 countries. The member organization from the United States is the American National Standards Institute (ANSI) – an organization which has coordinated and administered private sector standards in the United States for over 75 years, and which includes members from industry, government and trade and labor associations.⁷¹

ISO 14001 requires a facility or company to:

- develop an environmental policy and a commitment to achieving that policy;
- develop a plan for achieving the policy;
- implement the plan, including establishment and documentation of organizational responsibilities and provision of adequate resources and training;
- provide for measurement of performance against the policies and objectives; and
- provide a mechanism for making corrections where measurements show that performance is not in conformance with policies and objectives (i.e., continuous improvement).

⁶⁸ OECA, EPA, *Texas Audit Privilege and Immunity Fact Sheet 1*.

⁶⁹ *Id.* at 1–3.

⁷⁰ Additional information on environmental management systems and self-audits is included in Section 3 on industry roles in compliance monitoring.

⁷¹ ANSI Online (visited July 13, 1998), <http://web.ansi.org/default_js.htm>. ANSI standards are established on a consensus basis (as are ISO Standards) of member organizations.

The EPA and most state agencies have shown extensive interest in the ISO 14000 series of standards, and the potential for more effective environmental management for companies which adopt the standards. There has been concern, however, about some of the most enthusiastic claims for ISO 14001 standards (e.g., that the ISO 14001 standards would eventually replace environmental regulations). From the perspective of compliance assurance and compliance monitoring, it has been suggested that there are elements of the ISO 14000 standards which require careful consideration in determining their value and their limitations as a mechanism for improving regulatory compliance and providing better information regarding compliance, including, for example:

- ISO 14001 standards specify a management approach for ensuring achievement of management's environmental goals; they do not specify environmental performance standards;
- the standards require a policy commitment to achieving compliance with relevant legislation and regulation; they do not require current compliance; and
- the standards do not require that compliance monitoring information be made available to either government agencies or the public.⁷²

2.6.2.1 EPA's Approach to the Role of Environmental Management Systems in Compliance Monitoring

Task Group on EMSs and ISO 14001

In 1996, EPA established a joint federal/state task group to examine the relationship between EMSs and ISO 14001 in the specific area of regulatory compliance and enforcement. All major EPA offices, 18 states, and the Department of Justice were represented on the Task Force. The goal was to develop a report during 1997 that would:

- establish an approach for testing the hypothesis that EMSs can improve compliance and beyond-compliance performance;
- identify metrics to measure the extent to which EMSs can improve compliance and beyond-compliance performance;
- encourage the use of common metrics in state and federal pilot projects, and apply those metrics to analyze compliance and performance data; and
- encourage the establishment of a national database for the results of EMS pilot projects.

By developing a common approach to measuring the environmental performance of facilities participating in EMS/ISO 14001 projects with EPA or the states, EPA and the participating states hope to be able to find an objective basis for comparing performance before and after EMSs are implemented, and for relating performance to specific EMS characteristics.⁷³

EPA's Environmental Leadership Program

EPA's Environmental Leadership Program (ELP) is designed to provide incentives to facilities willing to develop innovative approaches, such as an EMS, independent and self-certified audits, and public participation to establish accountability for compliance with environmental laws. To participate in the ELP, a facility must demonstrate that it has an EMS in place that assures the facility conducts its operations in such a manner as to minimize environmental

⁷² Tibor, *ISO 14000: A Guide to the New Environmental Management Standards*, 34–75 (1996); *Benchmark Environmental Consulting*, "ISO 14000: An Uncommon Perspective" (Nov. 1995). See also North American Working Group on Environmental Enforcement and Compliance Cooperation (EWG), *Environmental Management Systems and Compliance, Report to the Council of the North American Commission for Environmental Cooperation on Results and Recommendations Pursuant to Council Resolution 97-05* (June 1998), available at: <<http://www.cec.org>>.

⁷³ EPA, *Briefing on EPA/State ISO 14001/EMS Task Group and Proposed Metrics for Evaluating Environmental Performance in Facilities Participating in EMS/ISO 14000 Experiments* (July 1997); Memorandum by Steve A. Herman, *Enforcement and Compliance Policy Toward ISO 14001 and Establishment of the OECA ISO 14001/EMS Task Group* (June 25, 1996).

harm. The ELP EMS requirements parallel those of ISO 14001, but with additional requirements associated with compliance assurance, pollution prevention, community outreach and other environmental enhancement activities. ISO 14001 registration and certification are not required for participation in the ELP.

ELP participating companies will be subject to regulatory relief, such as fewer facility inspections, reduced reporting, expedited permitting, longer time frames between permit renewals, and streamlined processes for modifying existing permits. In addition, they will receive public recognition of their ELP efforts. Ten private sector facilities and two federal facilities have completed a one-year pilot project to test parts of the ELP. EPA plans to initiate full-scale ELP projects during FY1998. Facilities must commit to six years of participation in ELP. Qualifying facilities must have a "mature" EMS program, one that has been planned, implemented and tested to ensure it is working properly.

One of the compliance elements of the ELP that is not a part of ISO 14001 is the requirement to prepare and make public an annual environmental performance report. The reports must include factual data about compliance, including the date of detection of any violations, the date regulators were notified of non-compliance, the type of corrective action taken by the company to address the violation, and the root cause of the problem. In addition to the annual reports, compliance must be achieved and EMS audits performed in years Two and Five of the six-year ELP cycle.⁷⁴

2.6.2.2 State Initiatives With EMSs and Compliance Monitoring

There have been a wide range of state initiatives to promote the adoption of environmental management systems by companies. These have included both individual state efforts, and a joint project involving several states: the Multi-State Working Group on Environmental Management Systems (MSWG). The member states of the MSWG are Arizona, California, Illinois, Massachusetts, Minnesota, North Carolina, Oregon, Pennsylvania, Texas and Wisconsin.

MSWG Approach

The MSWG is establishing criteria for the evaluation of state pilot projects involving company adoption of ISO 14001 or other EMS standards. The criteria involve environmental performance, environmental compliance, pollution prevention, and stakeholder confidence. The states have developed a project evaluation matrix, which is intended to promote a common reporting format while allowing for a wide diversity in state approaches. The matrix can be applied to a single site, a company, a business sector, to government actions, to individual environmental contaminants of concern, or to a geographic area. With respect to compliance monitoring or measurement, the matrix provides a category of environmental compliance indicators which categorizes such areas as the seriousness of a violation, the promptness of discovery and remedial measures, and actions taken to prevent recurrences.

California EPA

Cal/EPA is launching an EMS pilot with a focus on regulatory integration. A task force has been set up to develop a series of pilot projects to test and demonstrate the utility of ISO 14001 as a tool to augment or replace elements of the current compliance and enforcement system. Participation in the pilot projects is expected to be voluntary. Companies will develop project plans and draft compliance agreements. Regulatory agencies will provide technical assistance, review project plans, track implementation, review project results, evaluate projects and make recommendations. Public involvement will be key. In order to be considered for the pilot projects, businesses must show a good compliance record. Regulatory relief mechanisms such as decreased frequency of inspection and lower reporting and record keeping requirements would be one subject of study.

⁷⁴ EPA, *FY 1996 Enforcement and Compliance Assurance Accomplishments Report*.

2.7 Future Directions: Efforts to Broaden the Scope of Compliance Data

Both the EPA and state agencies have been working to develop new measures for assessing compliance and prioritizing enforcement efforts, and to measure the effectiveness of new tools such as compliance assistance and incentives. The goals of these efforts to refine compliance measurement have included:

- more fully and accurately assessing the current state of compliance by developing broader coverage of regulated facilities and more accurately characterizing the extent of non-compliance at facilities;
- better relating the impact of enforcement and compliance assurance activities to actual compliance, and to environmental and/or human health results;
- developing data which could indicate the compliance results of agency or voluntary initiatives; and
- developing measures of the resource efficiency of program activities in achieving environmental goals.

One issue under discussion has been the extent to which measures focusing on behavioral outcomes and/or environmental results should displace traditional output measures. Both the EPA and some of the states have recognized for some time that the traditional output measures used by the EPA (e.g., number of inspections or enforcement actions) focused management attention away from dealing with priority environmental problems—that the traditional indicators that were appropriate during the early development of environmental programs no longer provided a meaningful measure of program effectiveness or results.⁷⁵ The EPA, while agreeing with the need to move to compliance measures that are outcome and results focused, believes that there is a continuing need for measurement and management of outputs, and wants to ensure that the compliance measurement/evaluation approaches emerging in the states provide a common basis for compliance program evaluation.⁷⁶

There are several forums in which compliance monitoring issues are being discussed. These include the joint development by the EPA and ECOS of core performance measures under NEPPS,⁷⁷ the National Performance Measures Strategy for EPA's Enforcement and Compliance Assurance Program, and state efforts to develop and share compliance measurement and evaluation strategies.

2.7.1 *The GPRA, EPA's Strategic Plan, and the National Performance Measures Strategy for EPA's Enforcement and Compliance Assurance Program*

EPA has been conducting its efforts to develop performance measures for compliance assurance both in the context of discussions with the states and in the context of the new requirements of the Government Performance and Results Act (GPRA), which focuses on achieving greater effectiveness of federal programs through an emphasis on results, service quality and customer satisfaction. Under GPRA, EPA (as well as other federal agencies) was required to develop, by September 30, 1997, both a five-year strategic plan and an annual performance plan for FY 1999. In addition, the GPRA requires EPA to develop a performance report for FY 1999 (by March 31, 2000) that evaluates performance against measures incorporated in the FY 1999 annual performance plan. "The National Performance Measures Strategy" for EPA's Enforcement and Compliance Assurance Program is one of the critical components for this planning and evaluation process.⁷⁸

⁷⁵ Bernie Penner of the Maryland Department of the Environment, for example, illustrated his view with the comment, "A carpenter cannot be judged by the number of times he uses his hammer." during the National Performance Measures Strategy for EPA's Enforcement and Compliance Assurance Program, Roundtable for State Environmental Agencies (June 25, 1997).

⁷⁶ Discussions at the EPA Roundtable Session, *id.*, (June 25, 1997); Office of Enforcement and Compliance Assurance, EPA, *Measuring the Performance of EPA's Enforcement and Compliance Assurance Program: Draft Report of the National Performance Measures Strategy* (Sept. 1997).

⁷⁷ See Section 2.2.6 above.

⁷⁸ EPA Briefing Package, *GPRA Mandates Greater Agency Accountability for Public Resources*; Memorandum from Sallyanne Harper (Acting Chief Financial Officer, EPA) to Assistant Administrators et al., *Guidance on Developing Objectives for Planning, Budgeting and Accountability* (Nov. 22, 1996).

As required by GPRA, EPA has developed a Strategic Plan.⁷⁹ The Plan includes:

- ten general goals (of which two have particular interest for compliance monitoring),
- a limited number of objectives for each goal,
- expected accomplishments,
- related strategies, and
- measures for evaluating performance under the goal.

The goal with greatest relevance for compliance monitoring is Goal 9: “A credible deterrent to pollution and greater compliance with the law.”⁸⁰

- The two objectives under the goal are:
 - “Identify and reduce significant non-compliance in high priority program areas, while maintaining a strong enforcement presence in all regulatory program areas”.
 - “Promote the regulated communities’ voluntary compliance with environmental requirements through compliance incentives and assistance programs.”
- Examples of expected accomplishments under goal 9 include:
 - “...complete baseline measurement data for use in measuring changes in key indicators of compliance appropriate to designated high priority portions of the regulated community....”
 - “... maximize ... effectiveness by strategically targeting ... enforcement and compliance activities to address the most significant risks to human health and the environment and to address disproportionate burden on certain populations....”
 - “Increased number of violations reported and subsequently corrected through self-disclosure by the regulated community over the 1997 level.”⁸¹

For measurement of accomplishments under the goal, the Plan specifically refers to the effort under OECA’s “National Performance Measures Strategy” (Measures Strategy) “to develop a range of measures that reflect the broad spectrum of enforcement and compliance activities, the degree to which they protect human health and the environment, and industry compliance with applicable laws.”⁸²

The National Measures Strategy was the subject of a series of public meetings with all stakeholders from January through October of 1997; a final report was prepared in December 1997.⁸³ As required by the GPRA planning process, the goal of the Measures Strategy effort was to develop measures which would facilitate evaluation and measurement of OECA’s enforcement and compliance assurance programs, with increased emphasis on environmental impacts and program outcomes.

⁷⁹ EPA, *EPA Strategic Plan*, Sept. 1997, EPA/190-R-97-002.

⁸⁰ *Id.* at 56–58. The other goal with importance for compliance information is Goal 7, relating generally to right-to-know, which calls for public availability of all non-confidential EPA data (pp. 50–52).

⁸¹ *Id.* at 54.

⁸² *Id.* at 58.

⁸³ Memorandum from Michael M. Stahl, Deputy Assistant Administrator to Stakeholders and Interested Parties, *National Performance Measures Strategy* (Dec. 22, 1997) available at: <<http://es.epa.gov/oeca/perfmeas/npmsfinal.html>>.

The National Measures Strategy report on the Strategy describes a “performance profile for EPA’s enforcement and compliance assurance program” which lays out a framework of eleven sets of performance measures. The measures are divided into three categories:⁸⁴

a. **Indicator Category**

OECA will evaluate the impact of its programs on environmental, human health and non-compliance problems through annual assessments of program contributions to EPA’s strategic objectives. The specific objectives for evaluative studies were not yet selected at the time of the report.

b. **Outcome Category**

This category will focus on program effects on behavior of regulated populations, including:

- levels of compliance in regulated populations,
- environmental improvements by regulated entities, and
- responses of Significant Violators.

c. **Output Category**

This category will focus on program effects on enforcement and compliance assurance activities, including:

- monitoring compliance through number of inspections, record reviews, responses to citizen complaints, and investigations conducted;
- enforcing the law through civil and criminal actions;
- providing assistance and information to facilities; and
- building capacity of state, local or tribal programs.

The draft report on the Strategy describes a “performance index for enforcement and compliance assurance” which lays out a framework of fourteen proposed performance measures, some of which will require further development prior to implementation. The measures are divided into three levels:⁸⁵

- *Level 1: Indicators* (“quantitative or qualitative measures over time of progress toward achieving environmental objectives”): impact of OECA program outputs and outcomes on achieving general Agency GPRA environmental objectives or specific sector-based, community-based or other initiatives.
- *Level 2: Outcomes* (“quantitative or qualitative measures of external behaviors by public or regulated entities caused, at least in part, by actions of government”):
 - levels of compliance/non-compliance in regulated community;
 - actions taken by regulated entities (including environmental management improvements resulting from voluntary actions, EPA enforcement or targeted compliance assistance efforts, or self-policing efforts resulting from targeted compliance assistance); and

⁸⁴ Office of Enforcement and Compliance Assurance, EPA, *Measuring the Performance of EPA’s Enforcement and Compliance Assurance Program, Final Report* (Dec. 22, 1997), pp. 12–21. The definitions of indicators, outcomes and outputs are based on definitions developed jointly by EPA and ECOS for the Core Performance Measures to be used in Performance Partnership Agreements.

⁸⁵ *Id.*; The definitions of indicators, outcomes and outputs are based on definitions developed jointly by EPA and ECOS for the Core Performance Measures to be used in Performance Partnership Agreements.

- significant violator responses (including average days to return to compliance or enter enforceable agreements, and percentage of SVs with recurrent significant violations).
- *Level 3: Outputs* (“quantitative or qualitative measures of important activities, work products or actions taken by EPA or by the states”):
 - monitoring compliance (number of inspections, record reviews, investigations, civil and criminal actions concluded; self-policing settlements);
 - providing assistance and information (number of facilities reached through compliance assistance; compliance assistance and compliance information tools developed for regulated entities and the public); and
 - building capacity (assets provided by EPA to state, local or tribal programs).

2.7.2 State Approaches to Providing a Broader Measurement Context for Compliance Monitoring

As discussed above, numerous states have been working, both individually and jointly, to develop compliance monitoring measures which give a more complete and accurate picture of compliance and relate compliance to state environmental objectives and priorities. Joint efforts have included both the development by ECOS with the EPA of Core Performance Measures related to compliance monitoring under NEPPS,⁸⁶ and shared state efforts to develop alternative measurement approaches. The numerous individual state efforts, of which the summaries below are illustrations, include both use of old compliance data in new ways, and development of approaches to place more focus on outcomes and environmental results of compliance efforts (similar in objective, and often content, to OECA’s Measures Strategy).

2.7.2.1 Illinois EPA Pilot of Outcome Measures Related to Compliance Assurance

Illinois EPA uses different analyses of existing data to create and test six program outcome measures related to compliance assurance:⁸⁷

- total pollutant load (pounds of pollutant) associated with non-compliance as a percent of total permitted load discharged;
- yearly significant non-compliance days per NPDES major discharger;
- percent discharge monitoring data received that is required to be reported by the NPDES program;
- percent of sample results received that are required to be reported under SDWA;
- average number of days to reach agreement on a compliance plan for resolution; and
- annual compliance excellence achievers as demonstrated by three or more years of sustained compliance.

The performance measures are new and still evolving. Most of the FY 95–96 data efforts were to establish a baseline from which future accomplishments could be measured. Nonetheless, some results of the pilot included:

- By tracking excess pollutant load discharged, IL EPA was able to crossmatch critical watersheds with facilities showing significant levels of noncompliant load, and prioritize enforcement efforts to eliminate the most significant impacts on the state’s water resources. Over the two year period of this study, excess loads discharged at 325 priority targeted facilities dropped by 39%. This translates into about 45,686 pounds of pollutants no longer discharged into Illinois waters.

⁸⁶ See discussion above.

⁸⁷ Roger Kanerva, IL EPA, *Pilot Performance Measures in Illinois*, Presentation at the OECA Roundtable for State Environmental Agencies on the National Performance Measures Strategy, Washington, DC. (June 25, 1997).

- The use of SNC-days (the second pilot measure), as compared to SNC-quarters, also allowed IL to better prioritize facilities. For example, a facility with violations of a daily maximum limit on the first and last day of a Quarterly Non-compliance Report (QNCR) period are identified as being in SNC two days, as opposed to the entire quarter. The average number of SNC days per major discharger increased over the study period, but that was due to a new enforcement process and the change in basic EPA SNC definition.
- The sixth pilot measure, percent excellence achievers, showed that 26% of all major NPDES dischargers in Illinois had no reportable non-compliance for the three year period 1994–1996. For Community Water Suppliers (CWS), the figure was higher: 52% had no reportable non-compliance, three years in a row.⁸⁸

Compliance rate results of the measures included:

Excess pollutant load discharged:

Calendar Year	% of excess load due to non-compliance
1995	0.79
1996	0.49

Significant non-compliance days:

Calendar Year	SNC days per major discharger
1995	11.8
1996	13.2

Percent of DMR data received:

Calendar Year	Discharger type	DMR parameters reported to IL	DMR forms received by IL
1995	Majors	99.0%	99.8%
1996	Majors	99.8%	99.9%

⁸⁸ *Id.*

Percent of SDWA sample results received:

Calendar Year	Sample results received by IL
1996	94.0%

Average number of days for agreement:

Calendar Year	Avg. number of days
1996	126

Annual compliance excellence achievers (1994, 1995, 1996):

Facility Types	Percent achieving excellence
Major dischargers	26%
CWS	52%

2.7.2.2 Florida DEP's Integrated Reporting

The Florida Department of Environmental Protection (DEP) has initiated quarterly performance reports on the environment which are intended to “help us understand the consequences of what we are doing.”⁸⁹ The first report was issued in October 1997. It provides for four tiers of data:

- Tier 1 – Environmental & Public Health Outcome Indicators

Includes environmental and human health results/indicators, such as percent of population living in areas monitored for air quality, percent of days with “very good” air, percent reductions/increases in air pollutants, percent of water bodies in each of the five water quality classifications, percent increase/decrease in water quality, as well as related measures for wetlands, solid and hazardous waste, habitat conservation and protection, etc.

- Tier 2 – Behavioral and Cultural Measures

Includes primarily current compliance rate data (based on random inspections, rather than targeted or complaint-related inspections, as well as monitoring data), as well as some information on such behaviors as used oil recycling, self-auditing activity, volunteer efforts.

⁸⁹ Florida Department of Environmental Protection, 1 (1) *Secretary's Quarterly Performance Report* (Oct. 31, 1997).

- Tier 3 – Departmental Outputs and Activities

Major elements are the traditionally measured departmental efforts, such as permitting, inspection and enforcement activity, as well as information on rates of significant violations detected and returns to compliance with or without formal enforcement. Inspection activity is reported in terms of types of facilities inspected and, in a few cases, number of inspections with respect to the total universe of regulated facilities.

- Tier 4 – Resource Efficiency

Currently this provides a budget breakdown by major categories and subcategories of expenditure.

This report was intended as a first step in developing a measurement structure and reporting format for relating behavioral outcomes and environmental impacts to DEP activities. While this provides a first public reporting structure moving in the same direction as the National Performance Measures Strategy, the report notes that many of the data elements and data relationships still need to be refined or developed.

3 Industry's Role in Compliance Measurement

There are two major components to industry's contribution of data for compliance monitoring and measurement. The first, which involves industry fulfillment of very specific self-monitoring requirements imposed by statute and regulation, has been discussed previously in the context of the government's information-gathering role in compliance monitoring. There is, however, an additional voluntary component of compliance monitoring and reporting by industrial sources, primarily comprised of various types of environmental compliance self-auditing programs and environmental management systems (EMSs). As previously discussed, federal and state governments are currently actively developing policies and programs to promote and encourage self-auditing and EMSs.⁹⁰ Environmental auditing and EMS programs can be considered as a continuum of self-monitoring approaches for industry, but at either end of the spectrum there are considerable differences in the extent of environmental compliance or other environmental information developed, and the extent to which that information is made available to government agencies or the public.

3.1 Self-Auditing

Most large industrial sources have carried out environmental auditing programs of some kind for years—initiated as self-protection against inadvertent violation of compliance requirements and/or as a guard against the major liabilities which could result from significant releases of pollutants which could cause major human health or environmental impacts. In the 1970s, subsequent to the passage of the major federal environmental statutes and requirements of the Security and Exchange Commission that several major companies identify environmental liabilities more fully in annual reports to stockholders, environmental auditing became a distinct component of compliance management. In the mid-1980s, environmental managers and auditors from several companies formed two organizations to support the development and promotion of environmental auditing: the Environmental Auditing Roundtable and the Environmental Auditing Institute. The Environmental Auditing Roundtable, established in 1982, is an organization of professional environmental, health and safety auditors, focusing primarily on industry needs. It adopted formal standards for conducting environmental audits in 1993.⁹¹

Several factors fueled the spread of environmental auditing in companies, including the potential for large penalties if a company is found in violation of the increasingly complex federal, state and local environmental laws and regulations; potential civil liabilities for environmental damages; the liability implications of the Superfund law; and the availability or high cost of liability insurance for coverage of environmental accidents. Companies were concerned not only with potential problems at their own facilities, but with the adequacy of the environmental systems of clients and waste management contractors.

The form of compliance auditing programs often depends on the specific objectives of the program, which can include:

- ensuring environmental regulatory compliance;
- reducing or identifying environmental liabilities;
- checking performance of operations managers with respect to environmental responsibilities;
- avoiding liabilities for corporate officers; and
- increasing environmental awareness.

⁹⁰ See Section 2.6.1. above on government programs to promote self-auditing and the development of EMSs.

⁹¹ Lawrence B. Cahill, "Environmental Audits," *Government Institutes*, 7th ed., (1996), at 19,20.

In its 1986 Environmental Auditing Policy Statement, the EPA spelled out what it believed to be the key elements of an environmental auditing program. While in no way binding, and not meant as a description of the then-current practice of auditing by companies, it was based on extensive discussions by EPA staff with industry auditors, particularly those involved with the Environmental Auditing Roundtable. The statement listed various elements of such an audit, including: explicit top-level management support for environmental auditing and a commitment to follow up on audit findings; an environmental auditing function independent of audited activities; adequate team staffing and auditor training; explicit audit program objectives, scope, resources, and frequency; a process which collects, analyzes, interprets and documents information sufficient to achieve audit objectives; a process which includes specific procedures to promptly prepare candid, clear and appropriate written reports on audit findings, corrective actions, and schedules for implementation; and a process which includes quality assurance procedures for accurate and thorough environmental audits.⁹²

The EPA's approach, and the approach of the more sophisticated companies performing environmental audits at the time, was already moving in the direction of systematic, independent management of the auditing process. This direction has been reinforced by the EPA's 1995 self-auditing policy, and has led to the more systematic efforts involved in EMSs.

It is important to note that the emphasis of corporate environmental auditing has been on providing compliance monitoring information for internal use. Concern with potential liabilities created by discovery of audits has led companies to examine various mechanisms for creating attorney-client privileged relationships for audit information. One of the objectives of the EPA's 1995 policy was to provide companies with an incentive for disclosure of non-compliance information.⁹³

3.2 Environmental Management Systems

Environmental Management Systems (EMSs) are plans for companies or industrial facilities to follow in order to assure they are making sound environmental decisions and managing their environmental programs in the most efficient and protective manner. Both the proliferation of industrial self-auditing programs and growth of the movement toward EMSs came in the aftermath of environmental/human health disasters, such as the catastrophic release at Bhopal and a subsequent threat of a similar release at a site in West Virginia. Other reasons were the potentially massive Superfund liabilities resulting from industrial contributions to major sites of toxic contamination and the increased focus on criminal prosecutions of individual corporate managers for environmental crimes. Further encouragement of industry self-monitoring and self-reporting of compliance comes from a variety of state and federal policies and pilot programs.

From the perspective of compliance monitoring, EMSs provide both a systematic way for facilities themselves to identify regulatory compliance requirements and track both compliance and the underlying causes of compliance and non-compliance on a systematic basis, and the opportunity to provide such information on a voluntary basis to government agencies and the public. Major elements of an EMS include:

- a formal commitment to improving environmental performance, supported by policies and procedures that uphold the commitment;
- self-policing, via audits, regulatory tracking, and environmental impact planning;
- implementation of the EMS through a formal structure, internal and external communication, training and education;
- measurement and evaluation of the EMS;

⁹² EPA *Environmental Auditing Policy Statement*, 51 Fed. Reg. 25,008-25,009.

⁹³ See Section 2.6. above.

- review of the root cause of deficiencies; and
- continuous improvement.

There can be a variety of differentiating factors among EMS approaches. With respect to compliance monitoring, two may be of particular interest:

- Monitoring of compliance against existing legal and regulatory standards is a uniform EMS component. But most EMS approaches being utilized by US firms do not establish limits independent of regulations. ISO 14001, for example, does not establish any environmental performance levels or limits; the European Union's EMAS system, by contrast, does call on companies to undertake Economically Viable and Achievable Best Available Technology where feasible. While an EMS can require systems designed to assure and maintain current compliance with regulations, ISO 14001 requires systems designed to assure eventual achievement of compliance (though companies adopting an ISO 14001-based system may make current compliance their actual goal).⁹⁴
- EMS approaches also differ considerably in the extent to which they call for providing information to external stakeholders. ISO 14000 does not require public reporting, while both EMAS and the Environmental Self-Assessment Program (ESAP) of the Global Environmental Management Initiative (GEMI) require public environmental statements. GEMI emphasizes that external communications should be based on a careful assessment of the needs and interests of external stakeholders:

Using environmental measurement and reporting to address the information needs of key external stakeholders ... is an important step toward establishing a dialogue.... An effective reporting program can help differentiate a company from its competitors by demonstrating an environmental commitment, translating the commitment into specific goals and actions, and documenting overall progress.⁹⁵

One of the earliest examples of adoption of an EMS approach by an industry sector in the US is the Responsible Care Program, which all members of the Chemical Manufacturers Association (CMA) must implement. First initiated in 1988, Responsible Care is an evolving environmental management approach, which requires actions according to a set of general management practices, evaluation and verification of progress in meeting goals, and a system for corrective action where needs for improvement are identified. The program emphasizes identification and implementation of pollution prevention opportunities, working with suppliers and customers to achieve environmental objectives, working to "meet or exceed all regulations or industry standards governing chemical distribution," and sharing information with the community proactively on a person-to-person basis (though without spelling out the types of information that should be released).⁹⁶

⁹⁴ Tibor, *supra* note 72.

⁹⁵ GEMI, *Environmental Reporting in a Total Quality Management Framework*, (1994) 29. GEMI is a consortium for environmental excellence of major international corporations (e.g., Allied Signal, Amoco, Boeing, Dow, DuPont, Proctor & Gamble, etc.). The ESAP approach is based on principles adopted by the International Chamber of Commerce (ICC). See also GEMI, *Environmental Self-Assessment Program* (1993); Tibor, *id.*, at 89–90.

⁹⁶ CMA, *Responsible Care®: Codes of Management Practices* (Visited July 13, 1998), <<http://www.cmahq.com/cmaweb/site.nsf/pages/responsiblecare>>; and Responsible Care® reports for the Rohm and Haas Company (Donald J. Verrico, *Responsible Care Management Systems Verification* (May 22, 1997) <<http://www.rohmhaas.com/company/MSV.html>>) and for Reichhold Chemicals, Inc. (Donald J. Verrico, *Responsible Care® Management Systems Verification* (Dec. 6, 1996), <<http://www.reichhold.com/MSVReprt.PDF>>).

4 The Public's Role in Compliance Monitoring

There are a number of traditional and new avenues open to the US public for interacting with and influencing the compliance assessment system. The most routine and frequently-practiced are tips and complaints to environmental agencies by citizens. In addition, there are numerous efforts by environmental public interest groups to evaluate the current state of compliance monitoring, to assure the public availability of compliance data, and to use publicly-available environmental data from facilities to focus on particular compliance issues. Finally, there are instances where the public has been specifically recruited to support government compliance monitoring efforts.

4.1 Public Complaints

All states respond to complaints from the public about potential environmental impacts on the surrounding neighborhood or area as a result of pollutant releases of various kinds from facilities. Most have toll-free hotlines for citizens to use in reporting instances of suspected violations. Many of these complaints fall within the jurisdiction of local governments. Typical causes of complaints may be odors, visible releases to any media, or noise. Most agencies report spending a substantial proportion of their resources in responding to such complaints. Inspections initiated in response to such complaints also tend to lead to particularly high rates of discovery of non-compliance. In Massachusetts for example, 70% of inspections resulting from complaints in FY95 resulted in discoveries of non-compliance which resulted in enforcement initiatives—the highest of any category of inspection. Even inspections of facilities with a history of non-compliance, for example, resulted in discovery of non-compliance resulting in enforcement initiatives only 52% of the time. In addition, Massachusetts found that 4% of inspected complaints led to the discovery of “outlaw” facilities—facilities which should have been, but were not, covered by permitting or reporting requirements. In addition, 12% of such inspections led to identification of non-compliance in more than one media program.

4.2 Citizen Suits

Citizens filing a complaint with state governments often lead to inspection and the detection of violations by the state environmental department or the EPA. If the state government or federal government does not react, citizens have the right to follow through with a law suit. A citizen suit grants citizens the right to bring enforcement action against any federal agency, state agency, locality, or private party in violation of emission standards set forth by the statute.

To ensure adequate protection of the environment, and to provide assistance in the enforcement of environmental statutes, the citizen suit provision in section 304 of the Clean Air Act (CAA) of 1970 acts as a model for almost every federal environmental statute since 1970.⁹⁷ The provision empowers the individual citizen to bring a lawsuit under a federal environmental statute for the purpose of enforcing that statute. A citizen suit grants citizens the right to bring enforcement action against any federal agency, state agency, locality, or private party in violation of emission standards set forth by the statute. A citizen may also bring civil action against the EPA administrator for failure to perform a non-discretionary duty. To initiate citizen enforcement actions, a written notice must be sent to the alleged violator, the EPA, and the state in which the violation is occurring at least 60 days before the action is to be filed. Several legal organizations have specialized in helping individuals and communities bring about citizen suits, especially under the Clean Water Act.

⁹⁷ 42 U.S.C. 7604

4.3 Public Availability of Compliance Information

4.3.1 EPA-Facilitated Access to Data

With the advent of the Internet, and wide access to such resources as the World Wide Web, EPA has made a commitment to improving public access to facility compliance data. EPA's FY 1996 statement⁹⁸ of enforcement and compliance assurance priorities states that:

OC recognizes the public's important role in risk management. It will promote citizen participation by providing increased public access to compliance databases through IDEA, OECA's database-linking system that allows assembly of compliance, enforcement, and environmental information on a facility level.

In FY 1997, EPA moved forward on that commitment by establishing the "Envirofacts Warehouse" (http://www.epa.gov/enviro/html/ef_overview.html), a single point of access to select US EPA environmental data, including facility-level compliance data. At present, the Envirofacts Warehouse allows a user to retrieve environmental information from EPA databases in the following areas:

- Superfund sites,
- drinking water,
- toxic and air releases,
- hazardous waste,
- water discharge permits, and
- grants information.

Using online queries, the user can retrieve data or generate maps of environmental information by choosing from several mapping applications. Envirofacts Warehouse currently provides access to seven basic EPA compliance databases (including AIRS, RCRIS, TRI and PCS); it also includes three "cross-reference" databases: the Facility Index System, the Master Chemical Integrator, and the Locational Reference Tables. An Envirofacts Query placed on-line generates facility-based reports, and can provide pollutant maps of a given geographical area. In development, a new feature of the web site will be corporate links. The EPA has invited corporations to link their web pages to an Envirofacts facility record or profile. According to the EPA, "This will provide Envirofacts users with more information about facilities that report to EPA, which is consistent with the Agency's intent to make information available to the public."

4.3.2 Other Internet Resources and Public Access to Data

Some environmental organizations use websites to promote citizen access to both corporate data and environmental performance data. The Environmental Background Information Center (<http://www.ebic.org>) is a non-profit organization that provides corporate research and strategic assistance to members of the public who are interested in getting involved in local environmental issues.

The Right-to-Know Network (<http://www.RTKnet.org>), is a non-EPA site which includes the Toxics Release Inventory databases for the United States, as well as other RTKnet databases, such as the Master Standard Report, which allows a user to search by geographic area, facility, or industry through a number of environmental databases at once.

Another resource is the Environmental Technical Information Project (E-Tip) on the ECOLOGIA website (<http://ecologia.nier.org/>), which is an annotated collection of the best environmental information resources on the

⁹⁸ Herman, *supra* note 17.

Internet. ECOLOGIA (**E**cologists **L**inked for **O**rganizing **G**rassroots **I**nitiatives and **A**ctions) is a private, not-for-profit organization which provides information, training, and technical support to non-governmental organizations (NGOs).

Additional general non-governmental sources of information which may be of use to the public in ascertaining compliance or compliance-related information at facilities include the following:

Name	Web Site Address	Primary Use
Scorecard Environmental Defense Fund	Scorecard.org	Multimedia Releases Risk and Relative Risk
Chemical Profiles Chemicals Marketing Reporter	Chemexpo.com	Chemical Manufactures Design Capacities
Product Focus Reports Chemical Week	Chemweek.com	Chemical Manufactures Design Capacities
Environmental Chemicals Data Information Network	Ulisse.etoit.eudra.org	Risk information Environmental Fate

Some states are beginning to develop publicly-accessible compliance-related databases. In early 1998, for example, Pennsylvania DEP initiated an on-line database providing individual facility information on compliance with Pennsylvania's environmental laws.⁹⁹

4.4 Public Interest Group Compliance Data Analysis

Many public interest environmental groups, functioning as watchdogs of the EPA and as proxy for the average citizen, use EPA compliance to evaluate the adequacy of federal or state compliance monitoring programs, and/or to evaluate the compliance performance of individual facilities or industrial sectors.

For example, the US Public Interest Research Group (PIRG) regularly reviews data from EPA's water program Permit Control System (PCS) database. PCS data is based on self-reported compliance and discharge information from Discharge Monitoring Reports (DMRs) from major permitted NPDES dischargers. In a recent review, US PIRG reported that nearly 20 percent of the nation's 6,884 major industrial, municipal and federal facilities were in Significant Non-Compliance (SNC) with the CWA during at least one quarter from January 1995 through March 1996.¹⁰⁰ PIRG also reported that 21% of all major industrial discharges exceeded their permitted effluent limits by at least 50% once between 1 January and 31 March 1996. This is more than three times the number of facilities determined by the EPA to be in SNC during the single quarter. (SNC for effluent limits, as determined by EPA, is triggered by 40% transgressions of conventional pollutant limits and 20% transgressions of toxic limits two times in six months, or transgressions by any amount four times in six months.) The report is part of an ongoing PIRG effort to publicize compliance monitoring information to illustrate inadequacies in the nation's environmental management program.

⁹⁹ For a summary of available information and background to development of the database, see *Pennsylvania Premieres On-line Compliance Reporting*, Press Release (last modified Apr. 29, 1998), <<http://www.dep.state.pa.us/dep/deputate/polycomm/press-rel/novak/CN02091.htm>>.

¹⁰⁰ U.S. Public Research Interest Group (PIRG), "Summary of Findings", in: *Dirty Water Scoundrels* (Mar. 1997), <<http://www.pirg.org/pirg/enviro/water/dws97/summary.htm>>.

4.5 Involvement of the Public in Compliance Monitoring

Environmental compliance monitoring has spread into the public sphere. According to the EPA, agencies are realizing the potential power of enlisting the public and appropriate segments of the regulated community in ensuring compliance and promoting behavior that goes beyond compliance, and this right to know is considered one of the tools to motivate industry and government.¹⁰¹ EPA headquarters and the Regional Offices sponsor or conduct monitoring projects designed to answer specific questions. Private entities such as universities, watershed associations, environmental groups, and industries may be enlisted by the state and local agencies to collect and analyze water quality data. In addition, volunteer monitors—private citizens who volunteer to regularly collect and analyze water samples—often conduct visual assessments and measure the biological health of waters.

Volunteer Monitoring

The EPA sponsors national and regional conferences, publishes sampling methods manuals, and produces a nationwide directory of volunteer programs for volunteer water monitors. Volunteer monitoring programs range from collecting water quality data to collecting debris and to restoring habitats. Projects are funded through a variety of sources from the state's environmental departments to private contributors. EPA supports the program through pollution prevention grants to the states. The Regional offices provide technical assistance for data quality control and serve as contacts. EPA has advised that volunteer monitoring increases awareness of pollution problems and provides information about waters that may otherwise not be assessed.

The United States has seen an increase in volunteers because of increased technical and/or organizational support from state water quality or natural resource agencies. In 1988, 14 states supported volunteer monitoring. This increased to 32 states in 1992, with an additional 6 state programs in the planning.¹⁰² According to the EPA's Office of Water, there are more than 24,000 volunteers monitoring more than 985 streams and rivers, 2800 ponds, lakes, and wetlands, and 4 major estuaries.¹⁰³

Examples of volunteer monitoring programs include Kentucky Water Watch and Texas Watch. KY Water Watch provides basic stream monitoring, biological monitoring, chemical testing, and video and photographic monitoring. Texas Watch Environmental Monitoring Program "is a network of trained volunteers and supportive partners working together to help the Texas Natural Resource Conservation Commission (TNRCC) protect Texas' environment".¹⁰⁴ The program was established in 1991 and funded through the CWA. The goals of Texas Watch are to "Produce accurate, usable environmental information that government agencies, waste generators, and the public need to make environmentally sound decisions; improve communications about the environment and environmental issues; and to resolve conflicts over environmental impacts through environmental cooperation."¹⁰⁵

¹⁰¹ Michael M. Stahl (Deputy Assistant Administrator, OECA, EPA), *Toward the Next Generation of Environmental Compliance, Final Draft Paper* (July 15, 1995), pp. 13-14.

¹⁰² See Office of Water, EPA, *What is Voluntary Monitoring?* <<http://www.epa.gov/OWOW/monitoring/volunteer/epavm.html>>.

¹⁰³ *Id.*

¹⁰⁴ See <<http://www.tnrcc.state.tx.us/txwatch>> (visited July 13, 1998).

¹⁰⁵ *Id.*

Appendix A: List of Persons Interviewed

- Joe Acton, Targeting & Evaluation Branch, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Stephen Adams, Senior Management Analyst, Strategic Projects and Planning, Florida Department of Environmental Protection
- Mark Antell, Enforcement Planning, Targeting and Data Division, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Jeffie Barbee, Office of Compliance and Enforcement, Texas Natural Resource Conservation Commission
- Michael Barrette, Manufacturing Branch, Office of Compliance, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Richard Biondi, Associate Director, Manufacturing, Energy & Transportation Division, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Joseph Boyle, RCRA Enforcement, Region 5, US Environmental Protection Agency
- Bud Bridgewater, Bureau of Water, Illinois Environmental Protection Agency
- Renee Cypriano, Associate Director, Enforcement, Illinois Environmental Protection Agency
- Anne Dobbs, Office of Legal Services, Texas Natural Resource Conservation Commission
- Richard Duffy, Chief, Targeting and Enforcement Branch, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Tom Eaton, Washington Department of Ecology
- Tom Eggert, Bureau of Pollution Prevention, Wisconsin Department of Natural Resources
- Irene Erhart, National Enforcement Investigations Center, US Environmental Protection Agency
- Marianne Fitzgerald, Pollution Prevention Coordinator, Oregon Department of Natural Resources
- Carol Galloway, Chief, Data Management Branch, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Ravila Gupta, North Carolina Department of Environment, Health and Natural Resources
- Lynn Helbrecht, Washington State Department of Ecology
- Sharon Johnson, North Carolina Division of Pollution Prevention and Environmental Assistance
- Gary Jonessi, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Eric Kilberg, Minnesota Pollution Control Agency
- John Kolaz, Bureau of Air, Illinois Environmental Protection Agency
- Kim Kreiton, Compliance Assurance Planner, Massachusetts Department of Environmental Protection

- Michael Levin, McGuire, Woods, Battle & Boothe
- Gene Lubienecki, National Enforcement Investigations Center, US Environmental Protection Agency
- David Meredith, Chief, Liaison and Outreach Section, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Wendy Miller, Office of Planning and Policy Analysis, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Tai Ming-Chang, Environmental Leadership Program Coordinator, Manufacturing, Energy & Transportation Division, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Chris Nugent, Section Chief, Operations & Maintenance, Data Management Branch, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Michael Owens, Policy Analyst, Strategic Projects and Planning, Florida Department of Environmental Protection
- Michael Phillips, Director, Office of Strategic Projects and Planning, Florida Department of Environmental Protection
- Brian Riedel, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Bruce Rothrock, IDEA Team Leader, Enforcement Planning, Targeting and Data Division, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Eric Schaeffer, Director, Office of Regulatory Enforcement, US Environmental Protection Agency
- Michael Stahl, Deputy Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency
- Debra Villari, Planning Branch, Office of Compliance, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Tim Whitehouse, Special Assistant, Office of Regulatory Enforcement, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency
- Peter Wise, Associate Director, Illinois Environmental Protection Agency
- Miles Zamco, Bureau of Air, Illinois Environmental Protection Agency

Annex 3

**Canadian Policy and Practice
with Indicators of
Effective Environmental Enforcement**

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List of Acronyms

AEP	Alberta Environmental Protection
CEC	Commission for Environmental Cooperation
CEM	continuous emission monitoring
CEPA	Canadian Environmental Protection Act
EEM	environmental effects monitoring
EMS	environmental management system
EPA	Ontario Environmental Protection Act
EPEA	Alberta Environmental Protection and Enhancement Act
EQA	Saskatchewan Environmental Quality Act
FRAP	Fraser River Action Plan
IMIS	Industrial Monitoring Information System
ISO	International Organization for Standardization
MELP	Ministry of the Environment, Lands and Parks (British Columbia)
MIDES	MISA Data Entry System
MISA	Municipal-Industrial Strategy for Abatement (MISA)
MOEE	Ministry of Environment and Energy (Ontario)
NAAEC	North American Agreement on Environmental Cooperation
NPRI	National Pollutant Release Inventory
ORR	Observe, Record, Report Program (British Columbia)
OWRA	Ontario Water Resources Act
SIS	Sample Information System
SNC	significant non-compliance
TOXDATA	Toxicity Data Entry System
WMA	Waste Management Act (British Columbia)

1 Introduction

Among the aims of the North American Agreement on Environmental Cooperation, signed by Canada, Mexico and the United States in September 1993,¹ is that each Party to the Agreement achieve “high levels of environmental protection and compliance” with their respective environmental laws and regulations.² The following study was commissioned by the Commission for Environmental Cooperation (CEC), established under the Agreement, to support the efforts of the Parties to enforce effectively their environmental laws,³ to measure and evaluate the effectiveness of enforcement and compliance strategies, including the development and application of compliance “indicators for reporting on the state of the environment,”⁴ and to examine comparable techniques and methodologies for data gathering, analysis and management,⁵ by examining the status of such programs in Canada. The overall focus of this study is to document current Canadian processes for: (1) measuring and evaluating the effectiveness of enforcement policies and strategies; (2) measuring compliance with environmental standards; and (3) implementing effective enforcement and compliance indicators. The particular matters identified, described, and evaluated in this study include: (1) current Canadian policies and procedures for measuring environmental enforcement and compliance; (2) enforcement and compliance data reporting and management systems (including self monitoring and reporting systems); (3) policies and requirements for evaluating compliance results; (4) law and policy regarding monitoring and reporting; and (5) law, policy or procedures for public access and disclosure.

Methodology

The methodology employed to achieve the objectives of this study was as follows. First, a compilation and review was undertaken of pertinent statutes, regulations, policies, and other relevant documentation. Second, surveys and interviews were conducted with compliance and enforcement officials at the federal level and in selected jurisdictions at the provincial level (British Columbia, Alberta, Ontario, and Quebec). The purpose of these tasks was to evaluate the current capacity of Canadian federal and provincial jurisdictions for implementing a system to evaluate effective enforcement of and compliance with selected pollution control legislation in each jurisdiction under review.⁶

Chapter 2 of this study provides a brief overview of the constitutional framework for environmental protection in Canada and identifies the federal and provincial pollution control legislation reviewed. Chapter 3 provides a description of, and background to, the notion of developing “indicators” of environmental compliance and enforcement. Chapters 4, 5, and 6 examine the roles played respectively by government, the private sector and the public in the Canadian system of compliance and enforcement measurement, and identify informational, institutional and other strengths and weaknesses of the program. Chapter 7 reviews emerging initiatives. Chapter 8 provides a brief final assessment, including recommendations for future action.

¹ North American Agreement on Environmental Cooperation (NAAEC) 13 Sept. 1993, Can.-Mex.-U.S., 1994 Can. T.S. No. 3.

² *Id.* art. 3(1).

³ Such efforts to enforce environmental laws may include: (a) appointing and training inspectors; (b) monitoring compliance and investigating suspected violations, including through on-site inspections; (c) seeking assurances of voluntary compliance and compliance agreements; (d) publicly releasing non-compliance information; (e) issuing bulletins or other periodic statements on enforcement procedures; (f) promoting environmental audits; (g) requiring record keeping and reporting; (h) providing or encouraging mediation and arbitration services; (i) using licenses, permits or authorizations; (j) initiating, in a timely manner, judicial, quasi-judicial or administrative proceedings to seek appropriate sanctions or remedies for violations of its environmental laws and regulations; (k) providing for search, seizure or detention; or (l) issuing administrative orders, including orders of a preventive, curative or emergency nature. *Id.* art. 5(1)(a)-(l).

⁴ *Id.* art. 10(2)(c).

⁵ *Id.* art. 10(2)(a).

⁶ See Appendix I which contains a list of interviewees or those providing written material for this study. The review of logging, mining, wildlife, endangered species, wetlands, public land management, conservation, land stewardship, or other renewable or non-renewable natural resource, environmental assessment or environmental planning laws is outside the scope of this study.

2 Constitutional and Legislative Aspects

2.1 The Constitution and the Environment in Canada

The framers of the Canadian Constitution, the Constitution Act, 1867, did not see the environment as a distinct subject matter. Though not explicitly addressing the environment per se, the Constitution Act, 1867 distributes the basis for legislative control of the environment between the federal and provincial levels of government in Canada. The authority in relation to environmental protection must be deduced from various heads of power identified in the Constitution. The foundation of federal environmental authority is based on a combination of criminal law⁷ and “Peace, Order, and good Government”⁸ powers. Other heads of power in the Constitution provide a more limited basis for federal legislative controls over the environment.⁹ The constitutionality of several enforcement provisions of both the Canadian Environmental Protection Act (CEPA)¹⁰ and the pollution prevention provisions of the Fisheries Act,¹¹ the primary federal pollution control statutes addressed in this study, has been considered by the courts, including the Supreme Court of Canada. In general, the cases suggest that where federal environmental laws address matters of national concern or dimension,¹² stay within “criminal” penalty-type enforcement mechanisms,¹³ or focus on protection or conservation of a resource specifically entrusted to the federal government (e.g. fish),¹⁴ they may be upheld by the courts, and will not be seen as affecting property, generally a provincial subject matter. These cases, and their interpretation by the federal government, may influence the types of compliance and enforcement mechanisms that will be included in federal environmental legislation and the ability of the federal government to achieve or measure compliance with the requirements of the law.¹⁵

The constitutional basis for provincial jurisdiction over the environment is very broad and includes the authority to legislate with respect to management of public lands belonging to the province,¹⁶ property and civil rights in the province,¹⁷ matters of a merely local or private nature in the province,¹⁸ local works and undertakings other than the classes of works and undertakings assigned to the federal government,¹⁹ municipal institutions in the

⁷ Can. Const (*Constitution Act*, 1867), § 91(27).

⁸ *Id.* preamble to § 91.

⁹ See *id.* § 91(2) (regulation of trade and commerce), § 91(12) (seacoast and inland fisheries), § 92(10)(a) (inter-provincial works and undertakings), § 92(10)(c) (works declared by the Parliament of Canada to be for the general advantage of Canada).

¹⁰ S.C. 1988, c.22.

¹¹ R.S.C. 1985, c. F-14.

¹² See, e.g., *R. v. Crown Zellerbach Ltd.*, (1988) 1 S.C.R. 401 (federal regulation of ocean pollution upheld under predecessor statute to CEPA pursuant to peace, order, and good government power). For a federal law to be upheld under the national concern test pursuant to the peace, order, and good government clause, the government must show that the matter has a singleness, distinctness and indivisibility that clearly distinguishes it from matters of provincial concern, and a scale of impact on provincial jurisdiction that is reconcilable with the fundamental distribution of legislative powers under the constitution. In determining whether the matter has attained such characteristics, it is relevant to consider what would be the effects on extra-provincial interests of a provincial failure to deal effectively with the control or regulation of the intra-provincial aspects of the matter. *R. v. Crown Zellerbach*, *id.* at 431–432.

¹³ In order to qualify as valid federal legislation under the criminal law power, a statute must meet two requirements. First, it must have a valid criminal law object. Second, it must address that object by means of prohibitions accompanied by penal sanctions. See, e.g., *RJR-MacDonald Inc. v. Canada (A.G.)*, (1995) 3 S.C.R. 199, 240. See also *Canada (A.G.) v. Hydro Quebec*, (1997) 3 S.C.R. 213 (interim order issued under the authority of §§ 34–35 of CEPA to control PCBs constitutional pursuant to the criminal law power).

¹⁴ See, e.g., *Fowler v. The Queen*, (1980) 2 S.C.R. 213 (section 33(3) of Fisheries Act prohibiting logging and land clearing operations that may place debris in water frequented by fish, declared unconstitutional, as provision did not link the prescribed conduct to actual or potential harm to fisheries). See also *Northwest Falling Contractors v. The Queen*, (1980) 2 S.C.R. 292 (section 33(2) of Fisheries Act prohibiting deposit of deleterious substances in water frequented by fish upheld as within the federal fisheries power, as it was based on a direct link between the prescribed activity and protection or conservation of fish).

¹⁵ Concern about the potential lack of constitutional authority, pursuant to the criminal law power, for CEPA to go beyond “criminal” penalty type enforcement measures may have influenced the federal government to move away from including certain types of enforcement measures, such as administrative penalties, in amendments to CEPA proposed in late 1996, notwithstanding the existence of such measures under other federal laws. See *infra* Part IV.

¹⁶ Can. Const (*Constitution Act*, 1867), § 92(5).

¹⁷ *Id.* § 92(13).

¹⁸ *Id.* § 92(16).

¹⁹ *Id.* § 92(10).

province,²⁰ and the imposition of punishment by fine, penalty or imprisonment for enforcing any provincial law.²¹ The constitutionality of several enforcement provisions of key provincial environmental laws also has been considered by the courts, including the Supreme Court of Canada. The Supreme Court has upheld broad and general pollution prohibitions frequently contained in provincial environmental statutes, finding such generally-worded laws to be justified in pursuing the public policy objective of environmental protection.²² This case-law, and its interpretation by provincial governments, may assist legislators in developing comprehensive and flexible compliance and enforcement regimes responsive to a wide variety of environmental problems.²³

2.2 Identifying the Legislative Framework for Environmental Compliance and Enforcement

The focus in this study of environmental compliance and enforcement indicators is on the main federal and provincial pollution control statutes in the jurisdictions in Canada under review. At the federal level, this includes CEPA and the pollution prevention provisions of the Fisheries Act. At the provincial level, the legislation examined includes the British Columbia Waste Management Act (WMA),²⁴ the Alberta Environmental Protection and Enhancement Act (EPEA),²⁵ the Ontario Environmental Protection Act (EPA),²⁶ the Ontario Water Resources Act (OWRA),²⁷ and the Quebec Environmental Quality Act (EQA).²⁸ Each of these laws contains a variety of criminal, administrative, and civil mechanisms for achieving compliance with its provisions, such as inspection and investigation authority, remedial and preventive orders of various types, prosecution authority, self-reporting and monitoring obligations of the regulated community, and related measures. The objective of this study is to examine the techniques employed by federal and provincial governments to evaluate the adequacy of these and related compliance and enforcement measures in achieving legislative goals of environmental protection.

²⁰ *Id.* § 92(8).

²¹ *Id.* § 92(15).

²² See, e.g., *R. v. Canadian Pacific Ltd.*, (1995) 2 S.C.R. 1031 (section 13(1)(a) [now section 14(1)(a)] of Ontario *Environmental Protection Act*, prohibiting discharges into the natural environment that may cause an adverse effect, not unconstitutionally vague). Legislatures are justified in choosing broad language in order to pursue the public policy objective of environmental protection. Environmental laws in other provinces, and at the federal level (e.g. CEPA), contain similarly broad pollution prohibitions. A finding of unconstitutionality of the Ontario statute would place the prohibitions in these other environmental laws in constitutional jeopardy and impede the ability of the legislature to provide for environmental protection, and constitute a significant social policy setback. *Canadian Pacific Ltd.*, *id.* at 1066–1094.

²³ See *infra* ch. 4.0.

²⁴ S.B.C. 1982, c. 41.

²⁵ S.A. 1992, c. E-13.3.

²⁶ R.S.O. 1990, c. E.19.

²⁷ R.S.O. 1990, c. O.40.

²⁸ S.Q. 1993, c. Q-2.

3 Indicators of Environmental Compliance and Enforcement: Background

In recent years, international recognition of the importance of compliance and enforcement to environmental management²⁹ has reinforced interest at the national and sub-national level in ensuring compliance and enforcement with domestic environmental laws. In Canada, at both the federal and provincial levels, the concepts of “compliance” and “enforcement” have been developed at the policy level in most of the jurisdictions under consideration. In general, “compliance,” has been defined as “the state of conformity with the law.”³⁰ Measures that governments use to ensure compliance include written and verbal communication, consultation, monitoring, inspection, data review, and enforcement.³¹ In general, “enforcement” has been defined as “activities that compel offenders to comply with their legislative requirements.”³² Enforcement activities are seen to include investigations of alleged violations, imposition of corrective measures, administrative responses to compel compliance, and prosecution.³³

For several years, Canadian jurisdictions annually have identified certain statistical outputs³⁴ as a primary measure of the adequacy of compliance and enforcement programs. While these outputs will likely continue to be used as an important measure of environmental compliance and enforcement, governments appear to be seeking additional indicators to assess the status of compliance trends, as well as environmental improvements arising from overall compliance and enforcement initiatives. Indicators of success in connection with a program of compliance promotion may include environmental results, compliance rates, and measures of technical assistance.³⁵ Measurements of the success of an enforcement response program may include environmental results, compliance rates, progress in returning significant violators to compliance, measures of compliance monitoring, number of enforcement actions, timeliness of enforcement responses, and penalties assessed.³⁶ It has been suggested that information about environmental enforcement activities and results can ensure that the individuals responsible for pursuing enforcement are, in fact, doing their work consistently and fairly using established procedures and strategies.³⁷

²⁹ The 1992 United Nations Conference on Environment and Development (“Rio Conference”) emphasized ensuring compliance with, and enforcement of, environmental laws. The Rio Conference proceedings note that: “Laws and regulations are among the most important instruments for transforming environment and development policies into action....It is essential to develop and implement enforceable and effective laws and regulations that are based upon sound social, ecological, economic and scientific principles. It is equally critical to develop workable programs to enforce compliance with the laws, regulations and standards that are adopted.” The Rio Conference recommended that: “Each country should develop strategies to maximize compliance with its own laws and regulations. These strategies should include sanctions which are designed to punish infractions, obtain restitution and deter future violations. Methods for regularly reviewing compliance and for detecting violations must be implemented.” *Agenda 21: The Earth Summit Strategy to Save Our Planet*, Daniel Sitarz ed. (Earthpress 1993) 248–250.

³⁰ Environment Canada, *Canadian Environmental Protection Act: Enforcement and Compliance Policy 5* (1988). See also British Columbia Environment, *Ensuring Effective Enforcement 2* (1992).

³¹ British Columbia Environment, *supra* note 30, at 2. See also Alberta Environmental Protection, *Enforcement Program for the Environmental Protection and Enhancement Act 4-1* (1994), (noting that compliance with legislation can be achieved voluntarily or through enforcement).

³² Alberta Environmental Protection, *supra* note 31, at 4-1.

³³ British Columbia Environment, *supra* note 30, at 2. Canada and Alberta include in their definition of enforcement activities some matters, such as inspections and monitoring, that British Columbia characterizes as relating to compliance activities. In Alberta, enforcement activities include: (1) assessment and monitoring through unannounced, industry-wide compliance checks; (2) investigations in response to a possible contravention of environmental legislation; (3) measures to compel compliance without resorting to court action, including directions, warnings, administrative penalties and orders; and (4) measures to compel compliance through such court actions as injunctions, tickets, prosecutions, court orders and civil suits. See, e.g., Alberta Environmental Protection, *supra* note 31, at 4-1. See also Environment Canada, *supra* note 30, at 5.

³⁴ Statistical outputs include: number of inspections and investigations conducted, number of warnings or orders issued, number of prosecutions initiated, etc. See, e.g., Environment Canada, *Canadian Environmental Protection Act: Report for the Period April 1994 to March 1995*, at 41–42 (1996).

³⁵ Cheryl E. Wasserman, “The Principles of Environmental Enforcement and Beyond: Building Institutional Capacity”, Address Before the Third International Conference on Environmental Enforcement (April 25, 1994), in *Third International Conference on Environmental Enforcement*, April 1994, at 35.

³⁶ *Id.* at 34–35.

³⁷ *Id.* at 34.

Such information, it also has been suggested, can assist managers adjust compliance and enforcement programs to changing conditions as the programs are implemented, improve deterrence, and increase public accountability.³⁸

This study identifies, describes, and evaluates the approaches being used by federal and selected provincial governments in Canada to measure the effectiveness of their compliance and enforcement programs and the roles of the regulated community and the public in the process.

³⁸ *Id.*

4 The Role of Government in Compliance and Enforcement Measurement

The federal and provincial governments in Canada have a primary role to play in the measurement of the performance of their programs of environmental compliance and enforcement. While there are broad similarities in federal and provincial programs, there are also potentially significant differences due to different requirements in statutes, regulations and policies. In this regard, there are certain noteworthy traditional characteristics of government initiatives in this area, as well as emerging trends in government programs. Among the traditional characteristics is a focus on annual reporting of certain compliance and enforcement outputs such as numbers of inspections conducted, warnings issued, or prosecutions initiated, as measures of the adequacy of compliance and enforcement programs.³⁹ This traditional approach is not very old in Canada, and is by no means uniformly employed at the federal and provincial level. However, it may already be undergoing significant change as trends develop to target and report on enforcement efforts on “chronic offenders,”⁴⁰ to encourage “voluntary” compliance and reporting by the regulated community,⁴¹ and to provide “single-window” inspection and enforcement pursuant to federal-provincial agreements,⁴² as governments face increasing resource constraints. Overall, however, the development of comprehensive environmental compliance and enforcement performance objectives or measures is still in its early stages in most jurisdictions in Canada.⁴³

4.1 Overview of Federal and Provincial Roles in Compliance Measurement

One of the earliest policies in Canada on the subject of environmental compliance was the 1988 Environment Canada enforcement and compliance policy developed in conjunction with the coming into force of CEPA.⁴⁴ The policy defined compliance,⁴⁵ identified measures to ensure compliance,⁴⁶ and stated the federal government’s compliance expectations of the regulated community.⁴⁷ Similar policies have been developed at the provincial level.⁴⁸

There are several characteristics of federal and provincial environmental legislation which have implications for developing performance measures of compliance. First, a key characteristic of federal law (CEPA and the Fisheries Act), is that compliance is considered primarily in relation to the regulations promulgated under both laws.⁴⁹

³⁹ *Supra* note 34.

⁴⁰ See *infra* parts 4.2, 4.4 and 4.6.3.

⁴¹ See *infra* part 5.

⁴² See *infra* part 4.2.1.3 and 4.2.2.3.

⁴³ In 1991, the Auditor General of Canada found that Environment Canada had not evaluated the overall effectiveness of the regulations it enforces to improve environmental quality, or of its enforcement and compliance policies and plans. In addition, the Auditor General found that Environment Canada had not defined performance standards that could assist with effectiveness measurement. As a result, the Auditor General concluded that Environment Canada does not have adequate information on levels of compliance with regulations, or on the impact its enforcement and compliance activities have on environmental quality. The Auditor General therefore recommended that Environment Canada establish performance standards to assist in evaluating the effectiveness of regulations and of the associated enforcement and compliance activities. See *Auditor General of Canada, Report of the Auditor General of Canada to the House of Commons* 271 (1991). In 1995, the House of Commons Standing Committee on Environment and Sustainable Development, which undertook a five-year review of the provisions of CEPA, recommended that Environment Canada revise its enforcement approach under CEPA by setting performance objectives and developing methods for evaluating effectiveness to ensure the effectiveness of the enforcement and compliance policy and to determine priorities. See House of Commons Standing Committee on Environment and Sustainable Development, *It’s About Our Health! Towards Pollution Prevention: CEPA Revisited*, (1995) 244, 246.

⁴⁴ Environment Canada, *supra* note 30, at 1.

⁴⁵ *Id.* at 5.

⁴⁶ Measures to verify compliance include inspection and monitoring. Measures to promote compliance include communication and publication of information, consultation with parties affected by CEPA, technical assistance and technology development. *Id.*

⁴⁷ According to the enforcement and compliance policy, “compliance with [CEPA] and its regulations is mandatory.” *Id.* at 9.

⁴⁸ See, e.g., British Columbia Environment, *supra* notes 30–31 and accompanying text.

⁴⁹ There are approximately twenty regulations promulgated under the authority of CEPA and the Fisheries Act. See, e.g., *Pulp and Paper Mill Defoamer and Wood Chip Regulations*, SOR/92-268 (1992). The regulatory impact analysis statement accompanying these CEPA regulations at the time they were promulgated notes that these regulations will be applied in accordance with the CEPA enforcement and compliance policy which provides for various compliance measures. 126 Can. Gaz. Part II, 1966. (1992).

With some exceptions, CEPA does not employ a permit or licensing regime,⁵⁰ or test compliance in relation to general prohibitions under the Act. Compliance with CEPA, therefore, is largely a function of compliance with the regulations under the Act.⁵¹ Compliance with the Fisheries Act is also largely driven by compliance with the regulations under that statute⁵² and with the statute's general pollution prohibitions.⁵³ This focused regulatory authority can potentially be of advantage to the federal government in developing measures of compliance performance in relation to the comparatively narrow areas of jurisdiction encompassed by CEPA and the Fisheries Act.⁵⁴

Second, in comparison to federal environmental law, a key characteristic of provincial law is that compliance must be measured to a substantial degree in relation to approvals, licenses and permits⁵⁵ as well as prohibitions,⁵⁶ administrative orders⁵⁷ and regulations.⁵⁸ Given the scope of provincial constitutional authority, this is a much wider area of responsibility involving a correspondingly wider segment of the regulated community. This broad regulatory authority can be a greater challenge to provincial governments in developing measures of compliance performance in the large areas of responsibility encompassed by provincial law, particularly during a period of resource constraints and government cutbacks.⁵⁹

Third, differences in the place where compliance is to be measured under federal and provincial law can have implications on how performance measures of compliance, such as inspections and self-monitoring and reporting, will be employed in determining overall levels of compliance. For example, under Ontario's general air pollution regulation, compliance with the regulation is determined on the basis of point of impingement (POI) measurements,⁶⁰ whereas, under federal regulations, compliance is determined on the basis of point of emissions measurements.⁶¹ Inspecting for or measuring compliance at a particular facility subject to both federal and provincial air pollution regulations has the potential, therefore, of leading to different conclusions about the status of compliance at that facility with respect to the same substance.

⁵⁰ The principal exception is with respect to the issuance of ocean dumping permits by Environment Canada under Part VI of CEPA. These permits are primarily administered by the Atlantic, Pacific and Quebec Regions of Environment Canada.

⁵¹ The regulations promulgated under CEPA are primarily in relation to specific toxic substances scheduled under the statute pursuant to Part II of the Act. Compliance initiatives, such as inspections, may therefore only be undertaken for scheduled toxic substances.

⁵² See, e.g., *Fisheries Act, Pulp and Paper Effluent Regulations*, SOR/92-269 (1992).

⁵³ *Fisheries Act*, R.S.C. 1985, c. F-14, §§ 35–36. These provisions prohibit the harmful alteration of fish habitat (§ 35) or the deposit of deleterious substances in waters frequented by fish (§ 36).

⁵⁴ See *infra* part 4.2.1.2 and 4.4.2 discussing annual compliance status reports produced by some regions of Environment Canada on a regulation by regulation basis.

⁵⁵ See, e.g., EPA, R.S.O. 1990, c. E.19, § 9 (certificate of approval required for air emissions); §§ 27, 30–39 (certificates of approval required for waste management site or system); OWRA, R.S.O. c. O-40, §§ 53–56 (certificate of approval required for sewage works).

⁵⁶ See, e.g. EPA, R.S.O. 1990, c. E.19, § 14(1) (prohibition on the discharge of a contaminant into the natural environment that causes or may cause an adverse effect).

⁵⁷ See, e.g., EPA, R.S.O. 1990, c. E.19, § 7 (control order), § 8 (stop order), § 17 (remedial order), § 18 (preventive measures order), § 43 (waste removal order), § 44 (upgrade order), § 79 (private sewage order), § 97 (restoration order).

⁵⁸ See, e.g., EPA, *General Air Pollution Regulation*, R.R.O. 1990, Reg. 346. This regulation covers 87 contaminants or classes of contaminants. See Schedule 1 to Regulation 346.

⁵⁹ See, e.g., Brian McAndrew, "Environment Minister on Endangered List", *Toronto Star*, Apr. 20, 1996, at C6 (noting that the Ontario Ministry of the Environment and Energy had \$60 million cut from its \$330 million budget in the fall of 1995, a reduction of 18 per cent. A further \$200 million will be cut from its budget in the next two years, and over 750 jobs will be eliminated, constituting over 30 percent of the ministry's positions).

⁶⁰ EPA, *General Air Pollution Regulation*, R.R.O. 1990, Reg. 346, § 5 (setting out maximum concentrations of contaminants in Schedule 1 based on a point of impingement from a source of contaminant).

⁶¹ See, e.g., CEPA, *Vinyl Chloride Release Regulations*, SOR/92-631 (1992). Section 4 prohibits an operator of a vinyl chloride plant from releasing vinyl chloride from a process vent or other plant source into the air in excess of certain concentrations.

Fourth, whereas federal regulations, with some exceptions,⁶² tend to be either substance-specific, without regard to medium or industrial sector,⁶³ or substance-industrial sector-medium specific,⁶⁴ provincial regulations may be substance-medium specific, without regard to industrial sector,⁶⁵ or industrial sector-medium specific, without regard to substance.⁶⁶ This divergence in regulation type has the potential to produce a different approach to measuring compliance, as well as the potential to produce different conclusions about the status of compliance at the same facility or class of facility.

These various differences in legislative and regulatory regimes, which may simply indicate a rich, if complex, framework in which to test compliance, also suggests the potential for a confusing, fragmented, and inconsistent approach to assessment of compliance performance. Moreover, these differences may take on greater significance in the future, either in terms of resolving or exacerbating potential inconsistencies, to the extent that federal-provincial agreements result in provincial responsibility for ensuring compliance with federal requirements or become a substitute for federal requirements.

4.2 Approaches to Obtaining Compliance Information

Two particularly prominent approaches to compliance measurement used by federal and provincial governments in connection with pollution control legislation are: (1) inspections; and (2) self-monitoring and reporting information by the regulated community. Experience to date with both techniques is summarized below.

4.2.1 Inspections

The authority to undertake inspections in connection with ensuring compliance with environmental requirements is found in all of the federal and provincial pollution control legislation under consideration in this study. Typical of these provisions are those contained in CEPA which authorize the Minister to designate inspectors⁶⁷ and, “for the purpose of ensuring compliance” with CEPA and the regulations, grant them certain powers.⁶⁸ The powers of inspectors include authority to enter, inspect, sample, conduct tests and measurements, examine and copy information, search and seize property, and direct the taking of preventive or corrective measures in relation to unauthorized releases of CEPA-regulated substances.⁶⁹ Inspections were among the first powers developed by federal and provincial governments under pollution control legislation to ensure compliance by the regulated community with environmental requirements. Annual reporting of numbers of inspections conducted became one of the earliest statistical outputs produced by governments as a measure of compliance performance.⁷⁰ Given current concerns with reducing the size of government, the challenge to federal and provincial governments is to maintain inspections as a viable option or, alternatively, to devise suitable substitutes for inspections that will ensure that compliance by the regulated community can still be appropriately measured.

⁶² See *Fisheries Act, Pulp and Paper Effluent Regulations*, SOR/92-269 (1992) (any pulp and paper discharges into water frequented by fish).

⁶³ See, e.g., CEPA, *Storage of PCB Material Regulations*, SOR/92-507 (1992)(air, water, or land contamination by PCBs).

⁶⁴ See, e.g., CEPA, *Chlor-Alkali Mercury Release Regulations*, SOR/90-130 (1990)(mercury air emissions from chlor-alkali plants).

⁶⁵ See, e.g., EPA, *General Air Pollution Regulation*, R.R.O. 1990, Reg. 346 (87 non-industrial sector specific contaminants or classes of contaminants to air).

⁶⁶ See, e.g., EPA, *Organic Chemical Manufacturing Effluent Limits Regulation*, O. Reg. 63/94; *Iron and Steel Manufacturing Effluent Limits Regulation*, O. Reg. 214/95; and *Electric Power Generation Effluent Limits Regulation*, O. Reg. 215/95 (any effluents to water per industrial sector).

⁶⁷ CEPA, S.C. 1988, c. 22, § 99.

⁶⁸ *Id.* § 100.

⁶⁹ *Id.* §§ 100–104 (inspectors’ powers applicable to all parts of CEPA), § 36(5)(7) (specific inspectors’ powers applicable to Part II of CEPA respecting toxic substances), § 57(4)(6) (inspectors’ powers applicable to Part IV of CEPA respecting federal departments, agencies, crown corporations, works, undertakings, and lands), §§ 76(1), 77 (inspectors’ powers applicable to Part VI of CEPA respecting ocean dumping).

⁷⁰ Environment Canada has been reporting annual inspection statistics since CEPA came into force in 1988. Annual inspection and other enforcement statistics on CEPA and the Fisheries Act are on file with Environment Canada.

Four aspects of inspection programs in Canada are considered below: (1) types of inspections; (2) inspection targeting strategies; (3) devolution of inspection targeting decision-making; and (4) multi-media versus single media inspections.

4.2.1.1 Types of Inspection

There are a number of inspection types and characteristics under federal and provincial programs. Inspections may be performed on-site or off-site. They may be scheduled under a program,⁷¹ they may be unannounced spot checks,⁷² or they may be re-inspections.⁷³ In general, an inspection is a data-gathering function designed to obtain a technical understanding of facility operations and general environmental performance. It may be a general or routine on-site review of facility operations, maintenance, monitoring, and performance.⁷⁴ It may also take the form of off-site data collection to ensure compliance away from the regulated site,⁷⁵ or a review of monitoring reports or data.⁷⁶ Regardless of type or characterization, the purpose of inspections is to verify compliance with the law.⁷⁷ There are a variety of ways in which inspections test for compliance. They may be carried out to: (1) confirm that a facility is being operated in accordance with its application and approval; (2) discuss monitoring information, equipment and procedures; (3) conduct comparative monitoring; (4) review performance of the activity; (5) help develop controls for activities; (6) confirm quality assurance and quality control programs; (7) identify measures to avoid problems; or (8) confirm that standards are being met.⁷⁸

These various inspection types are often conducted pursuant to annual inspection plans. At the federal level, for example, a national inspection plan was introduced in 1990–1991 as a work plan to identify the quantities and types of inspections to be carried out each year by Environment Canada. However, Environment Canada decided that the plan was too numbers-oriented and that it was insufficiently flexible to respond to emerging issues over the

⁷¹ See, e.g., Environment Canada, *supra* note 30, at 38 (indicating that pursuant to the CEPA enforcement and compliance policy there will be a program of inspections). These inspections may be both pre-warned where the regulation or the facility may be complex, such as secondary lead smelters, or they may be unannounced, where the regulation or the facility are not complex, such as PCB storage regulations/facilities. See also *Review of the Canadian Environmental Protection Act (CEPA): Hearings Before the Standing Committee on Environment and Sustainable Development of the House of Commons*, 35th Parl., 1st Sess., Issue No. 47, at 17 (1994) [hereinafter *Hearings I*] (testimony of D.J. Pascoe, Manager, Ontario Region, Emergencies and Enforcement Division, Environment Canada, noting that Environment Canada has scheduled inspections, developed through regional inspection programs, that follow a format that is developed nationally so that all the regions use the same approach in terms of which industries they inspect). At the provincial level, scheduled annual inspection programs are also employed. See, e.g., *Draft Response to Questions on Compliance and Enforcement Indicators under the Waste Management Act* from Ted Sheldon, Senior Evaluation Analyst, Corporate Policy Branch, British Columbia Ministry of the Environment, Lands and Parks 1 (23 Apr. 1997) [hereinafter *British Columbia Draft Response*] (on file with the author).

⁷² Environment Canada, *supra* note 30, at 38 (noting that the federal inspections program will be complemented by spot checks). See also Alberta Environmental Protection, *supra* note 31, at 12–1 (noting that proactive inspections to monitor for compliance with provincial laws, regulations, approvals, and orders are unannounced spot checks conducted on an industry-wide basis in industrial or municipal sectors where there are environmental concerns. Specific facilities in a sector may also be randomly selected for spot checks).

⁷³ Environmental Protection Branch, Pacific and Yukon Region, Environment Canada, *Compliance Status Summary Report: British Columbia-Fiscal Year 1992-1993*, iv, 6 (1994) [hereinafter *Pacific and Yukon Region I*] (noting the use of re-inspections)

⁷⁴ Alberta Environmental Protection, *supra* note 31, at 3-1.

⁷⁵ British Columbia Ministry of the Environment, Lands and Parks, *Procedure Manual: Inspection and Investigation*, Vol. 3, § 7.02.03, at 2 (1991) [hereinafter *BRITISH COLUMBIA INSPECTION AND INVESTIGATION*] (noting that an example of off-site information collection would be sampling of downstream water, which may be required in order to monitor compliance of an upstream facility).

⁷⁶ *Id.* (noting that reviewing monitoring reports or data from within the ministry, or from other enforcement agencies, in order to verify that required information has been supplied by the regulated entity, and that this information indicates compliance, is also considered to be inspection activity. For example, if the regulated entity is required to submit regular effluent discharge records as part of a permitting scheme, reviewing these records is considered to be an inspection activity).

⁷⁷ Environment Canada, *supra* note 30, at 37 (purpose of an inspection is to verify compliance with CEPA and its regulations). See also *Hearings I*, *supra* note 71, at 17 (testimony of Mr. Pascoe that Environment Canada conducts inspections to verify compliance); and British Columbia Environment, *supra* note 30, at 9 (noting that an inspection is a regulatory function usually authorized by statute that permits the checking or monitoring of an operation to verify compliance with the law, be it statute, order, permit, or regulation).

⁷⁸ Alberta Environmental Protection, *supra* note 31, at 3-1.

course of a fiscal year. In subsequent years, the national inspection plan, in conjunction with regional inspection plans, has become more target-oriented,⁷⁹ as discussed below.⁸⁰

Various types of inspections are also conducted pursuant to checklists which are developed on the basis of a particular regulation, permit type, or code of practice. For example, Environment Canada has developed checklists to be used by inspectors for the CEPA and Fisheries Act regulations it administers.⁸¹ Federal and provincial governments also develop inspection check lists for various types of permits issued under pollution control statutes they administer.⁸² Activities for which codes of practice have been developed may also be reviewed by inspectors using checklists specifically designed for those activities.⁸³ Often these checklists, some of which are quite extensive, track the various requirements of the applicable regulation or permit and require the inspector to make a determination of the compliance status of the facility in relation to each provision of the regulation or permit.⁸⁴ These determinations may be made on the basis of a review of records or monitoring at the facility, direct sampling by the inspector, or visual examination.⁸⁵

Federal and provincial governments place great reliance on various types of inspections as a basis for assessing compliance of the regulated community with environmental requirements.⁸⁶ There are, however, a number of issues and concerns relating to the adequacy and comprehensiveness of inspections as instruments for compliance assessment. This may be illustrated by reference to the situation at the federal level under CEPA, where limitations in the statute and resource constraints may adversely affect the inspections program. First, although CEPA authorizes the Minister to designate inspectors and analysts,⁸⁷ the statute does not allow CEPA analysts to provide assistance to inspectors who are monitoring or verifying compliance, because analysts, unlike inspectors, do not have the power to enter places, to open receptacles, to take samples and examine substances, or to conduct tests or measurements.⁸⁸ For certain CEPA regulations, an inspector may witness compliance tests undertaken by the regulated community.⁸⁹ However, inspectors do not always have the expertise to know whether the regulatee is following the correct procedures for calibration of sampling and testing equipment, for the taking of samples, or for the conduct of the compliance test itself.⁹⁰ While Environment Canada has designated and trained a few laboratory analysts as inspectors, it is not regarded by the department as cost-effective to train as inspectors individuals who are not

⁷⁹ Environmental Protection Branch, Pacific and Yukon Region, Environment Canada, *Compliance Status Summary Report: British Columbia—Fiscal Year 1993–1994*, 3 (1994) [hereinafter Pacific and Yukon Region II].

⁸⁰ See *infra* part 4.2.1.2.

⁸¹ See, e.g., Environment Canada, *CEPA Inspection Checklist Respecting the Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* (1997).

⁸² See, e.g., Environment Canada, *Ocean Dumping Inspection Checklist* (1995); and British Columbia ministry of the Environment, Lands and Parks, *Procedure Manual: Permit Site Inspections*, Vol. 8, § 1.04.03, at App.1 (Permit Inspection Report Form) (1984).

⁸³ See, e.g., Environment Canada, *Ready Mix Concrete Industry Environmental Code of Practice Facility Audit Compliance Checklist* (1993).

⁸⁴ See, e.g., Environment Canada, *Inspection Form for Inspections Under the Storage of PCB Material Regulations* (undated).

⁸⁵ See, e.g., Environment Canada, *Modified Inspection Checklist Respecting the Fisheries Act Pulp and Paper Mill Effluent Regulations* (1996); and Environment Canada, *Checklist for the Ozone Depleting Substances Regulations* (1996).

⁸⁶ See, e.g., Government of Canada, *CEPA Review: The Government Response to the Recommendations of the Standing Committee on Environment and Sustainable Development*, (1995) 34 [hereinafter Government Response] (noting that inspections and monitoring are necessary to verify whether regulated entities are complying with the law).

⁸⁷ CEPA, S.C. 1988, c.22, § 99.

⁸⁸ Environment Canada, *Reviewing CEPA, The Issues*, #15: “Inspectors’ Powers and Provisions Governing Official Analysts in the Canadian Environmental Protection Act” (1994) 6-7 [hereinafter Inspectors’ Powers].

⁸⁹ See, e.g., CEPA, *Vinyl Chloride Release Regulations*, SOR/92-631 (1992). Section 5 permits an inspector to be present whenever a vinyl chloride sample is taken at the request of the Minister. Similar provisions also appear in CEPA regulations relating to releases from secondary lead smelters, and asbestos mines and mills.

⁹⁰ Inspectors’ Powers, *supra* note 88, at 6-7 (noting that the roles that CEPA analysts need to fill but which they can only fill under the Act if they are designated inspectors under § 99 include: (1) determining whether regulated entities are correctly calibrating equipment for monitoring, compliance testing, or the prevention or control of pollution; (2) ensuring that regulated entities are taking samples for compliance testing in accordance with the methods specified in CEPA regulations; (3) taking samples for testing at the inspection site or for testing later at a location away from the site; and (4) conducting tests or measurements at the inspection site).

going to fully exercise the powers and responsibilities of inspectors.⁹¹ Proposed amendments to CEPA would allow analysts to accompany inspectors and exercise certain powers of inspection to correct the above problems.⁹²

Second, substances can only be regulated under CEPA if no other federal law regulates the substance.⁹³ This can result in regulatory gaps in the control of certain toxic substances, including the powers of inspectors in relation to those non-CEPA regulated substances.⁹⁴ Proposed amendments to CEPA would not change this situation.⁹⁵

Third, CEPA regulates very few toxic substances or classes of toxic substances.⁹⁶ Therefore, inspection programs tend to focus on the few toxic substances subject to regulations under the Act.⁹⁷ A parliamentary standing committee has raised concern that the definition of “toxic” under CEPA has resulted in a limited number of toxic substances regulated under the statute.⁹⁸ The federal government has acknowledged these concerns,⁹⁹ and has proposed a complex set of amendments to CEPA which may have the effect of increasing the number of substances designated as toxic under the statute.¹⁰⁰ Inspection programs would consequently be required to expand to include these newly designated toxic substances.

Fourth, because almost no regulations have been promulgated under CEPA addressing environmental protection in relation to federal lands, works, undertakings, or entities,¹⁰¹ the powers of inspectors in relation to such federal matters have been correspondingly limited.¹⁰² Proposed amendments to CEPA would correct these problems by making it easier for the federal government to promulgate regulations under CEPA in relation to such federal activities.¹⁰³

⁹¹ *Id.* at 6.

⁹² Bill C-74, *Canadian Environmental Protection Act, 1997*, 35th Parl., 2nd Sess., 45 Eliz. II, § 218(13) (first reading Dec. 10, 1996, House of Commons). Due to the intervening federal election of June 1997, Bill C-74 died on the Order Paper. Environment Canada advises that the government intends to table a new bill in 1998.

⁹³ CEPA, S.C. 1988, c.22, § 34(3).

⁹⁴ See *Review of the Canadian Environmental Protection Act (CEPA): Hearings Before the Standing Comm. On Environment and Sustainable Dev. of the House of Commons*, 35th Parl. 1st. Sess., Issue No. 63, at 12 [hereinafter *Hearings II*] (testimony of Vic Niemela, Regional Director, Environmental Protection Branch, Pacific and Yukon Region, Environment Canada).

⁹⁵ Section 34(3) is unchanged in proposed amendments to CEPA. See *supra* note 92, Bill C-74, 35th Parl., 2nd Sess., § 96(3) (1996).

⁹⁶ Under CEPA, a substance is toxic if it enters or may enter the environment in a quantity or concentration that may have a harmful effect on the environment or may endanger human life or health. S.C. 1988, c.22, § 11. The designation of a substance as toxic is a pre-requisite for the promulgation of a regulation applying to that substance. CEPA authorizes the regulation of a substance in two circumstances: (1) where the substance on a Priority Substance List created pursuant to CEPA has been declared toxic as a result of a risk assessment; or (2) where the federal cabinet is “satisfied” that the substance is toxic. S.C. 1988, c.22, §§ 13, 33. Pursuant to these requirements, approximately two dozen substances or classes of substances have been designated as toxic substances under CEPA and subjected to regulation. S.C. 1988, c.22, Schedule I (List of Toxic Substances), as amended.

⁹⁷ See, e.g., Pacific and Yukon Region II, *supra* note 79, at 3–4 (noting that the 1993–1994 CEPA inspections program was conducted under programs specific to CEPA regulations). See also *Hearings I*, *supra* note 71, at 41 (testimony of Mr. Pascoe, Environment Canada noting that CEPA applies to specific substances and specific industry sectors. There is no provision under CEPA to deal with a pollution incident for a substance that is not listed as a toxic substance).

⁹⁸ House of Commons Standing Committee, *supra* note 43, at 64–69 (proposing amendments to § 11 of CEPA so that a larger number of substances of concern can become subject to the CEPA regulatory process).

⁹⁹ GOVERNMENT RESPONSE, *supra* note 86, at 67–74.

¹⁰⁰ Bill C-74, 35th Parl., 2nd Sess., §§ 64–94 (1996).

¹⁰¹ CEPA, S.C. 1988, c.22, § 54(1) (authority to promulgate such regulations exists only if the Minister responsible for the federal land, work, undertaking, or entity concurs); § 54(2) (no authority to develop regulations that apply to federal lands regarding the limiting of emissions or discharges or the setting of permissible waste handling and disposal practices). This situation has been described as creating a “regulatory gap” on federal lands. See *Hearings II*, *supra* note 94, at 10 (testimony of Mr. Vic Niemela, Environment Canada). See also Environment Canada, *Reviewing CEPA, The Issues*, # 5: “The Federal House in Order”, (1994) 15–16 [hereinafter *Federal House*] (acknowledging limitations of § 54); and House of Commons Standing Committee, *supra* note 43, at 163–177 (noting that virtually no regulatory action has taken place as a result of § 54 and recommending the elimination of the existing requirement for ministerial concurrence and expanding the authority to enact regulations under CEPA pertaining to federal lands).

¹⁰² CEPA, S.C. 1988, c.22, § 100 (inspector may enter and inspect if she has reasonable grounds to believe that regulations made under § 54 apply to the premises). CEPA inspectors could still enter a federal area in relation to a toxic substance scheduled under the statute.

¹⁰³ Bill C-74, 35th Parl., 2nd Sess., §§ 209–210 (1996).

Fifth, resource constraints appear to have kept the number of CEPA inspectors at roughly the same levels or to have slowly eroded their numbers in the regional offices of Environment Canada over the last several years, even as the number of regulations has slowly increased. If more regulations covering more toxic substances or areas of federal activity were to be added to the responsibilities of the current corps of CEPA inspectors, without additional resources, this could impair the ability of the regions to continue certain types of inspections, such as re-inspections to measure levels of specific deterrence and compliance achieved.¹⁰⁴ Such resource constraints at the federal level make targeting strategies and federal-provincial arrangements for sharing or delegating of inspection responsibilities in relation to federal laws more attractive, though both approaches are not without their own potential problems.¹⁰⁵

4.2.1.2 Inspection Targeting Strategies

A variety of inspection targeting strategies may be employed by federal and provincial governments, particularly in a period of resource constraints where overall numbers of inspections are decreasing.¹⁰⁶ At the inception of CEPA and the enforcement and compliance policy in the late 1980s, Environment Canada envisaged a schedule of inspections determined by: (1) the risk that the substance or activity presents to the environment or to human health; and (2) the compliance record of the individual, company or government agency.¹⁰⁷ Since the early 1990s, the focus of inspections has been on priority regulations, geographic areas with sensitive, unusual, or critical environmental features, “chronic offenders,” or permitted activities exhibiting high environmental risk. Environment Canada’s national inspection plan has reflected this focus. Since 1991, for example, the national inspection plan has been focused on a target-oriented approach in order to make the best use of available resources.¹⁰⁸ Priority regulations were identified at the national level and regional inspection plans were developed in the context of both national priorities and regional issues.¹⁰⁹ Some Environment Canada regions have produced annual compliance status reports which report upon both the outputs and results of the inspection program on a regulation by regulation basis.¹¹⁰ However, the production of such status reports does not occur in each region,¹¹¹ though the annual statistical outputs of numbers of inspections are produced by each region.¹¹²

¹⁰⁴ Environmental Protection Branch, Ontario Region, *Environment Canada Compliance Inspection Summary Report: Fiscal Year 1996-1997*, (1997) 9 [hereinafter Ontario Region] (noting that because many new regulations and programs have come into force in the 1990s and none have provided new resources for enforcement, the result has been a dilution of enforcement efforts for all regulations).

¹⁰⁵ See *infra* parts 4.2.1.2 and 4.2.1.3.

¹⁰⁶ Statistics for the Fisheries Act and CEPA indicate a decline in the annual number of inspections from a high of 2,600 in 1991 to a low of 1,533 in 1995, though Environment Canada indicates that the number of inspections can vary significantly from year to year depending on priorities, types of regulations, compliance history, and related matters. Statistics on number of inspections and other enforcement activities for the combined five-year period 1991–1995 are on file with Environment Canada.

¹⁰⁷ Environment Canada, *supra* note 30, at 38.

¹⁰⁸ Pacific and Yukon Region II, *supra* note 79, at 3.

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 7–40 (12 CEPA regulations), 53–69 (three Fisheries Act regulations and five other non-regulation programs under the Fisheries Act). More recent reports from this regional office have been issued as compliance status fact sheets on a regulation-by-regulation basis. These fact sheets generally contain less detail than the earlier compliance status reports. See, e.g., Environmental Protection Branch, Pacific and Yukon Region, Environment Canada, *Compliance Status Fact Sheet: British Columbia-Fiscal Year 1994–1995 (Export and Import of Hazardous Waste Regulations)* (1995).

¹¹¹ Other regional offices of Environment Canada producing annual compliance status reports which contain information on their inspection programs include the Prairie and Northern Region and Ontario Region.

¹¹² The statistical output of national and regional inspections, grouped by regulation for each of the last three fiscal years is on file with Environment Canada.

A geographic approach to inspection targeting is illustrated by the Fraser River Action Plan (FRAP) in British Columbia.¹¹³ For example, in 1993–1994, Environment Canada targeted 12 inspection programs under CEPA and nine inspection programs under the Fisheries Act for the Fraser River Basin. Given the regulation-specific focus of these two federal laws, most of the inspections under FRAP are geared to particular regulations and would probably have been conducted in any event under the region's annual inspection program for these regulations.¹¹⁴ However, because the Fisheries Act also contains a general prohibition on the deposit of deleterious substances in waters frequented by fish,¹¹⁵ and given the unique fisheries importance of the Fraser River, the Environment Canada Pacific Region inspections program also has focused on certain industries of concern even though no specific applicable federal regulations are in place.¹¹⁶

More recently, Environment Canada has also exhibited interest in targeting the “chronic” or “worst” offenders of CEPA and Fisheries Act regulations whose compliance will be verified primarily, though not exclusively, by the inspection program.¹¹⁷ The theory behind this focus is that any perception that the worst offenders are “getting away with it” turns out to be enormously destructive for the agency's credibility and processes, for the morale of its employees, and for the norm of public self-compliance exhibited by the bulk of the regulated community.¹¹⁸ It has been suggested, however, that the Environment Canada focus on resolving non-compliance of chronic offenders underscores that the department does not have enough resources to inspect all activities, notwithstanding that the key to the success of an inspection program targeting chronic offenders is to have adequate information to make requisite inspection targeting decisions.¹¹⁹ There is also some concern about the objective of broadening compliance indicators beyond traditional reporting of compliance outputs – such as numbers of inspections conducted – to reporting on compliance rates by the regulated community. The reason is that it is more difficult to infer rates of compliance from that of a “targeted” inspection program¹²⁰ because the sample obtained may not be representative of the conduct of the entire industry or sector. Thus, if compliance rates increase, it is difficult to determine if overall performance in the regulated community improved, or whether the accuracy of inspection targeting decreased.

¹¹³ Environmental Protection Branch, Pacific and Yukon Region, Environment Canada, *Fraser River Action Plan, Compliance Status Summary Report for the Fraser River Basin in British Columbia: Fiscal Year 1993–1994*, 1 (1994) [hereinafter FRAP]. The fifth largest river basin in Canada, and one of the nation's most extensive and productive biological systems, the Fraser River supports 65 per cent of the province's population, and over 75 per cent of its industrial activity. *Id.* FRAP was established in 1991 as a multi-year program to “clean up pollution, restore the productivity of the natural environment, and put in place a management program to ensure the basin's sustainability.” *Id.* at 3. The overall goal of FRAP is to reduce by 30 per cent the discharge of environmentally disruptive pollutants entering the basin by 1997, and to significantly reduce the release of persistent toxic substances into the basin's waters by the year 2000. A further goal of FRAP is to achieve 90 per cent compliance with environmental legislative requirements. *Id.* It is not clear whether there is a direct relationship between achieving the intended compliance rate and achieving the proposed discharge reduction. A similar geographic focus may be found in Quebec in connection with the St. Lawrence River. See Gouvernement du Canada et Gouvernement du Québec, *Saint-Laurent Vision 2000: Rapport Biennal 1993-1995*, (1996) 33–37.

¹¹⁴ The CEPA inspection programs focused on such regulations as those pertaining to PCBs, ocean dumping, pulp and paper mill effluent, dioxins and furans, pulp and paper mill de-foamer and wood-chips, ozone-depleting substances, secondary lead smelter releases, contaminated fuels, gasoline, export and import of hazardous wastes, and phosphorus. The Fisheries Act inspection programs focused on such regulations as those pertaining to pulp and paper effluents, petroleum refinery liquid effluents, and metal mining liquid effluents. *Id.* at 4-6.

¹¹⁵ R.S.C. 1985, c. F-14, § 36(3).

¹¹⁶ FRAP, *supra* note 113, at v-vi, 38-48 (noting inspection programs for municipal sewage treatment plants, antisapstain, wood preservation, and wood waste facilities for which the department has developed codes of practice or guidelines).

¹¹⁷ Environment Canada, *Compliance And Enforcement National Program: Component Action Plan (Draft)*, (1997) 3-6 [hereinafter National Component Action Plan].

¹¹⁸ *Id.* at 3.

¹¹⁹ Environment Canada, *CEPA Evaluation Report*, (1994) 83.

¹²⁰ “Targeted” in the sense that it came from public complaints, or tips, or focused surveys, as opposed to being a random sample measurement.

Inspection targeting may also focus on the permit holder. This occurs to a much greater extent at the provincial level¹²¹ than at the federal level.¹²² In general, permit holders are inspected at a frequency determined by environmental risk factors (ERF).¹²³ The nature of and the extent to which such factors are articulated by government agencies varies across the country. British Columbia, for example, has had long-standing procedures for permit inspections and criteria for determining the frequency that an inspector will visit each facility.¹²⁴ More recently, British Columbia has considered new criteria for determining the frequency of facility inspections to verify compliance. According to this provincial proposal, assessment activities are to be scheduled for each site in each region by the regional staff on the basis of the ERF,¹²⁵ the permit, legislation or regulation requirements, and the “compliance rating”¹²⁶ of each site. The proposed guidelines set the minimum recommended frequency of site inspections with the caveat that “public interest may require more frequent inspections of certain sites than the suggested minimum inspection frequencies” identified in the guidelines.¹²⁷ The proposed inspection frequencies fall into five categories: (1) every site shall be physically inspected at least once every three calendar years; (2) every site with an ERF of more than (high risk) and a compliance rating of 0 shall be physically inspected every six months; (3) every site with an ERF less than (low risk) and compliance greater than 0 shall be physically inspected quarterly; (4) every site with an ERF of more than (high risk) and a compliance rating greater than 0 shall be inspected bimonthly; and (5) every site with a compliance rating greater than *¹²⁸ shall be inspected monthly.¹²⁹ Notwithstanding the sophistication of the British Columbia approaches, or perhaps because of it, the trend with respect to permitted facilities is that the frequency of inspections is decreasing as self-monitoring and reporting by the regulated community increase under permit and other legislative and regulatory requirements.¹³⁰

¹²¹ Much surer of their constitutional authority to act, provincial legislators often develop permit and approval regimes that are by definition preventive in nature because they require the regulated entity to obtain authority to proceed before engaging in the activity and to continue in compliance with that permit as long as the operation continues, or risk, among other things, being de-permitted. Such permits and approvals become the law for that particular entity, in addition to the other general legislative and regulatory requirements applicable to the particular activity. Federal legislators, with some exceptions, less certain of their authority to act preventively where a principal constitutional basis for their action may be the criminal law power, utilize permit regimes much less frequently.

¹²² Ocean dumping permits under CEPA are one of the principal exceptions. S.C. 1988, c.22, § 71.

¹²³ See, e.g., Alberta Environmental Protection, *supra* note 31, at 12-1 (noting that industrial sectors are chosen for inspection based on the degree of risk they pose to the environment and public health); and British Columbia Draft Response, *supra* note 71, at 1-2 (noting that authorized dischargers are inspected by regional offices at a frequency determined by environmental risk factors).

¹²⁴ British Columbia Ministry of the Environment, Lands and Parks, *Procedure Manual: Compliance Strategy—Evaluation and Enforcement*, (1985) Vol. 8, § 1.04.01, at App.1–6 [hereinafter British Columbia Compliance Strategy] (setting out six general criteria for assessing environmental risk and corresponding permit inspection frequency including: quantity of discharge; quality of receiving environment in relation to ministry ambient objectives; dilution capability and sensitivity of receiving environment; actual or intended uses of receiving environment; public or agency sensitivity; and potential and actual human safety and health). The province will soon be completing a compliance strategy policy and procedure applicable to the WMA that will include new program approaches to inspections.

¹²⁵ British Columbia Ministry of the Environment, Lands and Parks, *Procedure for Rating Compliance of Permits and Regulated Sites Using the Waste System (Draft)*, (1994) 3, 5 [hereinafter Draft British Columbia Compliance Rating System] (ERF is the numerical rating of the impact on the environment of a site).

¹²⁶ The “compliance rating” is the total numerical value assigned to a site as a result of the assessment activities at that site. The compliance rating increases as sites fail to meet requirements. It is computed automatically by multiplying the ERF for a site by factors for violation type, frequency and, if applicable, parameter. *Id.* at 3.

¹²⁷ *Id.* at 5.

¹²⁸ According to the proposal, * is a number that requires that the site be placed on the provincial non-compliance list. *Id.* This list, as well as the current criteria used for concluding companies are in non-compliance and therefore eligible for inclusion on the list, are discussed below. See *infra* part 4.4.2.

¹²⁹ *Id.* at 5.

¹³⁰ British Columbia Draft Response, *supra* note 71, at 2.

4.2.1.3 Devolution of Inspection Targeting Decision-Making

There are two aspects to the evolving trend to decentralizing compliance initiatives, including inspection programs. First, governments at the federal and provincial levels in Canada increasingly place inspection authority within a special, usually central, branch or section dedicated solely to ensuring compliance and enforcement with a particular statute or statutes. At the federal level, for example, Environment Canada has established a national enforcement office in Ottawa which, among other things, develops the national inspection plan for CEPA and the pollution prevention provisions of the Fisheries Act. In addition, there are five regional offices of Environment Canada responsible for implementing regional inspection plans.¹³¹ The regional plans may depart from the overall national plan in order to meet particular characteristics or problems in the regions. Regional inspectors may report simultaneously to the national enforcement office and to the respective regional directors of Environment Canada.¹³² The extent to which the national inspection plan is implemented in the regions as written or changed in the regional inspection plans to meet regional circumstances is the first aspect of the devolution or decentralization of inspection targeting decision-making.

The second aspect of this decentralizing trend is the increased interest in federal-provincial agreements that would transfer responsibility for aspects of compliance and enforcement of federal laws, including inspections, from Environment Canada to the provinces. The purposes of such agreements in the inspections context include: (1) coordination of inspection activities in order to make better use of limited resources; and (2) reduction of the administrative burden for those subject to both federal and provincial requirements.¹³³ There are three types of possible federal-provincial arrangements in this regard. First, the federal and a provincial government may enter into agreements for the administration of federal laws in the particular province.¹³⁴ Second, under CEPA alone, where the federal and a provincial government agree that there are in force under provincial law provisions that are equivalent to a regulation in force under CEPA and to the investigation sections of CEPA, the federal government can declare by order that the provisions of the CEPA regulation will not apply in that province.¹³⁵ Third, a recent Canada-wide accord on environmental harmonization has been signed by the federal government and nine provincial governments,¹³⁶ which also could include arrangements regarding inspections.¹³⁷

Because the provinces themselves usually assign inspection responsibility on a regional basis within each province, inspections under federal requirements can become integrated into the regional inspection plans of a province. This has the potential for producing within a province's regional inspection plans significant departures from Environment Canada's national inspection plan for CEPA and the Fisheries Act.¹³⁸ In practice, the agreements address the expectations of the parties regarding inspections, though generally in the broadest of terms. The manner in which the issue of inspections is addressed can also vary from agreement to agreement. Some

¹³¹ The five regional offices are Atlantic Region, Quebec Region, Ontario Region, Prairie and Northern Region, and Pacific and Yukon Region.

¹³² In the enforcement context, this bifurcation of reporting has been adversely commented on in recent reviews of the department as contributing to a situation of "multiple masters" and potential confusion regarding appropriate actions to be taken. House of Commons Standing Committee, *supra* note 43, at 240; see also *CEPA Evaluation Report*, *supra* note 119, at 81–82.

¹³³ See, e.g., Admin. Agreement for the Control of Deposits of Deleterious Substances under the Fisheries Act, June 1, 1994, Canada-Alberta, art. 5.2 [hereinafter Alberta Admin. Agreement].

¹³⁴ CEPA, S.C. 1988, c. 22, § 98; and Department of the Environment Act, R.S.C. 1985, c. E-10, § 7 (regarding the Fisheries Act).

¹³⁵ CEPA, S.C. 1988, c. 22, §§ 34(6), 108–110. In practice, these "equivalency" agreements also take into account inspection arrangements. See *Agreement on the Equivalency of Federal and Alberta Regulations for the Control of Toxic Substances in Alberta*, 1 June 1994, Canada-Alberta, art. 3.2(c) [hereinafter Alberta Equivalency Agreement] (annual inspection reports).

¹³⁶ *Canada-Wide Accord on Environmental Harmonization*, 29 Jan. 1998 (Online: Canadian Council of the Ministers of the Environment (CCME) <<http://www.mbnet.mb.ca/ccme/harmonization/accord.html>> accessed 8 July 1998).

¹³⁷ *Canada-Wide Environmental Inspections Sub-Agreement*, 2 Feb. 1998 (Online: Canadian Council of the Ministers of the Environment (CCME) <<http://www.mbnet.mb.ca/ccme/harmonization/inspections.html>> accessed 8 July 1998) [hereinafter Inspections Sub-Agreement].

¹³⁸ In theory, this would not occur under the CEPA equivalency arrangements because the federal regulation would no longer apply, except to federal works, undertakings, and lands. However, Environment Canada's inspection targets for a substance formerly covered by a CEPA regulation could be affected.

administrative agreements are quite brief in their description of inspection arrangements,¹³⁹ as are the equivalency agreements.¹⁴⁰ Other administrative agreements are more extensive on the issue of inspections.¹⁴¹ The environmental harmonization accord has the potential for being the most detailed regarding federal-provincial inspection arrangements. The proposed Canada-wide environmental inspections sub-agreement sets out the objectives, scope, principles, approach, and implementation arrangements contemplated in the harmonization program. In general, the objectives of the sub-agreement are to provide efficient, cost-effective one-window delivery of environmental inspections. Inspection activities are to be transparent, equitable and risk-based. The contemplated division of inspection activities would have the federal government focus on such matters as international, transboundary, federal lands and facilities, and products and substances in Canada-wide trade and commerce. Provincial government inspection activities would focus on industrial and municipal facilities and discharges, application of laws on provincial and territorial land, waste disposal and destruction, and related provincial matters. In assessing which government is best situated to assume particular inspection responsibilities certain criteria are proposed, such as the scale, scope and nature of environmental issues, equipment and infrastructure available to support activities, physical proximity, efficiency and effectiveness, human and financial resources to deliver obligations, scientific and technical expertise, whether a particular government level is already performing inspections, and related factors. Once a government level has accepted certain inspection obligations, the other order of government must not act in that role for the agreed-upon period. Implementation agreements under the inspections sub-agreement are also expected to address additional matters, including coordination of training of inspectors, development of consistent methods, procedures and practices, development of a compatible database of inspection results, development of linkage between inspection activities, and investigations in non-compliance situations.¹⁴²

Annual reports produced pursuant to the various federal-provincial agreements summarize inspection activities by the parties, noting, for example, where provincial inspections have become a substitute for federal inspection activities or where the division of inspection responsibilities has occurred on a regulation-by-regulation basis.¹⁴³

The development of federal-provincial agreements has been a cautious process. Only one equivalency agreement under CEPA has been entered into.¹⁴⁴ Administrative agreements pursuant to either CEPA or the Fisheries Act or aspects thereof have been entered into with only a few provinces.¹⁴⁵ Equivalency and administrative agreements have been both supported because they provide a method of avoiding overlap and duplication by governments, including in regard to inspection activities,¹⁴⁶ and objected to because of a perceived lack of

¹³⁹ See, e.g., *Agreement Respecting the Application in Quebec of Federal Pulp and Paper Mill Regulations*, 6 May 1994, Canada-Quebec, art. 7 (Quebec will inform Canada at the beginning of each fiscal year of its annual inspection and monitoring program for the enforcement of its regulations). The number of inspections to be performed per year may also be specified. *Id.* at App. 2.

¹⁴⁰ Alberta Equivalency Agreement, *supra* note 135, at art. 3.2(c) (annual inspection reports and compliance data summaries to be shared on an as required basis).

¹⁴¹ Under the Alberta Admin. Agreement, the parties agree to: (1) meet annually to co-ordinate inspection strategies for the regulated sectors of common interest; (2) develop an inspection plan; (3) share information obtained during inspections; (4) develop a single point of contact for the purposes of compliance reporting by the regulated sector; (5) conduct joint inspections where necessary; and (6) develop arrangements for training and designation of provincial inspectors. *Supra* note 133, at Annex 3, art. 2.2-2.5, 4.0. Environment Canada has a series of training courses for inspectors which it makes available to provinces under the agreements. Environment Canada, *Catalogue of Enforcement Courses (1997-1998)*, 7-8 (basic inspectors course). See also Admin. Agreement for *Canadian Environmental Protection Act*, 15 Sept. 1994, Canada-Saskatchewan, Annex 3, art. 4.2(c) (noting that in the development of compliance verification strategies for each regulated sector, the parties will determine inspection priorities in order to target the worst polluters and achieve broad-based compliance).

¹⁴² Inspections Sub-Agreement, *supra* note 137, at art.1-6.

¹⁴³ Canada-Saskatchewan, 1995-1996 CEPA *Administrative Agreement Annual Report*, (1996) 3-5.

¹⁴⁴ Alberta is the only province that has entered into an equivalency agreement with the federal government. See Alberta Equivalency Agreement, *supra* note 135.

¹⁴⁵ Administrative agreements have been entered into with British Columbia and Quebec regarding pulp and paper mills, Alberta regarding the Fisheries Act, and Saskatchewan regarding CEPA and the Fisheries Act.

¹⁴⁶ House of Commons Standing Committee., *supra* note 43, at 266-267; and Government Response, *supra* note 86, at 17.

accountability.¹⁴⁷ In proposed amendments to CEPA, the federal government has proposed to maintain authority to enter into both administrative and equivalency agreements and to produce annual reports, but has not stipulated criteria for the minimum content of such annual reports relating to inspections or related compliance activities.¹⁴⁸

The harmonization accord also has attracted criticism because: (1) recent large cuts to provincial environmental budgets make downloading federal responsibilities, such as inspections, to the provinces problematic;¹⁴⁹ (2) once the federal government delegates responsibilities such as inspections and, prospectively, enforcement to the provinces, Environment Canada may lose de facto ability to maintain accountability and field level awareness with respect to delegated areas because federal budgets and personnel are also shrinking dramatically;¹⁵⁰ (3) bilateral accords entered into between the federal government and the provinces in the 1970s to avoid overlap and duplication, were not successful in protecting the environment or federal interests therein;¹⁵¹ and (4) the current proposed accord makes federal intervention in an agreed area of delegation, such as inspections, more difficult than the earlier bilateral accords.¹⁵² In these circumstances, federal ability to intervene should be preserved in any area of delegated responsibility under the new harmonization accord.

4.2.1.4 Multi-Media Versus Single Media Inspections

Because contaminants do not respect media boundaries, and because inspections are often resource intensive, the ability to inspect for air, water, and land contamination at the same time is a potentially important characteristic of an inspection program. However, depending upon the statute under which inspectors may be conducting their inspections, they may be able to conduct only single-media as opposed to multi-media inspections. This problem is somewhat more pronounced at the federal level because federal regulations tend to be media-substance-industry sector specific.¹⁵³ CEPA provides the basis for the federal government to promulgate regulations that apply to substances regardless of medium, and regulations of this type have been produced. However, on the whole federal regulations tend to focus on one medium at a time.¹⁵⁴ At the provincial level, where provincial inspections tend to

¹⁴⁷ House of Commons Standing Committee., *supra* note 43, at 266–268 (suggesting that annual reports should contain information on provincial inspection and verification activities). The annual reports reviewed for this study contained minimal inspection and verification information, though the agreements themselves provide the foundation for more comprehensive reporting of such information.

¹⁴⁸ Bill C-74, 35th Parl., 2nd Sess., §§ 9–10 (1996).

¹⁴⁹ See *Review of the Harmonization Accord of the Canadian Council of Ministers of the Environment: Hearings Before the Standing Committee on Environment and Sustainable Dev. of the House of Commons*, 36th Parl., 1st Sess., (1997) (testimony of Gary Gallon, principal, Canadian Institute for Business and the Environment noting that environment budgets of several provincial governments recently have been reduced by the following percentages: Ontario-43%; Alberta-27%; Newfoundland-64%; New Brunswick-29%).

¹⁵⁰ *Id.* (testimony of Paul Muldoon, counsel, Canadian Environmental Law Association noting that Environment Canada's budget has been cut approximately 40% and the department will be cutting 200 more staff - in addition to 1,500 positions previously cut over the past three years—as part of devolving its responsibilities under harmonization, likely resulting in a reduced federal capacity in such areas as inspections and enforcement).

¹⁵¹ *Id.* (testimony of Dr. Kathryn Harrison, chair, environmental studies program, University of British Columbia noting that bilateral accords entered into in the 1970s between the federal government and several provinces were not successful because signatory provinces did not always incorporate national standards in permits they issued, nor did they effectively enforce federal or provincial standards and, notwithstanding wide-spread non-compliance with national standards, the federal government only rarely stepped in, in part because having delegated key responsibilities to the provinces, Environment Canada did not have the resources to resume those responsibilities when provinces failed to enforce national standards). See also Linda F. Duncan, "The Rule of Law and Sustainable Development", in *Canadian Bar Association: Sustainable Development in Canada—Options for Law Reform*, (Roger Cotton *et al.* eds., 1990) 287 (noting that previous agreements and accords have, for the most part, failed to clearly reflect federal rights and obligations).

¹⁵² *Id.* (testimony of Harrison and Muldoon referring to art. 5.2 of the Inspections Sub-Agreement). See also House of Commons Standing Committee on Environment and Sustainable Development, *Report on the Harmonization Initiative of the Canadian Council of Ministers of the Environment*, (1997) 28.

¹⁵³ See, e.g., Hearings I, *supra* note 71, at 41 (testimony of Mr. Pascoe of Environment Canada noting that CEPA regulates, for example, certain industrial sources of atmospheric lead, such as from secondary lead smelters and lead in gasoline, but not necessarily other sources of lead in the environment).

¹⁵⁴ This problem is somewhat alleviated by the fact that federal inspectors usually are responsible for inspections pursuant to both CEPA and the Fisheries Act, though the overall jurisdiction of these two statutes is still fairly narrow.

focus more on permits, these instruments also tend to be issued on a medium-by-medium basis.¹⁵⁵ On the other hand, the overall broader provincial environmental jurisdiction tends to give inspectors greater scope to examine all aspects of compliance at facilities to which multiple permits have been issued. Jurisdictions such as Ontario have conducted multi-media inspections for a number of years.

4.2.2 Self-Monitoring and Reporting Information by the Regulated Community

In addition to inspections, a further compliance measurement approach employed by federal and provincial governments in Canada is the requirement of self-monitoring and reporting of information by the regulated community.¹⁵⁶ The authority to require self-monitoring and reporting exists in all the federal and provincial pollution control laws considered in this study. Typical of these provisions are those contained in CEPA which authorize the Minister to require the regulated community, which may be subject to notice requirements or to a particular regulation, to conduct specified monitoring, and to record and make available or to periodically report the results to the federal government.¹⁵⁷ The failure to provide such information or the provision of false information is also made an offense to which severe penalties may attach.¹⁵⁸ Similar requirements and penalties also exist in provincial legislation in relation to approvals, permits, licenses or various types of remedial orders¹⁵⁹ and regulations.¹⁶⁰ Imposing self-monitoring and reporting requirements on the regulated community is seen by governments as an environmental cost of industry doing business in the jurisdiction and as being consistent with the “polluter pays” principle.¹⁶¹ Provision of industry-generated information is viewed by governments as integral to any regulatory efforts to determine compliance rates with environmental standards in various sectors of the regulated community.¹⁶² Moreover, imposing self-monitoring and reporting requirements also is favored increasingly by federal and provincial governments as a means of complementing as well as reducing government monitoring and inspection obligations, particularly in a period of resource constraints.

Three aspects of self-monitoring and reporting requirements in Canada are considered below: (1) types of self-monitoring and reporting information; (2) government use and verification of such information; and (3) federal-provincial arrangements regarding such data.

¹⁵⁵ See *supra* text accompanying note 55.

¹⁵⁶ See, e.g., Government Response, *supra* note 86, at 34 (noting that means employed by the federal government to verify compliance with the law include: (1) requiring regulated entities to monitor their own pollutants and correct any violations that regulated entities themselves identify; and (2) requiring regulated entities to monitor their activities and report to the Minister on the results of that monitoring). See also *Review of the Canadian Environmental Protection Act (CEPA): Hearings Before the Standing Committee on Environment and Sustainable Development of the House of Commons*, 35th Parl., 1st Sess., Issue No. 62, at 8 [hereinafter *Hearings III*] (testimony of Rob Patzer, Regional Coordinator, Compliance and Enforcement, Prairie and Northern Region, Environment Canada noting that with respect to compliance verification, regional office activity primarily consists of reviewing monitoring data submitted by regulated entities and conducting site inspections).

¹⁵⁷ CEPA, S.C. 1988, c.22, §§ 16–18, 26–27, 29. See also *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations*, SOR/92-267 (1992), § 5 (sampling), § 6 (monitoring and reporting), § 7 (testing).

¹⁵⁸ CEPA, S.C. 1988, c. 22, § 114 (persons providing Minister with false or misleading information in connection with sections 16–18, 26–27, 29 are guilty of an offense and liable on summary conviction to a maximum \$300,000 fine, or up to six months imprisonment, or both, or on indictment to a maximum \$1,000,000 fine, or up to five years imprisonment, or both).

¹⁵⁹ See, e.g., EPA, R.S.O. 1990, c. E.19, § 9 (reporting of information regarding air emissions as term and condition of certificate of approval), § 124 (monitoring and reporting discharges to natural environment pursuant to control order), §§ 184, 186 (offense to knowingly give false information to Minister or provincial officer).

¹⁶⁰ WMA, *Pulp Mill and Pulp and Paper Mill Liquid Effluent Control Regulation*, British Columbia Reg. 470/90, as am. Sections 3–5, 7–9 set out sampling and reporting obligations for determining compliance with standards established under the regulations, as well as set out offenses and penalties for non-compliance.

¹⁶¹ Alberta Environmental Protection, *The Role of Compulsory Industry Monitoring in Alberta's Environmental Regulatory Program*, (1997) 2 [hereinafter *Compulsory Industry Monitoring*].

¹⁶² *Response to Questions Addressed to the Government of Quebec on Compliance and Enforcement Indicators Under Environmental Legislation from Jean Couture, Intergovernmental Relations, Ministry of the Environment and Wildlife*, (July 9, 1997) 1–2 [hereinafter *Quebec Response I*] (on file with the author).

4.2.2.1 Types of Self-Monitoring and Reporting Information

There are several types of self-monitoring and reporting information under federal and provincial programs. Compulsory industry monitoring for large operations can include: air emissions; wastewater and potentially contaminated storm-water releases; groundwater; soil; treated sewage sludges; drinking water; hazardous wastes; environmental effects; operation of pollution control technologies; reclamation activities; and ambient air and water quality.¹⁶³ While specific monitoring requirements can vary from one industry sector to another, typical requirements may focus on: monitoring and sampling locations; frequency of monitoring or sampling, such as continuously, daily, thrice-weekly, weekly, monthly, quarterly, or annually; sample type, such as on-line, composite or grab sample; parameters to be measured; monitoring methods; analytical methods; and data recording, record keeping and reporting, such as immediately if there is a violation, or monthly, quarterly or annually.¹⁶⁴

4.2.2.2 Government Use and Verification of Self-Monitoring and Reporting Information

Federal and provincial governments may use self-monitoring and reporting information from the regulated community for a variety of purposes, including: (1) providing a measure of performance relative to established limits, standards, or guidelines; (2) ensuring that pollution control technologies are operating effectively; (3) providing an early warning system for potential contamination issues; (4) characterizing complex emissions to determine potential environmental impacts; (5) providing information for provincial and national emission inventories that are used in environmental management; (6) assessing the impact of releases to the environment; and (7) providing data for tracking trends in environmental performance and effects.¹⁶⁵

Two examples of major self-monitoring requirements that have been imposed upon the regulated community nationally exemplify the purpose and use to which such information may be put by governments to increase compliance. First, regulations under the Fisheries Act, which came into force in 1992, require all pulp and paper mills discharging effluents in Canada to design and conduct an environmental effects monitoring (EEM) program every three years.¹⁶⁶ The EEM studies, conducted in accordance with Environment Canada requirements, provide information on whether deposits of deleterious substances in waters frequented by fish have altered, disrupted, or destroyed fish habitat, and thus whether the regulations are adequate to protect these resources, or whether there is a need for further control measures.¹⁶⁷ The EEM program was designed to address the problem of a wide variety of types, characteristics and quality of environmental monitoring programs at pulp and paper mills across the country.¹⁶⁸ When the regulations were promulgated in 1992, concern was expressed by some members of the public that there was no guarantee that the sampling and monitoring of test results submitted by mills would reflect actual discharges. At that time, Environment Canada justified self-monitoring on the basis that government inspectors would regularly monitor and audit test results provided to the department by the mills.¹⁶⁹ Given the more recent resource constraints experienced by the federal government, it would appear that the ability of the government to systematically review self-monitoring results may now be less certain and should at least be re-examined. In practice, some of these responsibilities appear to be devolving to provincial governments under federal-provincial arrangements.¹⁷⁰

¹⁶³ Compulsory Industry Monitoring, *supra* note 161, at 1.

¹⁶⁴ *Id.* at 1–2.

¹⁶⁵ *Id.* at 1.

¹⁶⁶ Fisheries Act, *Pulp and Paper Effluent Regulations*, SOR/92-269, §§ 28–34 (1992).

¹⁶⁷ 126 Can. Gaz. Part II, 1998 (1992) (regulatory impact analysis statement accompanying pulp and paper effluent regulations).

¹⁶⁸ British Columbia Ministry of Environment, Lands and Parks, *British Columbia Pulp Mills: Effluent Status Report* (1994).

¹⁶⁹ 126 Can. Gaz. Part II, 2005 (1992).

¹⁷⁰ See *infra* part 4.2.2.3.

A second example of a self-monitoring and reporting requirement imposed nationally on the regulated community is the National Pollutant Release Inventory (NPRI) program established under CEPA. The purpose of the NPRI is to compile a comprehensive and national database or inventory of the quantity of pollutant releases to land, water or air by industrial or transportation sources.¹⁷¹ The Act requires that when the Minister of the Environment publishes a notice in the *Canada Gazette*, persons meeting the reporting requirements set out in the notice must submit specified information by the date set out in the notice regarding any substances listed in a schedule to the notice.¹⁷² The NPRI tracks releases or transfers in waste of 178 substances, with reporting required by facilities employing ten or more people and manufacturing, processing or using ten metric tons or more per year of any of the 178 substances.¹⁷³ Environment Canada seeks to verify the compliance and quality of NPRI data through its regional inspection program, as well as through efforts to inform companies of the obligations to report.¹⁷⁴ The NPRI program is premised on the notion that the public has the right to know the nature and quantity of substances being released into the environment.¹⁷⁵ Potential problems with the NPRI that can adversely affect the adequacy and comprehensiveness of information produced under the program include notice limitations on: (1) who must report;¹⁷⁶ (2) what type of information must be reported;¹⁷⁷ and (3) what constitutes a reportable substance.¹⁷⁸ Proposed amendments to CEPA would have made comparatively minor changes to the notice obligations under existing law.¹⁷⁹ It would be difficult to speculate on the practical effect of these proposed changes. Other factors that can adversely affect the adequacy of information produced under the program include reporting errors, late or non-reporting by companies, or requests by companies to treat information submitted as confidential. These latter matters usually require follow-up by the Department or by regional inspectors.¹⁸⁰

An example of self-monitoring and reporting requirements that are increasingly favored at the provincial level is the obligation imposed on the regulated community to use continuous emission monitoring (CEM) equipment for the purpose of recording and reporting to government on air contaminant concentrations from industrial facilities. Information recorded on this basis is important in evaluating the compliance of stack emissions with general environmental standards or limits found in regulations¹⁸¹ or with particular requirements found in approvals for specific facilities.¹⁸² The provision of information on continuous emissions has the potential to be superior to the snap-shot results achieved by site inspections, or by less frequent sampling or monitoring activity.

¹⁷¹ Environment Canada, *National Pollutant Release Inventory: 1994 Summary Report 1* (1996) [hereinafter NPRI Report].

¹⁷² CEPA, S.C. 1988, c. 22, § 16.

¹⁷³ 128 Can. Gaz. Part I, 1378–1384 (1994).

¹⁷⁴ NPRI Report, *supra* note 171, at 3.

¹⁷⁵ Joseph F. Castrilli, “Overview of Recent Federal and Provincial Legislative Initiatives on the Environment”, Address Before the Law Society of Upper Canada (Apr. 22, 1994), in *State of the Environment: An Essential Update*, Apr. 1994, at D-2 to D-6.

¹⁷⁶ *Id.* at D-2 to D-3 (noting that a facility would have to produce up to 10 metric tons as a by-product before being obliged to report, yet substantial releases of substances produced as unintentional by-products—up to 9,999 kg—might be missed).

¹⁷⁷ *Id.* at D-4 to D-5 (noting that under the NPRI only releases, not uses of substances must be reported). A House of Commons standing committee report has recommended that the NPRI be revised to allow the federal government to monitor progress by industry toward implementing pollution-prevention plans, source reduction strategies and meeting specific targets. See House of Commons Standing Committee, *supra* note 43, at 95.

¹⁷⁸ NPRI Report, *supra* note 171, at 2 (substances not required to be reported under the NPRI program include PCBs, pesticides, and ozone depleting substances either because they are being phased out, are subject to reporting requirements under other programs, or are generated at less than ten metric tons per year).

¹⁷⁹ Bill C-74, 35th Parl., 2nd Sess., § 71 (1996) (amending existing section 16 to permit notices to require testing and submission of test results, and to require information on the distribution of the substance and products containing the substance).

¹⁸⁰ NPRI Report, *supra* note 171, at 3, 7, 11. CEPA allows companies to request that submitted information be treated as confidential. S.C. 1988, c. 22, § 19(1). This authority would be continued under proposed amendments to CEPA. Bill C-74, 35th Parl., 2nd Sess., § 313 (1996).

¹⁸¹ See, e.g., WMA, *Wood Residue Burner and Incinerator Regulation*, B.C. Reg. 519/95, § 3 and Sch. 2 (requiring CEM and reporting for air emissions from such facilities).

¹⁸² See, e.g., *Re General Electric Canada Inc. and Eli Eco-Logic*, EP-96-01 (1996) (OEAB) (decision of administrative tribunal to approve non-incineration technology for the destruction of PCBs with use of CEM requirements as terms and conditions to the approval).

In general, where industry is compelled to produce monitoring data as a complement to or substitute for more intensive site inspections, there will be a heightened interest on the part of governments in ensuring the quality of that self-monitored and reported information. As a result, governments may undertake the following initiatives to ensure the integrity of such information: (1) establish specific monitoring protocols; (2) undertake spot audits of industry monitoring; (3) inspect industries; (4) undertake monitoring programs to verify industry monitoring; (5) review industry quality assurance and quality control procedures; (6) review compulsory monitoring data for anomalies or inconsistencies; and (7) take action immediately to address monitoring reliability issues including enforcement action if appropriate.¹⁸³ As governments are increasingly employing industry self-monitoring data to assist them in evaluating compliance of particular facilities with environmental requirements, they are also beginning to reproduce this data and report on their interpretation in annual compliance status reports.¹⁸⁴ Such reports do not generally comment on the results of any audits by government on the integrity of industry self-monitoring information itself. As federal and provincial governments increasingly rely on such data, and because of historic public concern about the integrity of such data, it can be anticipated that governments will direct more attention to reporting the results of such inquiries in the future.

4.2.2.3 Federal-Provincial Arrangements Regarding Industry Self-Monitoring and Reporting Information

As with inspections, federal and provincial governments are developing arrangements to jointly handle self-monitoring and reporting information received from the regulated community. The general purposes and types of such agreements have been reviewed above.¹⁸⁵ In the context of information from industry, most federal and provincial agreements attempt to create a “single-window” contact for the regulated entity to receive direction on what must be monitored and submitted, based on requirements jointly set by the governments. As well, such agreements usually require that each government will have full and prompt access to all test results received from the regulated entity, in order to verify compliance with its respective statutory obligations.¹⁸⁶ Annual reports issued pursuant to the agreements generally include very brief statements about the receipt of company information, usually by the province, and its dissemination to Environment Canada within the period specified in the agreements.¹⁸⁷ The annual reports usually contain little or no data that would permit independent verification of statements or conclusions by the parties that compliance rates based on the monitoring information are or remain high, nor do they discuss the integrity of the data received from industry.¹⁸⁸ As with inspections,¹⁸⁹ minimum content criteria for federal-provincial annual reports relating to industry self-monitoring and reporting information should be stipulated.

¹⁸³ Compulsory Industry Monitoring, *supra* note 161, at 2.

¹⁸⁴ See, e.g. Pacific and Yukon Region II, *supra* note 79, App.2–4 (monitoring data for annual or multi-year period for all reporting metal mines, pulp and paper mills, and petroleum refineries in British Columbia).

¹⁸⁵ See *supra* text accompanying notes 133–137.

¹⁸⁶ See, e.g., *Admin. Agreement for the Control of Liquid Effluents from Pulp and Paper Mills*, Sept. 19, 1994, Canada-British Columbia, art. 4.3 (general information from industry), and art. 4.9 (EEM information).

¹⁸⁷ Canada-Alberta, *1995–1996 Fisheries Act Admin. Agreement Annual Report 7* (1996).

¹⁸⁸ Canada-Saskatchewan, *1995–1996 Fisheries Act Admin. Agreement Annual Report 5* (1996).

¹⁸⁹ See *supra* text accompanying note 148.

4.3 Criteria for Defining Compliance

While Canada defines compliance as the “state of conformity with the law,”¹⁹⁰ criteria for defining compliance of a member of the regulated community with statutory or regulatory requirements vary from jurisdiction to jurisdiction. In some jurisdictions, this determination may be quite complex and subject to extensive procedural and policy guidance. In other jurisdictions, the determination may be highly discretionary and may depend on the interpretation a particular inspector places on the regulatory requirements under consideration. In still other jurisdictions, the criteria for determining compliance may be quite simple and straightforward with any violation, regardless of how minor, constituting non-compliance. The process of characterizing compliance in various jurisdictions is also in a state of transition. Examples of current and emerging approaches are reviewed below.

Perhaps the most sophisticated approach to defining compliance may be found in British Columbia, where the province has long-standing procedures for making such determinations in relation to permits issued under provincial law. The most important and complex definition developed by British Columbia is that of “significant non-compliance” (SNC).¹⁹¹ Several criteria may be applied to various parameters measured and, when even only one parameter exceeds the criteria, a permit will be considered to be in SNC.¹⁹² Criteria that may result in a SNC finding include: (1) where sampling is daily with monthly reporting of results, a permit is in SNC if five or more results for any given parameter exceed the permit requirements; (2) where sampling is weekly with monthly reporting of results, a permit is in SNC if two or more results for any given parameter exceed the permit requirements; (3) where sampling is monthly with annual reporting of results, a permit is in SNC if four or more results for any given parameter exceed the permit requirements; (4) where sampling is quarterly with annual reporting of results, a permit is in SNC if two or more results for any given parameter exceed the permit requirements; (5) where a single sample is taken, a permit is in SNC if the results for any given parameter exceed permit requirements by fifteen percent or more; (6) where no monitoring is required, a permit is in SNC if the latest permit inspection report indicates that any requirement, other than an administrative requirement, is consistently not being met; (7) where other sampling and reporting frequencies are used, a permit is in SNC if greater than fifteen percent of the results for any given parameter exceed permit requirements; (8) where there are major quantity or quality violations of one hundred percent or more for any one parameter, such as during spills or major upsets, a permit is in SNC; or (9) where monitoring results are not submitted in accordance with permit requirements, and previous government or permittee results or inspections indicate that there are quantity or quality violations, as defined in items 1–7 above, a permit is in SNC.¹⁹³ Provincial policy guidance indicates that the assessment of SNC must be based on the most recent submission of monitoring data or other information at the time the assessment is being made. Thus, if a pulp mill is submitting monthly monitoring results, only the most recent set of monthly results may be used.¹⁹⁴ British Columbia’s policy guidance procedures also define “minor non-compliance,”¹⁹⁵ and “total compliance.”¹⁹⁶ Notwithstanding the sophistication of the approach in British Columbia, a growing number of regulations and continuing fiscal restraint have been two factors challenging the province’s ability to maintain the required sampling frequencies in order to determine non-compliance situations.

¹⁹⁰ Environment Canada, 1 *Compliance and Enforcement Report* 6 (1996) [hereinafter *Compliance and Enforcement Report*]. See also *supra* text accompanying note 30.

¹⁹¹ British Columbia Compliance Strategy, *supra* note 124, at 1.

¹⁹² *Id.*

¹⁹³ *Id.* at 1–3.

¹⁹⁴ *Id.* at 3.

¹⁹⁵ *Id.* at 3 (minor non-compliance defined as a condition of an administrative or technical nature that does not fall within the definition of SNC).

¹⁹⁶ *Id.* at 3 (total compliance defined as a condition where all terms and conditions of a permit are complied with).

A further concern regarding existing procedures in British Columbia is that they allow for inconsistencies in interpretation and evaluation when determining which facilities are in SNC. This has resulted in proposals to produce a more numerical compliance assessment procedure that would be more uniform and less subjective.¹⁹⁷ Under this proposed procedure, a member of the regulated community would be in non-compliance when an assessment activity, such as a site inspection or review of monitoring data, reveals a failure to comply with a permit, approval, regulation, order, or other requirement of the ministry.¹⁹⁸ The severity of non-compliance would be measured by a numerical compliance rating.¹⁹⁹ The importance to British Columbia of improving its characterization of what constitutes non-compliance is driven in part by the fact that, since 1990, the province has produced periodic non-compliance lists of those facilities deemed to be in SNC.²⁰⁰ These reports are discussed below.²⁰¹

Other jurisdictions in Canada apply less complex, if varied, criteria to defining compliance which may also be tailored to the instrument against which compliance is being measured. At the federal level, for example, criteria for defining compliance may be more subject to the judgment of individual inspectors depending on the complexity of the regulation under consideration. As noted above, Environment Canada uses various inspection checklists for regulations, permits, or codes of practice pursuant to both CEPA and the Fisheries Act.²⁰² These checklists, some of which are quite extensive, track the requirements of the regulation, permit, or code of practice and require the inspector to make a determination of whether the facility is in or out of compliance.²⁰³ Depending on the regulation, permit, or code of practice under consideration, the inspector's determination of whether the facility is in compliance may be made qualitatively or on the basis of the total numerical score the facility achieves under the particular instrument being evaluated.²⁰⁴

Still other jurisdictions, such as Ontario, employ a straightforward approach to defining compliance. An industrial direct discharger to water, for example, will be designated out of compliance if its effluent concentration or discharge loadings exceed one or more of the parameters contained in its effluent requirements. If there is any exceedance, even minor, the discharger is deemed to be out of compliance.²⁰⁵

The varied government approaches at the federal and provincial levels to developing and implementing criteria for defining compliance may suggest a complex, if confusing and potentially inconsistent, framework within which to assess compliance with the law by the regulated community. Differences in criteria for defining compliance have the potential to produce different conclusions about the compliance status of the same facility depending on which government's criteria or approach are employed, though federal and provincial governments attempt to coordinate their activities. Moreover, the potential divergence in approaches to criteria that define compliance may take on greater significance in future, to the extent that federal-provincial agreements result in the provinces;

¹⁹⁷ Draft British Columbia Compliance Rating System, *supra* note 125, at 2. See also KPMG, *Evaluation of British Columbia Waste Management Permit System*, (1995) 30 [hereinafter KPMG] (noting that poor criteria used when evaluating non-compliance conditions result in enforcement inconsistency).

¹⁹⁸ Draft British Columbia Compliance Rating System, *id.* at 2–3.

¹⁹⁹ *Id.* at 3. See also *supra* text accompanying note 126. Some of the regional offices also have proposed their own SNC definitions. One regional proposal would see a permit defined as SNC, for example, if greater than 15 percent of the results for any given parameter exceed permit requirements.

²⁰⁰ See, e.g., *British Columbia Ministry of Environment, Non-Compliance Pollution List* (1990). British Columbia has released a non-compliance list twice per year since 1990. See also KPMG, *supra* note 197, at 30, 77 (noting that poor criteria used when evaluating non-compliance conditions has resulted in some permittees not being placed on the non-compliance list when evidence indicated they should have been, or who have been removed from the list without adequate justification).

²⁰¹ See *infra* part 4.4.2.

²⁰² See *supra* text accompanying notes 81–85.

²⁰³ *Id.*

²⁰⁴ Compare *Environment Canada, Mine Inspection Checklist* (1995) (requiring inspector to indicate whether overall a mine facility is in or out of compliance with the Fisheries Act, regulations, or guidelines and if it is out of compliance to provide reasons) with *Environment Canada, Antisapstain Facility Assessment Report* (undated) (requiring inspector to give weighted numerical evaluation of whether a lumber treatment facility is in compliance, on the basis of the sum of individual mill unit compliances times 100, divided by the number of mill units in operation).

²⁰⁵ Ontario Ministry of the Environment and Energy, *1 Report on the 1991 Industrial Direct Discharges in Ontario: Summary of Compliance Assessment 1* (1993) [hereinafter Ontario Compliance Assessment].

(1) having responsibility for ensuring compliance with federal requirements; or (2) substituting their own requirements for federal law.

4.4 Approaches to Evaluating, Recording and Reporting Compliance Status

There are three aspects to government measurement of the compliance status of members of the regulated community. First are the methods employed to record and manage data obtained from the regulated bodies. Second are the approaches used to evaluate and report the compliance status of those members of the regulated community for which information is available, and to use this information to seek improvements in future environmental performance. Third are the problems of compliance data gaps arising from lack of information about facilities due to regulatory exemptions and inadequate government resources. Each of these matters is reviewed below.

4.4.1 Recording and Managing Compliance Data

There is a large number of databases used by federal and provincial governments in connection with recording compliance information. Many databases are specific to a particular aspect of the environment, while others integrate various environmental media. The greatest challenges facing governments in this area relate to integrating various database systems within the provinces, between provinces, and between federal and provincial governments. An additional significant challenge is having sufficient resources to maintain the currency and integrity of various systems employed.

Ontario's data management systems for developing annual reports on industrial waste water discharges illustrate the complexity of, and resources required for, recording and maintaining compliance databases for a single environmental media. For example, four database systems were employed by the Ontario Ministry of the Environment and Energy (MOEE) to assemble the waste water discharge reports which covered the period ending in 1991.²⁰⁶ First, there was the Industrial Monitoring Information System (IMIS), which is a data storage and reporting program. Discharge data from industrial plants were submitted on paper copy to MOEE district offices. MOEE staff in turn, transferred the data to IMIS via a computer-link to the MOEE's central mainframe computer in Toronto. This system was sufficient for processing data where a company would monitor less than two dozen pollutants at only a few sample locations. However, under the province's new Municipal-Industrial Strategy for Abatement (MISA) regulations, companies were in some cases monitoring over one hundred pollutants at more than thirty sample locations, depending on the company and industrial sector. As a result, more sophisticated electronic transfer approaches had to be employed to allow industries to submit information necessary to comply with MISA requirements. Second, the MISA Data Entry System (MIDES), designed by MOEE, allowed a discharger to report analytical data required under the MISA program by computer to MOEE regional offices. The MOEE regional offices have enhanced versions of MIDES that allow transmission of industry information to the MOEE corporate Sample Information System (SIS). Third, SIS, a database storage system for many MOEE programs, is the final destination for all MISA data. Fourth is the Toxicity Data Entry System (TOXDATA), which, pursuant to the MISA program, is designed to allow dischargers to enter data about the relative acute toxicity of their effluent discharges and to file this information electronically with MOEE for verification and entry in the MOEE's central TOXDATA database.²⁰⁷

What is apparent about MOEE's waste water discharge data management program as it existed in 1993 when the 1991 annual report was released, is that it is highly dependent on both self-monitoring data,²⁰⁸ and on MOEE district, regional, and head office involvement in the data collection, verification, and dissemination process. Given the great resource and staffing cuts experienced by the MOEE in the last several years,²⁰⁹ it is unclear whether and, if so, how MOEE is able to maintain the currency and integrity of the data collection and verification system.

²⁰⁶ *Id.* at 14.

²⁰⁷ *Id.* at 14–15.

²⁰⁸ *Id.* at 1 (noting that the industrial direct discharge report is based on self-monitoring data provided by industry).

²⁰⁹ McAndrew, *supra* note 59. See also Gary Gallon, *Ontario Deregulation Continues: Ends Enforcement Under Federal Fisheries Act*, (Sept. 8, 1997) 1 (noting that Ontario has cut the MOEE budget by 42 percent, and eliminated almost 1,000 positions since 1995).

While Ontario recently has improved its database development through such programs as ORACLE and is better integrating other tracking and reporting information systems, the basic question of the province's ability to verify the accuracy of the information it receives from industry in a period of significant resource and staff cuts remains unanswered.

British Columbia's data management systems for its waste management permit and related programs illustrate some of the same issues of complexity and resource demands. The province employs a number of data management systems important to the integrity of its compliance initiatives. These information management programs include: (1) WASTE, the computer software program that supports the waste management permit system; (2) SEAM, the computer program that records ambient monitoring data; (3) EMS, the environmental monitoring system program which will replace SEAM, designed to automatically collect remote monitoring data, communicate and exchange data with WASTE, and monitor compliance data; (4) SITE, the computer program that records information on contaminated sites; and (5) SWIS, the computer program that records information regarding special wastes.²¹⁰ Problems that have surfaced in connection with the province's information systems include: (1) data entered into WASTE and SEAM have been incomplete, inconsistent, and inaccurate;²¹¹ (2) the data entry and access requirements are procedurally onerous, making the information systems difficult to use;²¹² (3) information in the data systems is not current, and is not kept up to date;²¹³ (4) regional staff of the Ministry do not have the resources or time for data input;²¹⁴ and (5) preventive and detective controls have not been effective in correcting these problems.²¹⁵ Suggested improvements have included better database integration, use of portable computers by regional staff for remote entry of field data and electronic dissemination directly to ministry central databases, better training, and more resources.²¹⁶

The federal government also uses many information management systems relevant to compliance issues. One of the newest databases, developed for the NPRI program, illustrates how multi-media data have been integrated and used within Environment Canada, other federal departments, and the provinces. This system allows the NPRI to download data sent by industry on disk to a main database without risk of errors associated with data entry.²¹⁷ Because NPRI reporting must be updated every year, the NPRI data system allows industrial facilities to upload a previous year's data into the current year's reporting software for updating.²¹⁸ Within Environment Canada, NPRI data have been used to support such activities as screening substances for assessment, developing control options, assessing toxicity, promoting pollution prevention, evaluating pollutant loadings to the Great Lakes, and supporting organic and inorganic chemical inventories of international agencies. Health Canada has been able to use NPRI information to examine releases of particular substances in order to evaluate the need for potential risk assessment studies. Some provinces have also conducted analyses of NPRI data to establish a baseline for determining future action priorities.²¹⁹ However, not all provinces or regions within a province use NPRI data.²²⁰ Moreover, the NPRI database is not without its own quality control problems. For example, errors in information submitted by over 100 reporting facilities in connection with the 1994 inventory resulted, upon verification, in a 55 percent readjustment in

²¹⁰ KPMG, *supra* note 197, at 30, 50.

²¹¹ *Id.* at 30, B-31.

²¹² *Id.* at 30, 75, B-26.

²¹³ *Id.* at 75, B-21, B-25.

²¹⁴ *Id.* at 74, B-25, B-31.

²¹⁵ *Id.* at B-31 (noting that preventive controls include system data entry edit controls and training, while detective controls include user complaints and review of input errors).

²¹⁶ *Id.* at 75-76, B-31.

²¹⁷ NPRI Report, *supra* note 171, at 4.

²¹⁸ *Id.* Information that must be reported by each facility includes quantities of releases to air, water, or land of each substance manufactured, processed, or otherwise used by the facility. *Id.* at 123.

²¹⁹ *Id.* at 4.

²²⁰ Interview with Greg E. Cheeseman, Head, Permit Fees and Non-Compliance /Appeals Unit, Environmental Protection Dep't, MELP, in Victoria, B.C. (May 21, 1997) (noting that regional offices do not use NPRI data for compliance purposes, but instead use waste management permit information).

reported releases.²²¹ In addition, not all facilities appear to be reporting under the program despite a 14 percent increase in 1994 in the number of reporting facilities over 1993 totals.²²² While this improvement in the coverage of the NPRI is vital to the integrity of the program, it does not resolve the question of how many other facilities still may not be meeting the reporting requirements. Late and incomplete reporting by facilities have also occurred under the program.²²³ While problems in the NPRI program appear resolvable, the key to the resolution of some of them may depend on the extent to which regional offices of Environment Canada will be able to stretch their already thin resources to ensure compliance with NPRI reporting requirements.²²⁴

4.4.2 Evaluating and Reporting Compliance Status

Federal and provincial governments in Canada are increasingly producing evaluations of the compliance status of the regulated community as a result of regulatory measures undertaken. These evaluations are themselves a benchmark against which government performance may be measured.

Some of the earliest compliance status reports at the federal level were produced by several regional offices of Environment Canada.²²⁵ These annual reports set out the outputs of the regional inspection program, such as planned and undertaken inspections,²²⁶ as well as inspection rates,²²⁷ primarily on a regulation-by-regulation basis. Moreover, these reports also set out the outcomes or results of the program in terms of levels or rates of compliance achieved by regulation²²⁸ and, in some regions, by company²²⁹ and geographic area.²³⁰ The format, content, and detail of these reports varies from region to region,²³¹ and also appears to vary from year to year within the same region.²³² Moreover, not all regional offices produce annual compliance status reports,²³³ though the statistical outputs of each region, such as numbers of inspections conducted pursuant to each regulation, are produced annually by all regions.²³⁴

Recently Environment Canada, in an attempt to place the status of compliance in connection with certain priority regulations in a national context, produced a report on six regulations that draws on information from all the regional offices.²³⁵ This report, the first of a planned series, sets out inspection rates for each regulation examined, as well as rates or levels of compliance by the regulated community.²³⁶ The report's statistics on compliance rates

²²¹ NPRI Report, *supra* note 171, at 3.

²²² *Id.* at 2.

²²³ *Id.*

²²⁴ Ontario Region, *supra* note 104, at 9 (noting that the NPRI program is one of the programs that have come into place in the 1990s for which no new resources have been provided to the regional office).

²²⁵ Hearings II, *supra* note 94, at 6 (testimony of Mr. Vic Niemela, Environment Canada noting that the Pacific and Yukon regional office began producing compliance status reports detailing compliance trends in the period 1992–1993).

²²⁶ See, e.g., Pacific and Yukon Region II, *supra* note 79, at 4 (targeted and completed inspections for CEPA regulations), 6 (targeted and completed inspections for Fisheries Act regulations).

²²⁷ See, e.g., Ontario Region, *supra* note 104, at 10 (number of inspections per regulation as a function of number of sites subject to the regulation).

²²⁸ *Id.* at 10.

²²⁹ Pacific and Yukon Region II, *supra* note 79, at 60–69 (company-by-company compliance with pulp and paper effluent regulations).

²³⁰ See *supra* text accompanying notes 113–116.

²³¹ Compare Pacific and Yukon Region II, *supra* note 79 (detailed information by regulation and company, including all monitoring data for each company in the metal mining, pulp and paper, and petroleum refining industrial sectors for the period 1993–1994) with Ontario Region, *supra* note 104 (information summarized by regulation and industrial sector with no reference to individual companies or inclusion of any monitoring data for any company or industrial sector for the period 1996–1997).

²³² See *supra* note 110.

²³³ See *supra* text accompanying note 111.

²³⁴ See *supra* text accompanying note 112.

²³⁵ Compliance and Enforcement Report, *supra* note 190, at 1. The regulations examined are with respect to ocean dumping, pulp and paper effluent, pulp and paper effluent dioxins and furans, PCB storage, export and import of hazardous wastes, and ozone depleting substances.

²³⁶ *Id.*

indicate the intent of the federal government to broaden compliance indicators beyond traditional reporting of compliance outputs, such as numbers of inspections conducted, to reporting overall compliance outcomes, results and trends. To provide a more comprehensive view of compliance rates and trends, however, future reports should cover a wider selection of regulations administered by Environment Canada,²³⁷ the data should be more recent,²³⁸ and detailed information and monitoring data on a company by company basis should be included. While the reporting of company-specific information is perhaps better handled in regional reports, regional offices of Environment Canada, with some exceptions, are not reporting this information. Moreover, Environment Canada's comparatively recent emphasis on targeting certain chronic offenders in order to maximize the use of limited inspection resources may also make it more difficult to obtain true compliance rates for the entire regulated community, as a "focused" sample of "chronic offenders" by definition may not be representative of the entire community. Thus, if compliance rates increase it is difficult to determine whether overall performance in the regulated community improved or the accuracy of targeting decreased.²³⁹

The situation at the provincial level with respect to evaluating and reporting on compliance measures is more varied. Some provinces measure and report compliance outcomes at least once a year, if not more frequently, but are less likely to report on compliance outputs. Other provinces measure and report both compliance outputs and compliance outcomes, though the latter may not be reported upon as frequently as the former. Still other provinces appear to report neither compliance outputs nor outcomes, though it is likely that they are collecting such information.

British Columbia does not appear to measure and report annually on compliance outputs under its regulatory programs. However, since 1990, the province has produced a non-compliance report every six months which lists operations whose compliance record during the reporting period is of concern to the Ministry of Environment, Lands, and Parks (MELP) because they are not meeting the requirements of applicable regulations, waste management permits, approvals, orders, waste management plans, or operational certificates.²⁴⁰ The discharges covered may relate to air, water, or land.²⁴¹ As a result of producing these reports, MELP has been able to develop information on compliance trends in the province generally,²⁴² and by industrial sector for the 1990s,²⁴³ as well as track the percentage of operations that appear repeatedly in the non-compliance reports so that they may be targeted for special compliance initiatives.²⁴⁴ Depending on the severity of the non-compliance identified, operations may be subject to enforcement action.²⁴⁵ Since 1995, a separate charges and penalties report is also issued at the same time as

²³⁷ *Id.* Appendix to report listing over thirty regulations administered by Environment Canada, though only six regulations are covered by the report.

²³⁸ *Id.* Report covering the years 1992–1994.

²³⁹ See *supra* text accompanying notes 117–120.

²⁴⁰ See, e.g., British Columbia Ministry of Environment, Lands and Parks, 14 *Environmental Protection Non-Compliance Report 2* (1997) [hereinafter 1997 Non-Compliance Report]. See also British Columbia Ministry of Environment, Lands and Parks, *Procedure for the Inclusion of Operations On The Environmental Protection Non-Compliance Report 1-2* (1995) (criteria for inclusion in the non-compliance report include transgression of certain parameters for 15 per cent of the samples or monitoring data taken during a reporting period, toxicity to more than a certain number of fish, etc.).

²⁴¹ 1997 Non-Compliance Report, *supra* note 240, at 1 (noting that 43 of the 111 operations cited in the report are listed for municipal sewage problems, 33 relate to air emissions, 17 deal with garbage and solid waste issues, and seven are listed for other non-compliance issues such as contaminated sites).

²⁴² British Columbia Ministry of Environment, Lands and Parks, *State of Environment Reporting 2* (1996) (noting that, since 1990, more than 96 percent of permitted operations are in compliance with their permits; this does not include compliance with approvals, orders and regulations, as this information was not collected prior to 1993).

²⁴³ *Id.* at 1 (noting that, since 1990, the pulp-mill industry's rate of compliance has increased, while municipal rates of compliance have been decreasing).

²⁴⁴ *Id.* at 2 (noting that, in each year since the program began in 1990, more than 50 percent of operations listed have been reported more than once).

²⁴⁵ See *supra* note 240.

a non-compliance report.²⁴⁶ The non-compliance report process may be regarded as an innovative and effective approach to measuring, evaluating, improving, and reporting upon the compliance status of the regulated community. However, the process is not without its difficulties. As noted above, instances have been identified where permittees have not been placed on the non-compliance list when evidence indicated they should have been, or have been removed from the list without adequate justification.²⁴⁷ The development of new criteria better defining what constitutes non-compliance is expected to resolve this problem.²⁴⁸

Ontario also does not appear to measure and report annually on compliance outputs under its regulatory programs. However, since 1978, the province has produced annual reports assessing the compliance status of industrial and municipal plants that discharge effluents directly into the surface waters of the province.²⁴⁹ In the past, these reports provided an overall assessment of industry compliance province-wide,²⁵⁰ as well as on a discharger-by-discharger basis.²⁵¹ In the past, these reports also provided: (1) information on the compliance performance for each discharger over the previous three years;²⁵² (2) industry actions to address non-compliance situations;²⁵³ and (3) Ministry actions taken in response to an occurrence report of a violation of a legal requirement.²⁵⁴ In addition, past reports also included more detailed data showing the actual monthly and annual average pollutant loadings and flows, as well as effluent requirements for each discharger.²⁵⁵ Since the mid-1990s, however, the Ministry's annual reports on industrial and municipal waste water discharges have been reduced in scope. They now only report on whether an individual discharger is in compliance with a control order or certificate of approval issued to it, and what compliance action the discharger is taking to remedy the situation.²⁵⁶ Under the new reporting approach, no overall assessment of compliance province-wide is provided, no comparison to previous years is provided, and no detailed data of the type previously reported is contained in the current waste water reports. As a result of these changes to the waste water reports, it is now more difficult to measure or evaluate: (1) the overall compliance status of dischargers province-wide; (2) whether the rate of compliance is increasing or decreasing from previous years; (3) the status of individual dischargers by reference to actual data since this information is no longer included in the reports; or (4) the performance of particular industrial or municipal sectors. Ontario does not have a reporting program for assessing the compliance status of dischargers to any media other than water.

²⁴⁶ See *infra* part 4.6.

²⁴⁷ KPMG, *supra* note 197, at 30, 55-56, 77.

²⁴⁸ *Id.* at 56.

²⁴⁹ See, e.g., Ontario Compliance Assessment, *supra* note 205, at iii, 3 (industrial).

²⁵⁰ *Id.* at 9-11 (noting that for 1991 industrial dischargers met individual monthly limits 7,606 times out of 8,486 monitored, or 89.6 percent of the time, and the number of dischargers in compliance in 1991 was 49.7 percent).

²⁵¹ Ontario Ministry of the Environment and Energy, *2 Report on the 1991 Industrial Direct Discharges in Ontario: Data for individual Plant Performances* (1993), 4-5 (wastewater summary sheet information for each discharger includes name and municipal location, MOEE region and district, industrial sector, receiving water body, description of industrial activity, effluent treatment equipment and systems, nature of flow, means of discharge, number of discharge points, number of individual monthly limits exceeded out of the total number of monthly parameters monitored with limits, comment on whether the actual pollutant value exceeded the limit, average monthly flow and pollutant load discharged by source, fish toxicity data for some industries, and data on pollutants which are monitored but which do not have limits established).

²⁵² Ontario Compliance Assessment, *supra* note 205, at Appendix A.

²⁵³ *Id.* at Appendix B.

²⁵⁴ *Id.* at Appendix C.

²⁵⁵ *Id.* at 4. See also *supra* note 251.

²⁵⁶ Ontario Ministry of the Environment and Energy, *1995 Waste Water Discharges Report 1* (1996).

Quebec measures its regulatory performance in terms of both compliance outputs²⁵⁷ and outcomes.²⁵⁸ Compliance outputs measured include, for example, the number of inspections undertaken per year on a regulation-by-regulation basis.²⁵⁹ Compliance outcomes measured include the annual status of each company in a particular industrial sector with certain discharge parameters in various environmental media.²⁶⁰ These evaluations of environmental compliance, which have been produced annually since the late 1980s for certain industrial sectors,²⁶¹ also provide assessments of overall province-wide compliance trends for the industrial sector being evaluated,²⁶² and year-to-year comparisons of individual company performance.²⁶³

4.4.3 The Effect of Regulatory Gaps on Determining Compliance

There are a number of gaps in the existing regulatory system at the federal and provincial levels in Canada that have the potential to reduce the accuracy of government measures to evaluate the compliance status of the regulated community. First, some facilities may not be covered by permits because they are unknown,²⁶⁴ or because specific statutory exemptions from the requirement to obtain approvals apply, due to the small quantity of discharge involved.²⁶⁵ Facilities unknown to regulators also may not be meeting reporting requirements otherwise imposed on that class of facility when no other permit requirements apply.²⁶⁶ As a result, it may be difficult, if not impossible, to assess the compliance status of these facilities. Second, there may be facilities which do not require approvals to operate whose compliance status may be capable of being measured only indirectly, such as those facilities which do not discharge directly to surface waters, but to systems treated by municipal sewage treatment plants.²⁶⁷ Third, there may be facilities subject to regulation or approval that are not regularly inspected by federal

²⁵⁷ See, e.g., Québec Ministère de l'Environnement et de la Faune, *Rapport annuel 1995–1996* 28 (1996).

²⁵⁸ See, e.g., Québec Ministère de l'Environnement et de la Faune, *Bilan annuel de conformité environnementale: secteur des pâtes et papiers 1993* (1995).

²⁵⁹ See *supra* note 257. Inspections are also undertaken pursuant to directives, policies and other authorities. *Id.*

²⁶⁰ See *supra* note 258 at 105 (water), 133 (air). Parameters measured for pulp and paper industry discharges to water, for example, include suspended solids and biochemical oxygen demand.

²⁶¹ See also Québec Ministère de l'Environnement et de la Faune, *Bilan annuel de conformité environnementale: secteur minier 1993* (1996).

²⁶² See *supra* note 258, at 23–28.

²⁶³ *Id.* at 113–117.

²⁶⁴ See, e.g., KPMG, *supra* note 197, at 43 (noting that in British Columbia it is believed that about one-half of all discharges in the province—3,500 out of an estimated 7,000—are not subject to permits under the current system and that, as a result, these facilities are being ignored, even though, technically speaking, wastes from these facilities are being discharged in violation of the WMA). It is likely that to varying degrees many jurisdictions in Canada face this type of problem.

²⁶⁵ See, e.g., Bill 57, *Environmental Approvals Improvement Act, 1996*, 36th Leg., 1st Sess., 45 Eliz. II, Part I - EPA, §§ 175.1, 176; Part II - OWRA, § 76 (Royal Assent, June 5, 1997) (exempting certain classes of activities from requirement to obtain certificates of approval, and designating certain other classes of activities as deemed to have certificates of approval). See also Ontario Ministry of the Environment and Energy, *Responsive Environmental Regulation*, (1996) 24–25 (noting MOEE intent to remove requirements for obtaining certificates of approval for certain environmentally insignificant activities, and to deem certain other activities as subject to standardized approval regulations obviating the need for specific, individual approvals). While the Bill 57 amendments may not remove the requirement to comply with certain notice, monitoring or record-keeping requirements, the new law does bar civil actions against the province by those individuals whose property may be damaged due to activities exempted by the amendments from the need to obtain approvals, licenses or permits. (EPA, § 177.1; OWRA, § 78). This bar to civil actions suggests less than complete provincial confidence that the exempting regulations will contain adequate environmental standards, or that the regulated community will comply with them.

²⁶⁶ See *supra* notes 222–224 and accompanying text (NPRI non-reporting).

²⁶⁷ OWRA, R.S.O. 1990, c. 0.40, § 53(6) (various exemptions from the requirement to obtain a certificate of approval for sewage works, including privately-owned sewage works designed for the partial treatment of sewage that is to drain or be discharged into a sanitary sewer). Ontario has recognized for some time that it is necessary to control and reduce toxic-contaminated waste water discharges to municipal sewer systems, which as indirect discharges—discharges that are not released by industry directly to water bodies—are not subject to requirements to obtain certificates of approval under the OWRA. See, e.g., Ontario Ministry of the Environment, *Municipal-Industrial Strategy for Abatement (MISA)—Controlling Industrial Discharges to Sewers*, (1989) 6, 7, 12, 19. While indirect dischargers have long been subject to municipal sewer use by-laws, which are based on a model by-law developed by the MOEE, there are a number of problems with the by-laws. First, they are not a substitute for the proposed but never promulgated MISA regulation on indirect dischargers, which was intended to supplement, if not replace, the by-laws. Second, the by-law approach places the responsibility for regulating a significant portion of toxic pollution discharged to provincial waterways on the level of government—municipalities—with the least jurisdiction and resources to control the problem. Municipalities have themselves experienced significant loss of revenue and rapid organizational change through reduced transfer payments from the province, cuts in budget and staff, territorial restructuring, and downloading of additional responsibilities that make reliance on them as the primary control of indirect dischargers open to question.

and provincial governments due to historically high compliance rates, limited government resources, or a determination that their discharges are not a priority.²⁶⁸ Problems associated with this category of discharger may be alleviated to the extent that the discharger may otherwise be required to provide self-monitoring data to government, and government personnel are available to review and follow up on the data. Overall, however, it is difficult to evaluate the extent and cumulative effect of these gaps on the adequacy of government measures of compliance performance.

4.5 Overview of Federal and Provincial Roles in Enforcement Measurement

One of the earliest policies in Canada on the subject of environmental enforcement was the 1988 Environment Canada enforcement and compliance policy developed in conjunction with the coming into force of CEPA.²⁶⁹ The policy had been preceded by concern expressed over the years by federal advisory bodies that there was “an inadequate level of enforcement of statutes and regulations which were designed to protect the quality of the environment.”²⁷⁰ The policy established enforcement principles,²⁷¹ identified enforcement personnel and their responsibilities,²⁷² listed criteria for responding to violations,²⁷³ and set out the enforcement measures available for responding to violations.²⁷⁴ Similar policies, preceded by similar public concerns,²⁷⁵ have also been developed at the provincial level for defining enforcement,²⁷⁶ enforcement principles,²⁷⁷ and enforcement activities.²⁷⁸

Several characteristics of federal and provincial environmental legislation have implications for developing performance measures of enforcement. First, a key characteristic of federal law (CEPA and the Fisheries Act) is that enforcement of environmental standards primarily involves the use of command and control statutory prohibitions or regulations, violations of which are prosecuted in the courts in virtually the same manner as criminal

²⁶⁸ See, e.g., Ontario Region, *supra* note 104, at 6 (no inspections in 1996-1997 in connection with phosphorus concentration or gasoline regulations under CEPA).

²⁶⁹ Environment Canada, *supra* note 30, at 1.

²⁷⁰ Canadian Environmental Advisory Council, *Enforcement Practices of Environment Canada i*, (1985), 1 (referring as well to a federal law reform commission study covering the 1970s which identified the uneven application of sanctions against industry, despite a pattern of persistent, nation-wide non-compliance with federal standards for liquid effluent, and indicated that legal proceedings were aimed at unusual spills, lasting a few hours or days, rather than at continuous discharges resulting from inherent defects in the industrial processes themselves, and which represented continuous transgressions); and Canadian Environmental Advisory Council, *Review of the Proposed Environmental Protection Act*, (1987) 38.

²⁷¹ Environment Canada, *supra* note 30, at 9 (enforcement to be applied in a fair, predictable and consistent manner; enforcement emphasis on prevention of environmental damage; every suspected violation to be examined and action taken consistent with the policy; and enforcement officials to encourage the reporting to them of suspected violations).

²⁷² *Id.* at 39 (investigation specialists and, where necessary, inspectors identified to conduct investigations, searches, obtain search warrants, and seize and detain anything that may be connected with commission of an offense).

²⁷³ *Id.* at 43 (factors to be considered in deciding what enforcement action to take in connection with violations include nature of the violation, effectiveness in achieving the desired result with the violator, and consistency in enforcement).

²⁷⁴ *Id.* at 44-55 (responses to violations include warnings, directions by inspectors, ticketing, orders by the minister, injunctions, prosecutions, penalties and court orders upon conviction, and civil suit by the Crown to recover costs).

²⁷⁵ See, e.g. Linda Nowlan, “Public Participation in Enforcement of Environmental Standards in British Columbia”, Address Before the First North American Conference on Environmental Law, in *First North American Conference on Environmental Law—Phase II: Towards Effective Mechanisms for Public Participation*, (1993), at 111-112 (noting history of enforcement problems in the province). See also *Kitamaat Village Council v. B.C. (Ministry of the Environment, Lands, and Parks)*, Appeal No. 92/25 (B.C.A.B. Sept. 13, 1993) (reviewing history of permit enforcement problems, and noting that where permit is issued, ministry is obliged to enforce permit’s terms and conditions).

²⁷⁶ See *supra* text accompanying note 32. See also *Ontario Ministry of the Environment and Energy, Compliance Guideline: Guideline F-2*, (1995) 1 [hereinafter Ontario Compliance Guideline] (defining enforcement as an investigation by staff of the MOEE Investigations and Enforcement Branch (IEB), to determine whether reasonable and probable grounds exist for laying charges in order to penalize non-compliance or to compel compliance with the legislative and regulatory requirements of the ministry, or issuing a ticket or summons by any provincial offenses officer under the province’s provincial offenses law).

²⁷⁷ Ontario Compliance Guideline, *supra* note 276, at 20-21 (noting that the ministry will act in accordance with the following enforcement principles, including: (1) all persons are entitled to equal protection and benefit before and under the law; (2) prosecution will be the result of an informed judgment on the part of IEB staff and the proper exercise of prosecutorial discretion by ministry counsel; (3) when a decision is made not to pursue enforcement action, the reasons shall be recorded in writing in the investigation file; and (4) enforcement will be administered in an even-handed, nondiscriminatory and fair manner which advances and protects the public interest).

²⁷⁸ See *supra* text accompanying note 33.

offenses.²⁷⁹ This process is expensive, time-consuming, and requires intensive preparation and resources.²⁸⁰ The decision to prosecute is made by the Department of Justice, not by Environment Canada.²⁸¹ Moreover, enforcement success is ultimately determined not by Environment Canada or the Department of Justice but by the particular provincial court or appellate judge hearing the matter. Thus, while there now is a large body of federal environmental case-law,²⁸² measuring performance in connection with serious violations may take years because case resolution may take that long. Second, in comparison to federal environmental law, a key characteristic of provincial law is that enforcement mechanisms for violations are more multi-faceted and include, besides prosecutions: administrative orders, directives, minor offense ticketing, cancellation of permits or approvals and, in some provinces, administrative monetary penalties. This authority to respond to violations in a variety of ways gives the provinces more enforcement options, the ability to deal with less serious violations before they become more serious, and a wider variety of forums in which to proceed against offenders. As a result, measuring performance in connection with redressing violations of provincial law may be done more quickly, but is a more complex undertaking because of the greater variety of enforcement options available.

These differences in legislative and regulatory regimes may take on greater significance in the future to the extent that federal-provincial agreements result in provincial responsibility for enforcing federal requirements, or where provincial requirements become a substitute for federal requirements.

4.6 Approaches to Measuring Enforcement Performance

Measuring the enforcement performance of federal and provincial governments requires consideration of: (1) the role of investigations in the process; (2) how enforcement measures are developed and implemented; and (3) what outcomes are achieved. Experience to date is summarized below.

4.6.1 Investigations

The authority to undertake investigations is an important enforcement component of federal and provincial pollution control legislation under consideration in this study. An investigation involves gathering, from a variety of sources, evidence and information relevant to a suspected violation,²⁸³ and is distinct from an inspection which is designed to ensure that statutory requirements are being complied with.²⁸⁴ While most federal and provincial administrative policies and procedures specifically distinguish between inspections and investigations,²⁸⁵ in general, federal and provincial environmental legislation do not. CEPA, for example, only designates inspectors²⁸⁶

²⁷⁹ Environment Canada, *Reviewing Cepa, The Issues #14: Administrative Monetary Penalties—their Potential Use in CEPA 3–6* (1994) [hereinafter Administrative Monetary Penalties].

²⁸⁰ Hearings I, *supra* note 71, at 23 (testimony of Mr. Pascoe, Environment Canada). See also Government Response, *supra* note 86, at 35 (noting that regulatory officials often cite the complexity, cost, and slowness of prosecutions as key factors in the relative lack of formal enforcement activities for regulatory programs).

²⁸¹ Hearings I, *supra* note 71, at 17 (testimony of Mr. Pascoe, Environment Canada, noting that the justice department decision on whether to prosecute may be influenced by input from the environment department).

²⁸² See, e.g. D.D. Graham Reynolds & Fergus O'Donnell, "Overview of Federal Environmental Law: A Prosecutor's Perspective", Address Before the Canadian Institute (Oct. 28, 1996), in *Environmental Law, Regulation and Management*, Oct. 1996, at 16–35 (reviewing leading cases decided under CEPA and the Fisheries Act).

²⁸³ Environment Canada, *supra* note 30, at 39; Alberta Environmental Protection, *supra* note 31, at 3–1 (noting that an investigation is an evidence-gathering function initiated on reasonable grounds that the legislation has been contravened and which seeks to substantiate or dismiss an alleged contravention based on evidence admissible for enforcement actions); and British Columbia Inspection and Investigation, *supra* note 75, at 2 (noting that an investigation involves a systematic process of collection of evidence and information relevant to a suspected violation of the law). *Accord R. v. Potash* (1994), 91 C.C.C. 315, 322 (S.C.C.).

²⁸⁴ *Potash*, 91 C.C.C. at 322.

²⁸⁵ See, e.g. British Columbia Inspection and Investigation, *supra* note 75, at 1–2.

²⁸⁶ S.C. 1988, c. 22, § 99.

and, therefore, on the face of the statute assigns both inspection and investigation powers to inspectors.²⁸⁷ Some commentators have suggested, in the context of provincial environmental requirements,²⁸⁸ that search or inspection powers without a warrant are not available to investigation and enforcement personnel,²⁸⁹ and that in order to conduct a legal search of business premises consistent with the Charter of Rights and Freedoms, such officers must secure a search warrant.²⁹⁰ In practice, the federal enforcement and compliance policy, for example, recognizes that there should be only two instances where an investigation will be conducted under the statute: (1) if there are reasonable grounds to believe that an offense has been committed; or (2) when two Canadian residents over the age of 18 petition the Minister to investigate an alleged violation of the statute.²⁹¹ However, the federal government has also proposed to amend CEPA to create a new category of officer—an investigator—whose primary function would be to investigate suspected offenses. CEPA investigators would have all the powers conferred on CEPA inspectors and, in addition, would have certain powers which are similar to those exercised by peace officers, such as the authority to serve summonses and obtain search warrants, including “tele-warrants.”²⁹² These proposals are expected not only to resolve any Charter concerns about the inspector-investigator distinction, but also to improve overall CEPA enforcement powers.²⁹³

Investigative authority may be among the first enforcement powers developed by federal and provincial governments to address suspected violations of environmental legislation. Annual reporting on numbers of investigations conducted became one of the earliest statistical outputs produced by governments as a measure of enforcement performance.²⁹⁴ Given current concerns with reducing the size of government, the challenge to federal and provincial governments is to maintain the vitality of investigations in the face of government downsizing.²⁹⁵

4.6.2 *Developing and Implementing Enforcement Measures*

There are two aspects to how governments develop and implement enforcement measures: (1) types of enforcement measures available; and (2) government reporting on the frequency with which available measures are used. These two aspects are examined in the following discussion.

Types of Enforcement Measures

There are several types of enforcement measures available to federal and provincial governments. Pursuant to CEPA, for example, the following responses to violations are available: (1) warnings; (2) directions by inspectors; (3) ticketing; (4) orders by the Minister; (5) injunctions; (6) prosecution; (7) penalties and court orders upon conviction; and (8) civil suit by the Crown to recover costs.²⁹⁶ In practice, warnings and prosecutions tend to be the

²⁸⁷ See *supra* text accompanying notes 67–69.

²⁸⁸ EPA, R.S.O. 1990, c. E.19, § 156 (authorizing broad powers of entry onto private property for provincial officers to conduct inspections for the purpose of administering the statute). See also EPEA, S.A. 1992, c. E-13.1, § 188.

²⁸⁹ In 1985, MOEE established the IEB to conduct investigations of and prepare prosecutions for illegal environmental activities in the public and private sector; and to supply the necessary information to crown prosecutors to bring cases before the courts. Ontario Ministry of the Environment, *Offences Against the Environment: Environmental Convictions in Ontario—1991*, (1991) 8 [hereinafter Ontario Environmental Offences I].

²⁹⁰ Bruce McMeekin & Tamara Farber, “Dealing With Environmental Inspections and Investigations: How and When to Say ‘No,’” Address Before the Canadian Institute (Oct. 29, 1996) in *Environmental Law, Regulation and Management*, Oct. 1996, at 16–17.

²⁹¹ Environment Canada, *supra* note 30, at 39. See also CEPA, S.C. 1988, c. 22, § 108 (authorizing applications for investigations).

²⁹² Government Response, *supra* note 86, at 40–41. See *supra* note 92, Bill C-74, 35th Parl., 2nd Sess., § 217 (1996).

²⁹³ Inspectors’ Powers, *supra* note 88, at iii, 10–11.

²⁹⁴ See *supra* note 70 (annual investigation statistics since CEPA came into force in 1988). See also Memorandum from Bill Cockburn, IEB, MOEE to Tom Coape-Arnold, policy development branch, MOEE (13 June 1997)(on file with author) (noting that the IEB has been reporting investigation statistics in Ontario since 1985).

²⁹⁵ Ontario Region, *supra* note 104, at 9 (noting that Environment Canada regional investigations section is already understaffed and will require more resources as more regulations are developed).

²⁹⁶ Environment Canada, *supra* note 30, at 44–55.

primary measures employed.²⁹⁷ Federal officials regard warnings as having had a surprisingly good record in achieving a deterrent effect on the regulated community,²⁹⁸ while directions have been rarely employed because they can only be issued if there is an immediate threat posed to human health or the environment from the imminent release of a regulated toxic substance.²⁹⁹ These officials also express the view that there is a large gap between the resource commitment necessary for warnings and that for prosecutions.³⁰⁰

Because of government concerns about the limitations of existing enforcement options, federal officials have stated that they would like to see additional measures, such as administrative monetary penalties (AMPs), added to the options available for enforcing CEPA requirements.³⁰¹ AMPs are penalties that are imposed for a violation, and are determined through an administrative process, rather than through prosecutions and court hearings.³⁰² The use of AMPs also has been endorsed by a parliamentary standing committee as a means of solving current enforcement problems with CEPA arising from the statute's reliance on a criminal sanctions model.³⁰³ Notwithstanding support for adding AMPs to the enforcement options available under CEPA, amendments proposed to the law in late 1996 by the federal government did not include this option. Instead, environmental protection alternative measures were included in the new CEPA bill. These measures would permit some violators, following the laying of an information, to negotiate with the federal government to correct violations in order to avoid court proceedings.³⁰⁴ The decision of the federal government not to include AMPs in the bill apparently reflects government uncertainty as to their constitutionality under federal environmental law,³⁰⁵ notwithstanding their use in other areas of federal law such as customs, income tax, unemployment insurance, and aeronautics.³⁰⁶ A recent Supreme Court of Canada decision upholding the constitutionality of certain toxic substance provisions of CEPA solely on the basis of the criminal law power, may contribute further to the federal view that legislation based on this power cannot include within its ambit administrative enforcement measures.³⁰⁷

There are a variety of enforcement measures available to provincial governments. In Alberta, for example, enforcement options include: (1) warning letters; (2) tickets; (3) enforcement orders; (4) administrative penalties; (5) prosecutions; (6) court orders; and (7) cancellation of approvals or certificates.³⁰⁸ With the exception of administrative penalties, most other provinces employ similar enforcement measures.

²⁹⁷ See *supra* note 70.

²⁹⁸ Hearings I, *supra* note 71, at 19 (testimony of Mr. Pascoe, Environment Canada).

²⁹⁹ Hearings II, *supra* note 94, at 7 (testimony of Mr. Niemela, Environment Canada).

³⁰⁰ Hearings I, *supra* note 71, at 23 (testimony of Mr. Pascoe, Environment Canada).

³⁰¹ *Id.* at 20, 23. See also Hearings III, *supra* note 156, at 10 (testimony of Mr. Patzer, Environment Canada); and Administrative Monetary Penalties, *supra* note 279, at 1, 10–11 (noting that advantages of AMPs include faster as well as increased likelihood of enforcement response, penalty, elimination of benefits of non-compliance, ability to tailor penalty to gravity of harm, and promotion of effective remedial measures).

³⁰² Government Response, *supra* note 86, at 34.

³⁰³ House of Commons Standing Committee, *supra* note 43, at 247–249 (noting that many of the problems currently being experienced with enforcement under CEPA relate to the fact that CEPA provides for criminal sanctions; that the stigma attached to a criminal offense explains in part the reluctance of many officials to enforce the regulations strictly; and that many of these problems could be resolved by the introduction of a system of administrative penalties for the majority of CEPA offenses, leaving only the most egregious violations as criminal offenses). See also CEPA Evaluation Report, *supra* note 119, at 89–90.

³⁰⁴ See *supra* note 92, Bill C-74, 35th Parl., 2nd Sess., § 296 (1996).

³⁰⁵ Government Response, *supra* note 86, at 35 (noting that the federal government proposed to provide for AMPs in amendments to CEPA, where it is constitutionally possible).

³⁰⁶ Administrative Monetary Penalties, *supra* note 279, at 6-7.

³⁰⁷ See *supra* text accompanying note 13 (*Hydro Quebec*, Sept. 18, 1997).

³⁰⁸ Alberta Environmental Protection, *supra* note 31, at 8-1. See also *supra* note 33 and accompanying text.

The development and implementation of administrative penalties under Alberta's pollution control legislation is a comparatively recent, but important precedent that may influence the development of such measures in other provinces.³⁰⁹ The EPEA authorizes Alberta Environmental Protection to establish administrative penalties for specified violations of the statute and regulations.³¹⁰ An administrative penalty under the Alberta regime is a monetary amount assessed by the province's director of pollution control when a person has violated the Act or regulations. The director can choose to impose an administrative penalty rather than commence a prosecution against the violator.³¹¹ The purpose of an administrative penalty is to avoid the time and expense of a court proceeding for offenses of a minor nature.³¹² The penalty is assessed in two steps. First, a base penalty is derived using a chart or matrix, which compares the potential adverse effect to the environment due to the violation and the actual deviation from the legal requirement. Each arm of the matrix is divided into three categories; major, moderate, and minor.³¹³ Second, the base penalty may then be modified by the director after he or she considers such factors as: (1) importance of compliance to the regulatory scheme; (2) degree of willfulness or negligence; (3) any mitigation of the contravention; (4) history of non-compliance; (5) any economic benefit derived from the contravention; and (6) any other factors the director considers relevant.³¹⁴ The maximum penalty for each violation is \$5,000 for each day the violation occurs or continues.³¹⁵ A notice of administrative penalty may be appealed by the person receiving the notice to the province's environmental appeal board, which will make the final decision on the appeal.³¹⁶ Initial decisions coming from tribunals in Alberta,³¹⁷ and British Columbia which has an administrative penalty regime in relation to forest practices,³¹⁸ suggest that this enforcement measure may be a simple and effective approach to achieving provincial enforcement objectives.

Reporting Enforcement Outputs

Most federal and provincial jurisdictions report enforcement outputs for at least some types of enforcement measures. The federal government, for example, reports annually on the number of warnings, directions, and prosecutions initiated, as well as convictions obtained, under both CEPA and the Fisheries Act.³¹⁹ A second document, updated periodically since 1988 by the national enforcement office of Environment Canada, provides more particulars regarding all prosecutions undertaken, penalty dollars assessed, and other aspects of case disposition on a region by region basis.³²⁰

³⁰⁹ British Columbia has prepared position papers on developing administrative penalties for provincial pollution control legislation. See, e.g., British Columbia Environment, *Administrative Penalties: Potential Application in British Columbia Environmental Protection Legislation 2* (1991). See also B.C. Ministry of the Environment, Lands and Parks, *Administrative Penalties 1* (1996) (noting that the province is considering the inclusion of administrative penalties in its environmental legislation). The province already employs administrative penalties in its forest practices legislation. Forest Practices Code of British Columbia Act, S.B.C. 1994, c. 41, part 6, div. 3.

³¹⁰ EPEA, S.A. 1992, c. E-13.3, §§ 223, 225.

³¹¹ Alberta Environmental Protection, *Administrative Penalties 1* (1994).

³¹² Alberta Environmental Protection, *supra* note 32, at 8–2. See also Administrative Penalties, *supra* note 306, at 1-2 (noting types of contraventions for which an administrative penalty may be assessed may include failing to commence or continue an activity with the requisite approval, releasing unauthorized amounts, concentrations or levels of substances into the environment that may cause an adverse effect, providing false or misleading information, failing to provide information required under the law, contravening a term or condition of an approval, variance or qualification, contravening an environmental protection order).

³¹³ EPEA, Administrative Penalty Regulation, Alberta Reg. 143/95, as am., 3(1), Table.

³¹⁴ *Id.* § 3(2).

³¹⁵ *Id.* § 3(3).

³¹⁶ S.A. 1992, c. E-13.3, § 84 (1)(k).

³¹⁷ See, e.g., *Superior Vet and Farm Supply v. Director of Pollution Control*, Alberta Environmental Protection, Appeal No. 96-078, at 21 (Alberta E.A.B. Apr. 10, 1997) (holding that to achieve EPEA's purpose of protecting the environment and to deter future harm, administrative penalties must be high enough so that those who violate the law without reasonable excuse will not be able to "write off" the penalty as an acceptable trade-off for harm caused, irrespective of whether the offender has derived an economic benefit).

³¹⁸ *MacMillan Bloedel Ltd. v. B.C.* (1997), 23 C.E.L.R. (N.S.) 47, 68–69 (B.C. Forest App. Comm.) (holding that the purpose of administrative penalties is to achieve the goals of effective sanctions, certainty of outcome, and swift, sure responses to those found to be in violation of the law, and that the defense of due diligence does not apply to a determination of whether a violation has occurred and whether a penalty should be assessed).

³¹⁹ See *supra* note 70.

³²⁰ Office of Enforcement, Environment Canada, *Legal Activities: List of All Prosecutions Since 1988 Under CEPA and the Fisheries Act* (1996).

Similarly, some provinces report on a comparatively wide variety of enforcement outputs. Alberta, for example, reports annually on the number of administrative penalties, orders, tickets, and warnings issued, charges initiated and concluded, as well as fines and penalties obtained.³²¹ The province now also reports annually on the number of contaminated sites designated for remediation.³²² These annual reports also identify the company or individual charged or penalized as well as the particulars of case disposition.³²³

Other provinces report annually on certain enforcement outputs and not others. British Columbia, for example, issues semi-annually a summary report on charges laid and penalties obtained. The report identifies each operation or individual charged and describes the offense.³²⁴ The province also produces combined enforcement output statistics on charges laid and fines obtained by statute and regulation for the combined period 1990 to date.³²⁵

Perhaps the oldest example of provincial reporting of certain enforcement outputs is in Ontario. It also appears to be the first province to cease reporting such information. From 1991 to 1994, Ontario produced an annual report on crown briefs initiated, charges laid, convictions obtained, and fines assessed under provincial environmental laws.³²⁶ The reports also identified the individuals and companies charged, and provided case-by-case disposition. In addition, the reports outlined key trends in judicial sentencing of environmental offenders arising from the cases annually reported upon.³²⁷ The existence of these reports also permitted an examination of enforcement output trends.³²⁸ However, the province appears to have ceased producing these reports. Enforcement output information for 1995 and 1996 has been released only in response to freedom of information law requests.³²⁹ Data from these sources indicate a significant drop in all categories of enforcement activity in the 1995–1996 period.³³⁰ The province does continue to employ a number of different enforcement information tracking systems covering the period from 1985 to date.³³¹ These could provide the foundation for resumption of reporting of annual enforcement outputs and trends in the future.

4.6.3 Evaluating and Reporting Regulatory Status of Offenders as a Result of Enforcement Efforts

Federal and provincial governments increasingly are interested in moving from reporting solely on enforcement outputs—such as numbers of investigations conducted, warnings issued, prosecutions initiated, convictions obtained, and penalties assessed—to measuring the conduct of the regulated community as a result of these efforts. Environment Canada’s strategy of focusing enforcement actions on chronic offenders is a results-oriented measure which has, as one of its goals, returning significant violators to compliance as soon as possible.³³² The

³²¹ Alberta Environmental Protection, Enforcement of the Environmental Protection and Enhancement Act: 1 SEPT. 1993–31 DEC. 1995 1–1 (1996).

³²² Alberta Environmental Protection, Enforcement of the Environmental Protection and Enhancement Act: 1 Jan.–31 Dec., 1996 ii (1997).

³²³ *Id.*

³²⁴ See, e.g., British Columbia Ministry of Environment, Lands, and Parks, Charges and Penalties Summary Under Environmental Protection Legislation 1–33 (1997).

³²⁵ British Columbia Ministry of Environment, Lands, and Parks, Enforcement Statistics for 1990–1991 to 1995–1996 1–2 (1996).

³²⁶ See, e.g., Ontario Environmental Offences I, *supra* note 289; and Ontario Ministry of the Environment and Energy, Offences Against the Environment: Convictions in 1994 (1994) [Hereinafter Ontario Environmental Offences II].

³²⁷ See, e.g., Ontario Environmental Offences I, *supra* note 289, at 20 (environmental restoration), 22, 23 (set-up of trust fund and training program), 24 (profit stripping).

³²⁸ Ontario Environmental Offences II, *supra* note 326, at 7 (annual fines per 1985–1994 period).

³²⁹ Martin Mittelstaedt, “Ontario pollution fines plunge”, *Globe and Mail* (Toronto), 10 Jan. 1997, at A6 (noting that information on legal actions for 1995 and 1996 obtained under provincial freedom of information law when province did not issue figures).

³³⁰ *Id.* (noting potential 21 percent decline in charges and 57 percent decline in fines from 1995 to 1996).

³³¹ See Cockburn memorandum, *supra* note 294 (referring to the enforcement information tracking system (“EITS”) which provides information on numbers of investigations undertaken, summonses issued, prosecutions commenced, convictions obtained, and the quantum of penalties awarded for the period 1985 to date). See also Investigations and Enforcement Branch, Ontario Ministry of the Environment and Energy, *Conviction Report from Crown Brief Tracking System 1–247* (1997) (noting all crown briefs from 1985 to date under the CBTS).

³³² National Component Action Plan, *supra* note 117, at 5.

department's recent report on compliance and enforcement of six regulations under CEPA and the Fisheries Act is an example of how that strategy could develop to meet this goal. The report notes, for example, that several enforcement actions such as warning letters and prosecutions with respect to violations of CEPA's ocean dumping regulations, were effective in compelling regulated facilities to return to compliance.³³³ The report does not, however, provide particulars regarding the outcomes. Provincial reports on enforcement efforts also tend not to provide this information, though British Columbia does identify when companies repeatedly appear on the province's non-compliance lists.³³⁴ Future federal and provincial reports could be improved by providing the link between enforcement outputs and outcomes. This could be achieved by requiring enforcement officials to produce, for example, summary information about the conduct and performance of offenders following completion of enforcement actions on a case by case basis. Ontario prosecutors have had a long-standing policy of producing file-closing memoranda which outline the results and significance of completed cases. MOEE's annual enforcement reports employed this method to some extent with respect to reporting on certain categories of significant cases.³³⁵ It would not be a great leap, therefore, for governments to combine this information with the results of follow-up inspections in order to report upon the outcomes of enforcement actions in terms of changed conduct and performance of offenders.

Although this study has distinguished between compliance and enforcement measures in terms of their respective outputs and outcomes, it is likely that in evaluating outcomes it will be evident that it was a combination of compliance, enforcement and other program efforts that achieved the desired outcome. Thus, developing statistics or other information on trends showing a causal link between a particular compliance or enforcement action and changes in the behavior of the regulated community in general, or of particular offenders, may be difficult. An even more difficult task will be correlating information on outcomes with overall environmental quality.

4.7 Correlating Compliance and Enforcement Outcomes with Environmental Results

The ultimate goal of federal and provincial compliance and enforcement efforts is to achieve environmental goals and objectives. However, the ability of governments in Canada to measure the relationship between compliance and enforcement outputs and outcomes on the one hand, and the overall state of the environment on the other, is still rudimentary. Indeed, even recent government reports that have attempted to measure compliance rates are quick to disclaim that the compliance level achieved bears a direct relationship to the overall state of the environment. Environment Canada has noted, for example, in its compliance and enforcement report on six regulations under CEPA and the Fisheries Act that: "Care should be taken in drawing conclusions from the state of compliance information...even a 100 [percent] compliance level does not equate to a 100 [percent] protection of the environment. The reason for this is that regulations and their provisions do not necessarily consider every aspect of a regulated product, substance, or activity. Nor do regulations cover all aspects of environmental protection. Consequently, [the six regulations] report is not about describing the state of the environment."³³⁶

Similarly, provincial government programs reporting on industrial and municipal compliance also disclaim a relationship between compliance rates and environmental quality, suggesting instead that compliance trends are only indicators of abatement progress.³³⁷ These reports suggest that in order to have an overall assessment of the environment, one should review government reports on such matters as municipal and industrial discharges, spills, and water and air quality data.³³⁸ This begs the question of whether government should attempt to determine the

³³³ Compliance and Enforcement Report, *supra* note 190, at 17.

³³⁴ See *supra* text accompanying note 244.

³³⁵ Ontario Environmental Offences II, *supra* note 326, at 22 (reporting on remediation steps undertaken before sentencing).

³³⁶ Compliance and Enforcement Report, *supra* note 190, at 12.

³³⁷ See, e.g., Ontario Ministry of the Environment and Energy, 1 *Report on the 1991 Discharges from Municipal Sewage Treatment Plants in Ontario: Summary of Performance and Compliance* 1 (1993).

³³⁸ *Id.* at vi.

relationship between changes in the behavior of the regulated community and overall environmental quality. Moreover, in a period of reduced government resources, making this link would appear to be increasingly difficult, especially if government efforts to report on compliance rates and trends diminish.³³⁹

Nonetheless, Environment Canada has suggested that it intends to measure the contribution of the national compliance and enforcement program to the protection and improvement of the environment by using, for example, focused surveys on several groups of regulated bodies in order to determine the ability of the program to influence environmentally responsible behavior.³⁴⁰ Whether this approach, which still appears to be under development, can bridge the gap between identifying compliance and enforcement outcomes and relating them to environmental quality remains to be seen.

³³⁹ See *supra* text accompanying notes 249–256.

³⁴⁰ National Component Action Plan, *supra* note 117, at 5.

5 The Role of the Regulated Community in Compliance and Enforcement Measurement

As noted above, the regulated community may be required by statute to report the results of self-monitoring to government.³⁴¹ Industry also increasingly is undertaking voluntary compliance measurement initiatives. Two such industry initiatives that are examined below are: (1) environmental audits; and (2) environmental management systems. The reasons for these voluntary industry efforts include: (1) a desire to avoid future corporate and personal liability for environmental clean-up and compensation by determining whether current operations are in compliance with environmental laws; (2) the need to establish a defense of due diligence to possible prosecutions by putting in place a proper system of environmental management; and (3) the need to obtain financing from lending institutions which may require as a condition of such funding an environmental audit and/or the development of an environmental management system.³⁴²

Recent federal and provincial policies have attempted to encourage voluntary compliance measurement initiatives by industry. Governments have embarked on this course of conduct because such voluntary industry efforts can: (1) complement government compliance and enforcement efforts; (2) provide a partial substitute for reduced government inspections, particularly in a period of resource constraints; and (3) potentially save both the regulator and the regulated body the burden and expense of enforcement action.

These developments are not without their problems. While information arising from voluntary industry compliance efforts can be useful to government compliance and enforcement strategies, the challenge for government has been to establish an appropriate balance between creating incentives for industry to pursue such voluntary initiatives and allowing government access to information sufficient to determine whether compliance is occurring. As government is ultimately charged with the responsibility under environmental statutes of verifying compliance through inspections and related activities, reliance on voluntary measures has the potential for either enhancing or adversely affecting the ability of government to determine whether members of the regulated community are in compliance with environmental requirements. These issues are considered below.

5.1 Environmental Audits

5.1.1 Overview

Environmental audits are widely promoted as an effective measure for industry to identify non-compliance and to facilitate prompt remedial action.³⁴³ Environmental audits are defined as internal evaluations by companies and government agencies to verify their compliance with legal requirements, as well as their own internal policies and standards. They are conducted on a voluntary basis and identify compliance problems, weaknesses in management systems, and/or areas of risk.³⁴⁴ There have been both policy and statutory initiatives at the federal and provincial levels regarding the use of, and government access to, environmental audits.

³⁴¹ See *supra* part 4.2.2.

³⁴² See, e.g., Michael E. Deturbide, "Corporate Protector or Environmental Safeguard? The Emerging Role of the Environmental Audit", 5 *J. Envtl. L. & Prac.* 1, 2, 4-6 (1995); and Robert Mansell, "Environmental Management Systems: Due Diligence Made Easy", Address Before the Canadian Institute (Oct. 29, 1996), in *Environmental Law, Regulation and Management*, Oct. 1996, at 1. One writer has suggested the following reasons for companies to conduct environmental audits: (1) knowing how well facilities comply with regulatory requirements such as federal, provincial, and municipal policies, regulations, guidelines, and industrial codes of practice; (2) ensuring that advance warning of non-complying activities is being provided to management; (3) identifying the physical and management control systems in place and determining if these systems are operating as intended or require improvements; (4) meeting requests of lending institutions as a prerequisite to approving or renewing a loan; (5) meeting partial requirements for an ISO 14000 registration of an environmental management system. David W. Hopper, "Conducting an Effective Environmental Audit", Address Before the Canadian Institute (Oct. 29, 1996), in *Environmental Law, Regulation and Management*, Oct. 1996, at 33.

³⁴³ Hopper, *id.* at 35.

³⁴⁴ Environment Canada, *supra* note 30, at 29. See also Alberta Environmental Protection, *supra* note 31, at 5-2 (noting that environmental audits are internal, proactive evaluations which are useful for verifying compliance and determining the effectiveness of environmental management systems. Voluntary environmental audits do not include evaluations of incidents that have already taken place or information that is required to be submitted by law. They may cover total operations or specific areas of concern).

5.1.2 Government Policies on Environmental Audits

Federal Policies

Several jurisdictions in Canada have developed policies designed to promote the use of environmental audits. The oldest such government policy in Canada is contained in Environment Canada's 1988 enforcement and compliance policy.³⁴⁵ The Environment Canada policy states that the department of Environment "intends to promote" the use of environmental audits by industry because it "recognizes the power and effectiveness of environmental audits as a management tool for companies and government agencies."³⁴⁶ It further states that, in order to encourage the practice of environmental auditing, inspections and investigations under CEPA will be conducted in such a manner as to not inhibit the practice or quality of auditing. In practice, this means that: "Inspectors will not request environmental audit reports during routine inspections to verify compliance" with CEPA.³⁴⁷ However, the policy also states that access to environmental audits may be required when inspectors or investigation specialists have reasonable grounds to believe that: (1) an offense has been committed; (2) the audit's findings will be relevant to the particular violation, necessary to its investigation, and required as evidence; or (3) the information being sought through the audit cannot be obtained from other sources through the exercise of the inspector's or investigation specialist's powers.³⁴⁸

To prevent potential abuse by the regulated community, the policy states that environmental audits must not be used to shelter monitoring, compliance, or other information that would otherwise be accessible under CEPA. The policy also notes that any department demand for access to environmental audits during investigations will be made pursuant to a search warrant, except in exigent circumstances, where delay in obtaining the warrant could result in danger to human life, the environment, or in the loss or destruction of evidence.³⁴⁹

In summary, the federal policy attempts to: (1) encourage environmental audits; (2) stress their use as environmental management tools; (3) assure regulated bodies that inspectors will not request environmental audit reports as part of routine inspections; and (4) promise to demand such reports only under the authority of a search warrant.³⁵⁰

There are conflicting views about what effect, if any, the policy has had on: (1) the willingness of industry to conduct voluntary audits; and (2) the ability of the federal government to measure compliance performance.

Regarding the first point, one view is that Environment Canada's policy still does not sufficiently encourage industry to conduct voluntary audits because the department has not clarified how it will use information discovered as a result of voluntary audits in connection with enforcement actions.³⁵¹ Environment Canada disputes this concern, arguing that the department's policy on access to environmental audits in connection with routine inspections³⁵² and investigations³⁵³ does not need to be changed, though it could be further clarified. However, industry is unlikely to accept Environment Canada's argument as an inducement to conduct audits, particularly as the courts have upheld the entitlement of other federal departments to obtain environmental audit reports, notwithstanding

³⁴⁵ Environment Canada, *supra* note 30, at 29.

³⁴⁶ *Id.*

³⁴⁷ *Id.*

³⁴⁸ *Id.*

³⁴⁹ *Id.*

³⁵⁰ Deturbide, *supra* note 342, at 13.

³⁵¹ CEPA Evaluation Report, *supra* note 119, at 90.

³⁵² *Id.* (department will not request environmental audit reports during routine inspections to verify compliance with CEPA).

³⁵³ *Id.* (department will only request environmental audit reports under the authority of a search warrant). See also *Response to Questions on Compliance and Enforcement Indicators under CEPA and the Fisheries Act from Office of Enforcement, Environment Canada* 4 (Mar. 1997) [hereinafter Office of Enforcement Response] (on file with the author) (noting that environmental audits are only required when inspectors or investigation specialists have reasons to believe that an offense may have been committed. When this occurs, environmental audits are a very important tool in following up offenses).

industry claims of solicitor-client privilege for the documents.³⁵⁴ If industry is conducting more environmental audits it is because federal environmental jurisdiction is sufficiently narrow under CEPA and the Fisheries Act that the likelihood of regulatory action is slim, or because other pressures to conduct audits, such as from financial lending institutions, outweigh the risks of detection.

Regarding the ability of the federal government to measure compliance performance, federal officials indicate that the existence of voluntary compliance measures, such as environmental audits, has not resulted in a decrease in inspections.³⁵⁵ Interestingly, provincial officials in British Columbia stated the opposite view, that a decrease in provincial inspections was anticipated as a result of both promoting voluntary measures and industry self-monitoring and reporting requirements. Indeed, the province noted that the trend has been toward a general decrease in the number of scheduled and unscheduled inspections, particularly for low risk operations, while the use of voluntary compliance measures has increased.³⁵⁶

Provincial Policies

Ontario has perhaps the newest policy in Canada which seeks to encourage the regulated community to conduct environmental audits.³⁵⁷ Established in 1995, the policy may in part be a reaction to industry concern about attempts by provincial environment ministry prosecutors to characterize company information as an environmental audit and obtain such information notwithstanding company assertions of solicitor-client privilege to the contrary.³⁵⁸ The policy “recognizes that business in Ontario...has taken the initiative to develop voluntary programs of self-evaluation, both as an effective management tool and as means of promoting environmental protection.”³⁵⁹ The policy notes that Ontario “wishes to encourage the continued development and use of environmental evaluations and acknowledges that ensuring the confidentiality of these evaluations will help to promote their use.”³⁶⁰ The intent of the policy is to “provide assurance to business in Ontario...that MOEE will respect the confidentiality of self-initiated evaluations and will not, as a matter of course, demand or request access to environmental evaluations” though the policy also acknowledges that under exceptional circumstances the ministry will require access to such documents.³⁶¹ Ontario’s expectation is that “by providing greater certainty, this policy will encourage environmentally responsible companies and individuals to continue to develop and use environmental evaluations.”³⁶² The policy also defines environmental evaluations³⁶³ and outlines the application

³⁵⁴ *Gregory v. Minister of National Revenue* (1992), 92 D.T.C. 6518, 6525 (F.C.T.D.) (environmental audit report obtained by solicitor, purportedly to permit him to provide a legal opinion to his client, was not covered by solicitor-client privilege).

³⁵⁵ Office of Enforcement Response, *supra* note 353, at 4.

³⁵⁶ British Columbia Draft Response, *supra* note 71, at 4.

³⁵⁷ Ontario Ministry of the Environment and Energy, *Policy and Guideline on Access to Environmental Evaluations 1* (1995) [hereinafter Ontario Environmental Evaluations].

³⁵⁸ See *R. v. McCarthy Tetrault* (1992), 9 C.E.L.R. 12, 21-25 (Ont. Prov. Div.) (company claim of privilege upheld where documents in issue confirmed evidence of company’s solicitor that purpose for which documents prepared was to receive confidential information and obtain legal advice concerning compliance of facility with environmental legislation. Characterization of document as environmental audit not determinative of whether information was communicated to solicitor for purpose of obtaining legal advice and therefore privileged). Compare *McCarthy* with *Gregory*, *supra* note 354.

³⁵⁹ Ontario Environmental Evaluations, *supra* note 357, at 1.

³⁶⁰ *Id.*

³⁶¹ *Id.*

³⁶² *Id.*

³⁶³ *Id.* at 2 (environmental evaluations defined as internal formal and structured evaluations or self-initiated assessments of existing or potential environmental impacts that are conducted voluntarily by individuals, businesses or public institutions. They may be conducted to assess risk, verify compliance, or to satisfy business or financial interests. They may be referred to as audits, site assessments, compliance verification evaluations, etc. They may also cover total operations, individual sites, specific substances, or regulatory areas).

of the policy,³⁶⁴ the scope of the policy,³⁶⁵ the circumstances when involuntary disclosure may be required,³⁶⁶ the circumstances when such company information will be protected from use in a prosecution,³⁶⁷ and the circumstances when voluntary disclosure of environmental evaluations may provide immunity from prosecution.³⁶⁸

There are conflicting views as to what effect, if any, the Ontario policy will have on: (1) the willingness of industry to conduct environmental audits; and (2) the ability of the provincial government to measure compliance performance or to undertake enforcement. The competing concerns in the development and implementation of such a policy are that: (1) companies will not conduct environmental audits for fear they will be used against them; and (2) evaluations might be used improperly to shield information that discloses environmental harm. Some industry counsel argue that the Ontario policy tips the scale too far in favor of regulators, because it allows MOEE officers to decide when access to environmental audits must be provided.³⁶⁹ In such circumstances, companies may be reluctant to conduct evaluations if they perceive the exercise to be one of accumulating evidence for use by a prosecutor.³⁷⁰ Moreover, they argue that if the policy does not encourage companies to conduct environmental audits, the policy is unlikely to achieve its ultimate objective of assisting in protection of the environment.³⁷¹ Lawyers with environmental non-government organizations, on the other hand, argue that the Ontario policy: (1) is unnecessary as business has every incentive without the policy to conduct environmental audits in order to respond to environmental problems and to help establish a successful due diligence defense;³⁷² (2) defines environmental evaluations so broadly as potentially to permit companies to hide otherwise relevant information from the MOEE;³⁷³ (3) improperly circumscribes the powers of inspection and investigation the legislature granted to environmental officers to obtain relevant information under the province's environmental laws;³⁷⁴ (4) unnecessarily provides

³⁶⁴ *Id.* at 3 (purpose of the policy is to improve overall environmental compliance and environmental quality by encouraging the use and confidentiality of environmental evaluations without compromising law enforcement or pollution abatement. The Ministry therefore will strike a balance between its regulatory responsibilities and the ability of individuals to privately assess their own environmental performance in good faith without increasing their risk of prosecution under provincial environmental laws. As a result, under the policy, abatement and compliance inspections carried out by the Ministry will be conducted in a manner that will encourage the practice of environmental evaluations. Therefore, the Ministry will not request access to environmental evaluations as a matter of course. Where Ministry inspectors and investigators do request such access they will advise the company that it is not obliged to voluntarily share the evaluation with the Ministry. Refusal to provide voluntary access to the evaluation will not result in obstruction of justice charges).

³⁶⁵ *Id.* at 6–7 (protections afforded under the policy do not apply to monitoring or compliance information otherwise required to be produced under law, legal actions available to the government with respect to enforcement or compliance where a company cannot demonstrate good faith, or evaluations that have previously entered the public domain).

³⁶⁶ *Id.* at 4–6 (Three circumstances apply: (1) abatement inspections: where a pollution incident occurs and voluntary access to an evaluation is denied, Ministry inspectors, on the approval of senior Ministry officials will seek a judicial inspection order where there are reasonable grounds for believing that the evaluation's findings will be relevant to addressing the environmental problem, the information sought cannot otherwise be reasonably obtained from other sources, and the information is necessary to administer environmental legislation; (2) enforcement investigations: where voluntary access is denied, Ministry investigators, on the approval of senior Ministry officials, will seek a search warrant where there are reasonable grounds to believe that an offense has been committed, the evaluation's findings are relevant to the particular violation and necessary to the investigation, and the information sought cannot reasonably be obtained through other sources; and (3) emergencies: where delay associated with obtaining a judicial inspection order or search warrant would likely result in immediate danger to health or safety, serious risk to the quality of the environment, or loss or destruction of relevant evidence).

³⁶⁷ *Id.* at 6 (whether evaluations are obtained voluntarily or involuntarily the ministry will not use them against an individual or company if the latter can demonstrate good faith in taking environmentally responsible action, which is defined as: undertaking an environmental evaluation, initiating timely corrective or preventive action, cooperating fully and promptly with officials in connection with the non-compliance identified in the evaluation).

³⁶⁸ *Id.* at 3–4 (provision of an environmental evaluation in conjunction with a program approval, authorized under the EPA, which program approval is being fully complied with, may protect the person from prosecution even where the evaluation discloses potential environmental risks).

³⁶⁹ Roger Cotton, "Draft Ontario Evaluations Policy Too Heavily Favours Regulators", 6 *Env't Pol'y & L.* 217 (1995).

³⁷⁰ *Id.*

³⁷¹ *Id.*

³⁷² Ramani Nadarajah, Canadian Environmental Law Association, *Comments on the Ministry of the Environment and Energy's Draft Policy on Access to Environmental Evaluations* 1–2 (1995).

³⁷³ *Id.* at 3–4.

³⁷⁴ *Id.* at 4–7.

corporations with additional protection from access to their audit reports for use in prosecutions where the company can demonstrate to MOEE “good faith” in taking environmentally responsible action;³⁷⁵ and (5) may result in the denial of third party access to environmental audits in private prosecutions and civil actions.³⁷⁶ There do not appear to be any empirical evidence or studies to support either set of arguments to date, though the policy is expected to be reviewed by the ministry in 1999 to determine its effect on: (1) the practice and quality of environmental evaluations; (2) environmental performance; and (3) MOEE’s ability to carry out its abatement and enforcement responsibilities.³⁷⁷

Other provinces also have policies on the use of voluntary environmental audits by the regulated community, which have similarities to both the federal and Ontario approaches. Alberta Environmental Protection (AEP), for example, notes that under its policy voluntary environmental audits are not a substitute for compliance.³⁷⁸ In Alberta, the simple fact that an environmental audit has been conducted is no defense to a charge, nor does it limit a business’s responsibility to meet legislative requirements.. The province is prepared to consider an effective auditing program, including adequate follow-up to environmental deficiencies identified in the audit, when determining if reasonable steps were taken to avoid committing an offense.³⁷⁹ The province also will not modify an enforcement response in exchange for the business having conducted a voluntary environmental audit.³⁸⁰ “To encourage the use of voluntary environmental audits, while not compromising environmental protection,” AEP will not seek access to such documents for use in a prosecution. However, the province’s justice department makes the final determination about what evidence is presented in a prosecution.³⁸¹ The Alberta policy notes that AEP may issue administrative orders to members of the regulated community requiring remedial action on the basis of information identified in a voluntary environmental audit.³⁸² There do not appear to be any empirical evidence or studies conducted by Alberta on the willingness of companies to undertake voluntary environmental audits or the impact on the provincial government’s ability to verify compliance as a result of the policy.

Other provinces, such as Quebec, do not have an official policy regarding the use of environmental audits by the regulated community.³⁸³ The province further notes that, given that the use of environmental audits by the regulated community is not widespread in Quebec, the Ministry of the Environment and Wildlife has observed neither an improvement nor a limitation in the ability of the ministry to verify compliance with the EQA.³⁸⁴

5.1.3 *Statutory Initiatives on Environmental Audits*

Few jurisdictions in Canada have enacted legislation promoting the use of environmental audits by the regulated community. Perhaps the single exception in this regard is Nova Scotia. In 1995, the province enacted the Environment Act³⁸⁵ which mitigates the consequences of non-compliance with the statute if the person responsible for the problem voluntarily provides the environment department with information obtained through an environmental audit.³⁸⁶ Under the Environment Act, such a person will not be prosecuted for non-compliance if the person complies with: (1) the terms of any agreement negotiated with the minister; or (2) any order issued to the person under

³⁷⁵ *Id.* at 7–10.

³⁷⁶ *Id.* at 10–14.

³⁷⁷ Ontario Environmental Evaluations, *supra* note 357, at 7.

³⁷⁸ Alberta Environmental Protection, *supra* note 31, at 5–2.

³⁷⁹ *Id.*

³⁸⁰ *Id.* at 5–3.

³⁸¹ *Id.*

³⁸² *Id.*

³⁸³ Que. Response I, *supra* note 162, at 1.

³⁸⁴ *Id.*

³⁸⁵ S.N.S. 1994–95, c. 1.

³⁸⁶ *Id.* § 70. The statute defines an environmental audit as “a process of independently obtaining and evaluating evidence about an environmental matter to determine the relationship between the environmental matter and the established standards and criteria.” *Id.* § 3(u).

the statute.³⁸⁷ This incentive for disclosure of information does not apply, however, if the department becomes independently aware of the non-compliance prior to receiving the information from the person.³⁸⁸ The statute does not explain if the government awareness of non-compliance that will disentitle a person from protection from prosecution can arise from inspections, investigations, a “whistle-blower”, or other sources.³⁸⁹ Whether these statutory reforms will encourage the regulated community to undertake environmental audits and disclose their results, or will affect the provincial government’s ability to verify compliance remains to be seen.

5.2 Environmental Management Systems

5.2.1 Overview

A further voluntary compliance measure supported by the regulated community is an environmental management system (EMS). The International Organization for Standardization (ISO) defines an EMS as “that part of the overall management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.”³⁹⁰ The ISO has developed a set of documents called the 14000 series, which contain specified requirements for an EMS including: (1) planning;³⁹¹ (2) environmental policy;³⁹² (3) management review;³⁹³ (4) checking and corrective action;³⁹⁴ and (5) implementation and operations.³⁹⁵ The ISO 14000 series has been developed by an international technical committee on environmental management, for which Canada has had secretariat responsibilities.³⁹⁶

5.2.2 Perceived Benefits

A variety of economic, environmental, social, and legal reasons have been offered as to why industry should adopt an EMS. These benefits include: (1) reduced liability and associated costs; (2) potential reductions in insurance rates; (3) improved access to capital from lending institutions; (4) cost savings through process efficiencies, better resource use, and reduced waste costs; (5) reduced legal costs for permitting and compliance management; (6) fewer fines and penalties; (7) improved environmental performance, employee, community relations, and public image; and (8) ability to demonstrate reasonable care or due diligence.³⁹⁷

³⁸⁷ *Id.* § 70(1).

³⁸⁸ *Id.* § 70(2).

³⁸⁹ Deturbide, *supra* note 342, at 13–14.

³⁹⁰ Auditor General of Canada, Report to the House of Commons: *Environmental Management Systems—A Principle-Based Approach* 11-7 (1995).

³⁹¹ Lori J. Nicholls-Car, “International Environmental Management Standards: ISO 14000”, 5 *D.E.L.E.A.* 1, 61 (1996) (defining planning as establishing and maintaining a procedure to identify environmental impacts, legal and other requirements. The corporation is required to establish and maintain documented environmental objectives and targets, as well as environmental management programs for achieving its objectives and targets).

³⁹² *Id.* at 61 (senior management required to define the corporation’s environmental policy and ensure that the policy includes, among other matters, a commitment to continual improvement and prevention of pollution, as well as a commitment to comply with relevant environmental regulatory requirements).

³⁹³ *Id.* at 62 (senior corporate management required to review the environmental management system to ensure its continuing suitability, adequacy and effectiveness).

³⁹⁴ *Id.* (corporation required to establish and maintain documented procedures: to monitor and measure operations and activities that impact the environment, investigate non-conformance, complete corrective and preventive action plans, identify, maintain, and dispose of environmental records, and undertake periodic environmental management system audits).

³⁹⁵ *Id.* at 61–62 (roles, responsibilities and authorities required to be defined, documented and communicated to ensure effective environmental management, appropriate training, operational control, and emergency preparedness response).

³⁹⁶ John D. Wolfe, “Environmental Management Systems: Due Diligence and State of the Art - ISO 14000”, Address Before the Department of Continuing Legal Education, Law Society of Upper Canada (16 October 1996), in *Advanced Environmental Law* (Oct. 1996) at 4-47. See also Kerry D. Rodgers, “The ISO Environmental Standards Initiative”, 5 *N.Y.U. Env’tl. L. Rev.* 181, 202 (1996).

³⁹⁷ Wolfe, *id.* at 4-34; and Nicholls-Car, *supra* note 391, at 62.

5.2.3 Status in Canada

Surveys of Canadian industry in 1994 and 1996 have shown that over 60 percent of survey respondents report having an EMS,³⁹⁸ with smaller percentages reporting either having all of the ISO 14001 key components,³⁹⁹ or intending to seek ISO 14001 registration.⁴⁰⁰

Although the standards in the ISO 14000 series, including those pertaining to EMSs, are not legally binding, the ISO does offer corporations registration or certification stating that their policies and practices conform to the standards in the series.⁴⁰¹ Canadian legal counsel are likely to recommend that their corporate clients register under ISO 14001.⁴⁰²

5.2.4 Regulatory Implications

As a Voluntary Regime

Although adopting a voluntary EMS has potential benefits for the regulated community, there are also significant compliance and monitoring implications for regulators, similar to those discussed in connection with environmental audits. For example, if regulatory agencies are facing increased resource and budgetary constraints, will they decide to inspect less frequently, or not at all, a company that has an EMS, as opposed to one that does not? Will EMS, to the extent it is a form of self-regulation, become a substitute for traditional command and control regulation? If so, how will government agencies verify compliance? Whether such scenarios occur remains to be seen. Environment Canada cautions, for example, that ISO 14000 has only recently been introduced and cannot be used to monitor compliance⁴⁰³ because it is not tied to the regulatory standards of a particular jurisdiction, but is more in the nature of a systems approach to environmental management. Similarly, Alberta officials note that: (1) an EMS is not a substitute for inspections; (2) not many companies in the province have registered under the ISO program or under the Responsible Care program of the Canadian Chemical Producers' Association; and (3) even those companies which have obtained ISO certification may not be in compliance with provincial environmental laws.⁴⁰⁴

British Columbia has stressed that in seeking to prevent and remedy pollution, it is important to increase awareness of the importance of an EMS, such as is specified in the ISO 14000 series.⁴⁰⁵ Interestingly, recent studies in British Columbia suggest that under a self-regulation model, where selected organizations within given industries would be exempt from regulatory requirements if they met a code of practice which could in future be made analogous to an EMS, several disadvantages can occur. These disadvantages include: (1) loss of Ministry control in recognizing and enforcing non-compliance; (2) reduced understanding of "field level" issues over time in ministry regional offices; (3) economic factors outweighing environmental considerations; and (4) reduced public acceptance of the program.⁴⁰⁶ Nonetheless, British Columbia has developed several stewardship regulations as part of its pollution prevention program,⁴⁰⁷ though provincial officials note that current or future programs are unlikely to become completely voluntary, since compliance in some form will continue to be required by law.⁴⁰⁸

³⁹⁸ V. Ann Davis, "Environmental Management in Canada: Where Do We Stand?" Address Before the Department of Continuing Legal Education, Law Society of Upper Canada (16 Oct. 1996) in *Advanced Environmental Law*, (Oct. 1996), at 4-14.

³⁹⁹ *Id.*

⁴⁰⁰ *Id.*

⁴⁰¹ Rodgers, *supra* note 396, at 182.

⁴⁰² John R. Tidball, "Environmental Management Systems: The Lawyer's Role", Address Before the Department of Continuing Legal Education, Law Society of Upper Canada (16 Oct. 1996), in *Advanced Environmental Law* (Oct. 1996), at 4-3 to 4-4.

⁴⁰³ Office of Enforcement Response, *supra* note 353, at 4.

⁴⁰⁴ Interview with Jillian Flett, Head, Compliance Branch, Pollution Control Division, AEP, in Edmonton, Alberta (20 May 1997).

⁴⁰⁵ British Columbia Ministry of Environment, Lands, and Parks, Environmental Protection Program: *Five-Year Action Plan—1997–2001* 15 (1996).

⁴⁰⁶ KPMG, *supra* note 197, at 6, 88.

⁴⁰⁷ See, e.g., WMA, *Post-Consumer Paint Stewardship Program Regulation*, British Columbia Reg. 200/94 (1994); and *Agricultural Waste Control Regulation*, British Columbia Reg. 131/92 (1992).

⁴⁰⁸ Interview with Brad Wylynko, Pollution Prevention Analyst, Pollution Prevention & Pesticide Management Branch, MELP, in Victoria, B.C. (21 May 1997).

As a Mandatory Regime

While EMS and ISO 14000 are intended to be voluntary, depending on the circumstances, they may be imposed under a court order. An Alberta court recently ordered a chemical company to complete the ISO 14001 EMS specification program and to provide a certified copy of the ISO 14001 certificate to the AEP.⁴⁰⁹ The company also was ordered to post a letter of credit in the amount of \$40,000 to the province. This sum would be forfeited if the company did not comply with the order.⁴¹⁰ The implementation of the EMS has been viewed as likely to assist the company in meeting its environmental obligations.⁴¹¹

⁴⁰⁹ R. v. Prospec Chemicals Ltd. (1996), 19 C.E.L.R. (N.S.) 178 (Alberta Prov. Ct.).

⁴¹⁰ *Id.* at 180. The accused was also fined \$100,000 for violating a license condition. See *supra* note 322, at 1 (prosecutions).

⁴¹¹ Jillian Flett, "Courts Get Creative in Sentencing", 11 *Envtl. L. Centre* 3 (1996).

6 The Public's Role in Compliance and Enforcement Measurement

The public plays an important role in compliance and enforcement measurement in Canada. Members of the public: (1) report pollution incidents to government; and (2) assist government in identifying province-wide, as well as local, trends in environmental problems when given access to adequate compliance information. These roles are discussed below.

6.1 The Public as Complainant

There are three aspects to the role the public may play with respect to the submission of pollution complaints. First, the public may make complaints as a result of sudden or chronic pollution incidents. Second, the public may make complaints as a result of being aided by special programs developed by government to assist in identifying and reporting particular types of pollution problems. Third, there are more formal statutory declarations members of the public can make requesting that government investigations be undertaken with respect to particular environmental problems. All three types of public complaints may serve to supplement, if not drive, government inspection and investigation activities in certain circumstances.

6.1.1 General

Many federal and provincial governments acknowledge receiving a wide range of public complaints. These complaints may relate to odor, dust, smoke, air quality, surface and groundwater quality and quantity, soil contamination, hazardous wastes, water well construction, and industrial and municipal discharges.⁴¹² In Ontario, this informal approach results in the MOEE receiving thousands of reports each year from members of the public who suspect that environmental harm has occurred or is occurring as a result of the activities of the regulated community.⁴¹³ With recent and continuing government cutbacks being experienced in all federal and provincial programs, it is unclear the extent to which government complaint response capability has been hampered by reductions in inspection and investigation personnel.

6.1.2 Special Programs

Some provinces have special programs to actively seek the assistance of the public in reporting violations of environmental laws. British Columbia's Observe, Record, Report (ORR) program, which has been in operation since 1978, provides the public with information on the types of environmental violations to look for, what information to record, and how to report this information. British Columbia also provides a 24-hour, 7-day a week toll-free complaint line to permit members of the public to report violations.⁴¹⁴ Alberta also operates a similar toll-free complaints service.⁴¹⁵

6.1.3 Under Statutory Authority

Several Canadian jurisdictions also permit members of the public to make more formal requests for investigation in connection with potential violations of environmental laws. The impetus for this approach in some jurisdictions was a concern that the public often did not know whether complaints had been received, acted upon, or the outcome.⁴¹⁶ Under CEPA, two Canadian residents over the age of 18 may petition the minister to investigate an alleged violation of the statute.⁴¹⁷ Similarly, the EPEA allows any two residents of Alberta to apply for an

⁴¹² Alberta Environmental Protection, *supra* note 31, at 2–1.

⁴¹³ Task Force, Ontario Ministry of the Environment and Energy, *Report on the Ontario Environmental Bill of Rights 70* (1992) [hereinafter Task Force Report].

⁴¹⁴ British Columbia Ministry of Environment, Lands, and Parks, Observe, Record and Report Enforcement Program (1996).

⁴¹⁵ Alberta Environmental Protection, *supra* note 31, at 2–1.

⁴¹⁶ Task Force Report, *supra* note 413, at 71.

⁴¹⁷ CEPA, S.C. 1988, c. 22, § 108.

investigation of a suspected violation of the statute. This application must be accompanied by a solemn declaration.⁴¹⁸ A similar approach is employed in Ontario, where applicants for investigations must swear an affidavit attesting to their belief that the facts alleged in the application are true.⁴¹⁹

In jurisdictions with such statutory provisions, a small number of applications for investigations has been made and an even smaller number undertaken.⁴²⁰ There are a number of possible reasons why there have been so few requests for investigations under these laws, and even fewer investigations undertaken. First, the narrow jurisdiction of CEPA in terms of the small number of toxic substances subject to the law, may result in CEPA being inapplicable to the substance that is the subject of the request.⁴²¹ Second, the formality of these procedures may account for the lack of frequency in their use by the public.⁴²² Third, the discretion granted to ministers not to undertake investigations has undoubtedly limited the number of investigations undertaken.⁴²³ Notwithstanding these limitations, the filing of such requests can provide enforcement agencies with valuable information for future inspection and investigation strategies.

6.1.4 Summary

Apart from some limited data on the number of investigations requested and undertaken pursuant to formal statutory provisions, there appears to be little or no quantitative information developed or reported upon by Canadian jurisdictions on the extent to which government inspections and investigations are assisted or driven by the public complaints process.

6.2 The Public as Recipient of General Compliance and Enforcement Information

As noted above,⁴²⁴ federal and provincial governments report on the compliance and enforcement status of the regulated community. Where this information is adequate, it can provide the public with the basis for evaluating the robustness of government programs and the performance of industrial facilities and sectors. However, the quality of this information varies in the jurisdictions examined for this study. Information on compliance status has been released by the federal government for several years, particularly by several of the regional offices of Environment Canada. In recent years, however, less detail has been provided, particularly with respect to actual monitoring data from industrial sectors and companies.⁴²⁵ Similar, if not more dramatic, reductions in information detail have been noted in Ontario.⁴²⁶ The failure to provide particulars of compliance status can render the information that is

⁴¹⁸ EPEA, S.A. 1992, c. E-13.3, § 186.

⁴¹⁹ *Ontario Environmental Bill of Rights* ("OEBR"), S.O. 1993, c. 28, § 74(3)(4).

⁴²⁰ Christine Lepine, Office of Enforcement, Environment Canada, *Requests Made Under Section 108 of CEPA 1-3* (1996) (approximately ten § 108 applications made between 1988 and 1996; few, if any, proceeded with). See also Environmental Commissioner of Ontario, *1994-1995 Annual Report: Opening the Doors to Better Environmental Decision Making 45* (1996) [hereinafter EC Annual Report I] (at least nine of twelve applications for investigation denied by MOEE).

⁴²¹ Lepine, *id.* at 1, 2.

⁴²² Concern that an overly formal procedure could discourage requests for investigations was acknowledged as a possibility during the formation of Ontario's law. See Task Force Report, *supra* note 413, at 71.

⁴²³ See, e.g., OEBR, S.O. 1993, c. 28, §§ 77(2)(3) (Minister not required to conduct an investigation if the Minister considers that (1) the application is frivolous and vexatious; (2) the alleged violation is not serious enough to warrant an investigation; (3) the alleged violation is not likely to cause harm to the environment; or (4) the requested investigation would duplicate an ongoing or completed investigation). The Environmental Commissioner of Ontario, established under OEBR to oversee the use of the statute by ministries, reported that the majority of the applications that were rejected by MOEE in 1994-95 "had merit and raised important public policy issues, including drinking water standards, air pollution control, groundwater protection" and waste management matters. EC Annual Report I, *supra* note 420, at 45. During the 1996 reporting period, the Environmental Commissioner again reported that ministries denied several requests for investigation that raised important public policy issues. See Environmental Commissioner of Ontario, *1996 Annual Report: Keep the Doors Open to Better Environmental Decision Making 7* (1997).

⁴²⁴ See *supra* parts 4.4.2 and 4.6.3.

⁴²⁵ See *supra* text accompanying notes 110 and 232.

⁴²⁶ See *supra* text accompanying notes 249-256.

produced by government less valuable to the public because it does not provide an adequate picture of the regulatory situation on the basis of industrial sector, company, or region.

Where jurisdictions do provide more detailed information, the public is in a better position to evaluate the adequacy of government programs and to assist in the formulation of environmental policy. Governments acknowledge that providing the public with non-compliance information can assist regulatory efforts. British Columbia's environment minister has stated that distributing a list of the province's worst polluters and singling out environmental offenders, is one of the most effective ways for ensuring change.⁴²⁷

6.3 The Public as Partner in the Compliance Monitoring Network for Particular Facilities

There are other methods by which the public can play a role in compliance and enforcement initiatives. Where environmental approvals are issued for particular facilities following a hearing, such as waste disposal facilities in Ontario, a condition of approval that is often employed is to establish a public liaison committee (PLC) made up of members of the local community where the facility is located. The purpose of a PLC can include receiving and reviewing periodic monitoring data on the approved facility's performance to ensure compliance with environmental requirements. This measure can provide an important opportunity for the public to identify environmental problems and solutions since compliance with conditions of approval is high on the list of concerns expressed by members of such committees.⁴²⁸

⁴²⁷ British Columbia Ministry of Environment, Lands and Parks, Ramsay Releases Latest Environmental Protection Non-Compliance Report 1 (Sept. 10, 1996).

⁴²⁸ Toshi Takishita *et al.*, University of Toronto, *Involving the Public: Citizen Member Views of the Effectiveness of Environmental Assessment Board-Mandated Public Liaison Committees* 36 (1997).

7 Emerging Initiatives Relating to Environmental Compliance and Enforcement Indicators

This report has referred to both existing and emerging initiatives relative to environmental compliance and enforcement indicators. The purpose of this chapter is not to repeat the above analysis, but to summarize briefly some of the more pertinent emerging initiatives. For a full review of each of these matters, refer to chapters 4, 5 and 6 of this report.

7.1 Federal

Among the key initiatives emerging at the federal level are the following:

- **Inspections**—There are a variety of planned amendments to CEPA relating to the powers of inspectors,⁴²⁹ the facilities to be inspected,⁴³⁰ and the manner in which substances are designated as toxic⁴³¹ which, if implemented, would expand the scope of inspectors' authority and obligations. Environment Canada also has developed a number of inspection targeting strategies, including focusing on certain priority regulations,⁴³² geographic areas exhibiting sensitive, unusual, or critical environmental features,⁴³³ and "chronic offenders."⁴³⁴ Further, the federal government also is determined, particularly in a period of resource constraints, to devolve certain aspects of inspection targeting decision-making to the provinces.⁴³⁵
- **Requiring Self-Monitoring and Reporting Information by the Regulated Community**—Federal legislation authorizes this approach which has been employed increasingly in such areas as EEM in the pulp and paper industry under the Fisheries Act,⁴³⁶ and pursuant to the NPRI program under CEPA.⁴³⁷ Devolution of responsibility to the provinces is also occurring under this initiative.⁴³⁸
- **Recording and Managing Compliance Data**—One of the key new information management systems developed by the federal government relevant to compliance issues is the NPRI data base. NPRI is used to track and report upon releases of substances to the environment from various facilities.⁴³⁹
- **Evaluating and Reporting Compliance Status**—Environment Canada increasingly is producing evaluations of the compliance status of the regulated community as a result of regulatory measures undertaken. These reports are produced nationally and by several regional offices of Environment Canada for selected regulations or industrial sectors. These reports also go beyond traditional reporting of compliance outputs, such as numbers of inspections conducted, to reporting overall compliance outcomes, results, and trends.⁴⁴⁰

⁴²⁹ See *supra* note 92 and accompanying text.

⁴³⁰ See *supra* note 103 and accompanying text.

⁴³¹ See *supra* notes 99–100 and accompanying text.

⁴³² See *supra* notes 108–109 and accompanying text.

⁴³³ See *supra* notes 113–116 and accompanying text.

⁴³⁴ See *supra* notes 117–118 and accompanying text.

⁴³⁵ See *supra* part 4.2.1.3

⁴³⁶ See *supra* notes 164–168 and accompanying text.

⁴³⁷ See *supra* notes 171–175 and accompanying text.

⁴³⁸ See *supra* part 4.2.2.3.

⁴³⁹ See *supra* notes 217–219 and accompanying text.

⁴⁴⁰ See *supra* notes 225–236 and accompanying text.

- **Reporting Enforcement Outputs**—Under CEPA and the Fisheries Act, Environment Canada reports annually on the number of warnings, directions, and prosecutions initiated, as well as convictions obtained. The department also provides, in a separate reporting process, greater particulars regarding prosecutions undertaken, penalty dollars assessed, and other aspects of case disposition on a region by region basis.⁴⁴¹
- **Evaluating and Reporting Regulatory Status of Offenders as a Result of Enforcement Efforts**—Environment Canada is developing a strategy of focusing on enforcement actions against chronic offenders with a goal of returning significant violators to compliance as soon as possible.⁴⁴²
- **Correlating Compliance and Enforcement Outcomes with Environmental Results**—Environment Canada has stated that it intends to measure the contribution of the national compliance and enforcement program to protection of the environment by using focused surveys of several groups of regulated bodies. The purpose of the initiative is to determine the ability of the program to influence environmentally responsible behavior.⁴⁴³

7.2 Provincial

Among the key initiatives emerging at the provincial level are the following:

- **Inspections**—Some provinces, such as British Columbia, are considering new criteria for determining the frequency an inspector should visit a facility to verify compliance with permit requirements.⁴⁴⁴
- **Requiring Self-Monitoring and Reporting Information by the Regulated Community**—An approach increasingly favored by some provincial governments is to impose CEM requirements on regulated entities as a condition of issuance of air pollution permits.⁴⁴⁵
- **Criteria for Defining Compliance**—Some provinces, such as British Columbia, which already have criteria defining SNC, are considering a more numerical compliance assessment procedure that would be more uniform and less subjective. These new measures would improve the basis on which companies are placed on the province's semi-annual lists of companies in non-compliance.⁴⁴⁶
- **Evaluating and Reporting Compliance Status**—Since 1990, British Columbia has produced a non-compliance report every six months which lists facilities whose compliance record during the reporting period is of concern to the government because the facilities are not meeting applicable environmental requirements. The production of these reports also has permitted the province to develop information on compliance trends.⁴⁴⁷ Quebec produces reports on the compliance status of certain industrial sectors, though on a less frequent basis.⁴⁴⁸
- **Administrative Penalties**—Alberta law authorizes the province to develop an administrative penalty regime. Regulations brought the regime into force in 1995. Use of administrative penalties can supplement enforcement programs by bridging the gap between warnings and prosecutions.⁴⁴⁹

⁴⁴¹ See *supra* notes 319–320 and accompanying text.

⁴⁴² See *supra* notes 332–333 and accompanying text.

⁴⁴³ See *supra* note 340 and accompanying text.

⁴⁴⁴ See *supra* notes 125–129 and accompanying text.

⁴⁴⁵ See *supra* notes 181–182 and accompanying text.

⁴⁴⁶ See *supra* notes 191–201 and accompanying text.

⁴⁴⁷ See *supra* notes 240–248 and accompanying text.

⁴⁴⁸ See *supra* notes 257–263 and accompanying text.

⁴⁴⁹ See *supra* notes 309–318 and accompanying text.

- **Reporting Enforcement Outputs**—Some provinces, such as British Columbia and Alberta, now report annually on a variety of enforcement outputs, including lists of companies charged and convicted of environmental offenses.⁴⁵⁰
- **Environmental Audits**—Some provinces, such as Ontario, recently have developed policies to encourage the regulated community to conduct voluntary environmental audits by specifying when government access to such reports will and will not be sought, and for what purposes.⁴⁵¹ Other provinces, such as Nova Scotia, have enacted legislation providing incentives to companies for voluntarily disclosing environmental audit results.⁴⁵²
- **Environmental Management Systems**—Several provinces are encouraging the regulated community to undertake EMS strategies as a pollution prevention measure.⁴⁵³ One province has obtained a court order imposing an obligation on a company to become certified under the ISO 14001 program or face financial penalties for violations of pollution control legislation.⁴⁵⁴

7.3 Federal-Provincial

Among the important federal-provincial initiatives are the following:

- **Administrative Agreements**—These federal-provincial agreements, which have been entered into with certain provinces on a statute-wide or particular industrial sector basis, set out inspection, self-monitoring and reporting requirements.⁴⁵⁵
- **Equivalency Agreements**—These arrangements, which also have inspection and self-monitoring implications, require that where both levels of government agree that there are in force under provincial law provisions: (1) equivalent to a regulation in force under CEPA, and (2) that are similar to sections of CEPA that authorize citizen requests for investigations, the federal government can declare that the CEPA provisions will not apply in that province. Alberta is the only province that has entered into an equivalency agreement with the federal government to date.⁴⁵⁶
- **Harmonization Accord**—Perhaps the most extensive federal-provincial arrangement is the recently signed Canada-wide accord on environmental harmonization. Sub-agreements under the accord address inspections in a detailed way. Future sub-agreements could also address enforcement matters. Under the inspections sub-agreement, once a government level has accepted certain obligations, the other level of government cannot act in that role for the agreed upon period.⁴⁵⁷

⁴⁵⁰ See *supra* notes 321–325 and accompanying text.

⁴⁵¹ See *supra* notes 357, 359–368 and accompanying text.

⁴⁵² See *supra* notes 385–388.

⁴⁵³ See *supra* note 405 and accompanying text.

⁴⁵⁴ *R. v. Prospec Chemicals Ltd.* (1996), 19 C.E.L.R. (N.S.) 178 (Alberta Prov. Ct.). See also *supra* part 5.2.4.2.

⁴⁵⁵ See *supra* part 4.2.1.3 and 4.2.2.3.

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*

7.4 Voluntary Initiatives by the Regulated Community

As government has been downsizing and downloading certain responsibilities, there has been a corresponding rise in voluntary initiatives by the regulated community. Among the emerging voluntary initiatives are the following:

- **Environmental Audits**—These are internal evaluations of facilities to determine compliance status with environmental requirements. Recently, there have been both policy and statutory initiatives by governments regarding the use of, and the circumstances of government access to, voluntarily prepared environmental audits.⁴⁵⁸
- **Environmental Management Systems**—This initiative is a systems-based approach to achieving environmental compliance which has been driven in part by the development of international standards on the subject. Canadian industry has pursued this approach and been encouraged to do so by technical and legal advisors because of perceived economic, environmental, social, and legal benefits.⁴⁵⁹

7.5 Public

Among the key public initiatives emerging with respect to environmental compliance and enforcement indicators are the following:

- **Requests for Investigations Under Statutory Authority**—Several recent federal and provincial laws permit members of the public to make formal requests for investigation of alleged violations of environmental requirements.⁴⁶⁰
- **Receipt of General Compliance and Enforcement Information**—Several governments at the federal and provincial levels periodically release to the public, to varying degrees, information about the compliance status of members of the regulated community on a regulation, industrial sector, or regional basis.⁴⁶¹
- **Partners in the Compliance Monitoring Network for Particular Facilities**—In some provinces such as Ontario, members of the public also may be appointed to liaison committees in connection with specific approvals issued under provincial law for particular facilities, such as waste disposal sites. These committees periodically review monitoring data specific to the facility to attempt to ensure compliance with environmental requirements.⁴⁶²

⁴⁵⁸ See *supra* part 5.1.

⁴⁵⁹ See *supra* part 5.2.

⁴⁶⁰ See *supra* part 6.1.3.

⁴⁶¹ See *supra* part 6.2.

⁴⁶² See *supra* part 6.3.

8 Conclusions

The interest of Canada's federal and provincial governments in compliance and enforcement indicators has been stimulated by a variety of sources and initiatives at the global, North American and domestic levels.⁴⁶³

Compliance and enforcement indicators may be a combination of: (1) outputs (2) outcomes and (3) resulting improvements in environmental quality. While initiatives are occurring with respect to some of these matters, the overall development of comprehensive environmental compliance and enforcement performance measures is still in its early stages in most jurisdictions in Canada. Moreover, as one moves along the spectrum from reporting outputs to measuring resulting environmental quality, the efforts of governments appear less developed and more fragmentary. This is not surprising, but does indicate where greater governmental effort should be directed in future.

Historically, federal and provincial governments have focused on reporting compliance and enforcement outputs such as numbers of inspections conducted, or prosecutions initiated. This traditional approach is itself not old in Canada, and is by no means uniformly undertaken at the federal and provincial levels, as some governments still do not regularly report this information, or have discontinued doing so. Moreover, such traditional reporting measures may be undergoing significant change arising from trends such as: (1) targeting "chronic offenders" for inspection; (2) requiring self-monitoring and reporting, as well as encouraging voluntary compliance by the regulated community; and (3) providing "single window" inspection and enforcement pursuant to emerging federal-provincial arrangements. In addition, in a period of resource constraints, government reliance on public complaints as a supplement to, if not driving force of, inspection programs may take on greater significance. The shape and adequacy of future federal and provincial reporting of compliance and enforcement outputs, therefore, is uncertain.

Greater efforts are being employed by several governments, both federally and provincially, to produce information on compliance and enforcement outcomes, rates and trends because of perceived limitations in merely reporting outputs. These efforts vary significantly from jurisdiction to jurisdiction. Few governments in Canada provide criteria for defining what constitutes significant non-compliance. In jurisdictions that do have such criteria, this information is often a prerequisite for identifying companies requiring improvement in their performance. Some levels of government increasingly are producing compliance status reports which track the rates of compliance achieved by the regulated community by regulation, geographic area, or company. However, the adequacy of the content and detail of these reports, particularly at the federal level, varies from region to region, as well as year to year within the same region. Recent efforts to develop national compliance information on a regulation-by-regulation basis, while an important initiative, still lack adequate particulars, such as company-specific monitoring data, which would make the reports more valuable to governments, industry and the public.

Some provincial jurisdictions report compliance trends of some industrial sectors as a result of several years of focus and reporting on non-compliance by the regulated community on a company-by-company basis. This non-compliance reporting initiative is not without its problems of quality control but, on the whole, is regarded as an innovative and effective approach to measuring compliance outcomes and status. Other provinces report this type of information less frequently, or not at all. Still other provinces that used to report this type of information have dramatically reduced the content and frequency of their reports, making them substantially less valuable to regulators, industry, and the public for purposes of measuring compliance outcomes, rates, and trends. The rise in voluntary compliance initiatives by industry has the potential to influence the ability of government to measure compliance performance to an extent that cannot be determined at this time. Gaps in the coverage of the regulatory system, the extent of which also is difficult to determine, may reduce the accuracy of government measures to evaluate compliance. Governments at both levels also tend to provide few particulars about enforcement outcomes; that is, the compliance status of offenders as a result of enforcement efforts.

⁴⁶³ See *supra* parts 1 and 3.

Finally, it is difficult to correlate compliance and enforcement outcomes with environmental results. Efforts of governments in Canada to measure the relationship are in their infancy. The few government reports that discuss the issue are quick to disclaim a relationship between compliance performance and overall environmental quality, though the federal government has suggested that it intends to pursue efforts to evaluate the correlation between the two in future. Whether such a federal approach, which still appears to be under development, can bridge the gap between identifying compliance and enforcement outcomes and relating them to environmental quality, particularly in a period of significant resource constraints, remains to be seen.

Perhaps the single most important approach governments in Canada should undertake in this area is to establish performance objectives and measures and develop methods for evaluating their effectiveness for compliance and enforcement outputs, outcomes and environmental quality goals. In particular, with respect to outputs these initiatives could include annual reporting of such matters as: numbers of inspections undertaken; responses to public complaints; self-monitoring reviews by government; investigations conducted; warnings or orders issued; prosecutions initiated; convictions obtained; and penalties assessed. With respect to outcomes, these initiatives could include annual reporting of such matters as: compliance rates by permit, regulation, industrial sector, environmental media, geographic region, or a combination thereof; companies in significant non-compliance; progress in returning chronic and significant offenders to compliance as a result of compliance or enforcement efforts; rate of recidivism among significant or chronic offenders following compliance or enforcement efforts; compliance rates of companies employing voluntary compliance measures; and compliance rates of companies where public liaison committees exist. With respect to environmental quality goals, these initiatives could include annual reporting of such matters as: emission or discharge reductions by company, environmental media, permit category, regulation, substance, industrial sector, geographic region, or a combination thereof; and state of the environment by company, environmental media, regulated substance, industrial sector, geographic region, or combination thereof.

The above does not constitute an exhaustive list of what might be included in such a program, but could contribute to a more systematic approach to evaluating compliance and enforcement measures than is currently used in Canada.

Appendix A: Interviewees or Respondents to Surveys

Environment Canada

- Daniel Couture, Deputy Director, Office of Enforcement (OE)
- Patrick Hollier, Acting Chief, Investigations Division, OE
- Paul Gavrel, Legal Counsel, OE
- Chris Currie, Acting Chief, Enforcement Management Division, OE
- Guy Martin, OE, formerly Inspector, Quebec Region
- Gordon Thompson, Head Investigations Section, Pacific & Yukon Region
- Maureen Christofferson, Senior Investigator, Pacific & Yukon Region
- Rob Patzer, Regional Coordinator, Compliance and Enforcement, Prairie & Northern Region
- David Aggett, Chief, Enforcement Section, Atlantic Region
- Peter Levedag, Head, Inspections, Ontario Region

British Columbia Ministry of Environment, Lands and Parks

- Ted Sheldon, Senior Evaluation Analyst, Corporate Policy Branch
- Harry Vogt, Manager, Industrial Pollution Prevention Section
- Brad Wylynko, Pollution Prevention Analyst, Pollution Prevention & Pesticide Management Branch
- Greg E. Cheeseman, Head, Permit Fees and Non-Compliance/Appeals Unit

Alberta Environmental Protection

- Jillian Flett, Head, Compliance Branch, Pollution Control Division

Quebec Ministry of Environment and Wildlife

- Jean Couture, Intergovernmental Affairs

Ontario Ministry of the Environment

- Tom Coape-Arnold, Policy Advisor, Policy Development Branch
- Roger Howe, Manager, Field Operations, Investigations and Enforcement Branch (IEB)
- Bill Cockburn, Program Manager, IEB

Annex 4

**Public Response Indicators as Measures
of Effective Environmental Compliance
and Enforcement Programs, Policies and Strategies:
A Survey and Analysis of Canadian Experience**

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List of Acronyms

AEP	Alberta Environmental Protection
AEPEA	(Alberta) Environmental Protection and Enhancement Act
ENGO	Environmental Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
ORR	Observe, Record and Report program (British Columbia)
PERT	Pollution Emergency Response Teams
PRI	public response indicator

1 Introduction

This paper examines current and potential uses of public response indicators (PRIs) to gauge the impact of government environmental enforcement and compliance programs, policies and strategies (“enforcement and compliance programs”).

The term “public response indicators” is a new one, developed in the context of and for the purposes of this paper. It is used here to refer to behaviors, attitudes and opinions of the public, including stakeholders, that are, or may be, reliable and useful measures of environmental compliance and enforcement programs, policies and strategies.

While the term may be novel, PRIs have been in use for some time. Opinions, about the state of the environment, for example, have been used to measure change in people’s perceptions if not the actual state of the environment itself. Other public responses that have been tracked or at least accommodated within environmental enforcement and compliance programs include:

- rates of compliance with regulatory standards;
- number and types of complaints received;
- number of private prosecutions initiated;
- direct action such as protests, blockades or consumer boycotts;
- perceptions of fairness or reasonableness of legal requirements;
- actions taken pursuant to international conventions or agreements; and
- levels of public satisfaction with government action taken to protect and conserve the environment.

Many of the responses listed above have the potential to be useful indicators. That they have not been so employed may be more a function of limited resources and competing priorities than of disinterest or low utility. The use of indicators, per se, is a relatively new practice and, understandably, emphasis has been placed on the use of indicators that are based on data directly and immediately related to the work performed by government personnel through government programs. The numbers and types of enforcement activities, for example, or the amount of fines assessed against offenders or changes in compliance rates have been investigated.

While this emphasis on the use of familiar indicators is a logical starting point, there is a growing interest in the development and implementation of other indicators, particularly indicators that reflect changes in public perceptions about the environment and the role of government in ensuring the wise use, protection and conservation of the environment. It is in this context that the nature and use of PRIs shall be explored.¹

The following will review the characteristics of useful indicators, including PRIs, for environmental enforcement and compliance programs as described in current literature and in the views of experts, regulators and stakeholders interviewed for the purposes of this paper.² It includes references to the current use of indicators in general, and PRIs in particular, in three sample Canadian jurisdictions: Alberta, British Columbia and Ontario. Issues relevant to the further development and use of PRIs also are presented, along with suggestions for the design and application of PRIs.

¹ Signatories to the North American Agreement on Environmental Cooperation (NAAEC) are committed to ensuring effective enforcement of environmental protection legislation and to promoting transparency and public participation in environmental decision making, including enforcement. See, for example, articles 1 and 4(5) of NAAEC, 13 Sept. 1993, Can.-Mex.-US 1994 Can.T.S. No. 3; I.L.M. 1480.

² For further details about the questionnaire used and sources consulted, see Appendices A and B to this paper.

Methodology

Three discrete tasks were undertaken for the purposes of this paper: (1) a review of current literature; (2) consultations and discussions with experts in the areas of social science, evaluation and environmental programs, policies and strategies; and (3) stakeholder interviews.

Literature Review

The library collections of the Environmental Law Centre, Alberta Environmental Protection, and the University of Alberta, as well as materials available through the Internet, were reviewed using a variety of search terms relating to three key issues: (a) the use of indicators, per se, to evaluate the impact of programs, strategies and policies; (b) the relevance and utility of social responses as indicators; and (c) measures of environmental enforcement and compliance programs, policies and strategies.

Sources identified through this process were augmented by suggestions of people interviewed and consulted. A selected bibliography is given in Appendix D.

Consultations With Experts

The selection of experts was based upon the collective expertise of the Environmental Law Centre legal staff and recommendations received in the course of discussions and interviews. Relevant areas of expertise included: behavioral or social science, public relations and communications and environmental enforcement and compliance.

Interviews

Within the three sample jurisdictions (Alberta, British Columbia and Ontario) more than 80 questionnaires (attached as Appendix A) were sent to: (a) members of environmental non-governmental organizations indicating an interest in enforcement and compliance issues; (b) members of industrial associations indicating an interest in environmental enforcement and compliance issues and (c) government personnel involved in communications (public relations), the development of indicators, or environmental enforcement and compliance programs.

Approximately 25 people responded to the survey, mostly through telephone conversations with the researcher. In most cases, the questionnaire was used as a framework for discussion rather than a strict survey instrument.

2 Environmental Enforcement and Compliance Program Indicators: Current Status and Use of PRIs

2.1 The Literature

A survey of existing literature relevant to government evaluation of environmental enforcement and compliance programs indicates that enforcement and compliance indicators have been almost routinely overlooked in favor of other topics—notably environmental quality or “state-of-the-environment” reporting.³ The same can be said of the use of PRIs, although this particular topic has been developed somewhat by the private sector, for the most part in the context of measuring “customer satisfaction”.⁴

A review of pertinent writings of academics and practitioners indicates that, to be useful as indicators of environmental enforcement and compliance programs, public behaviors, attitudes and opinions, PRIs must:⁵

- relate to and be consistent with program objectives and be an accurate measure thereof;
- summarize and simplify information in a way that is useful to regulators and meaningful to the general public;
- be responsive to change and measurable over time; and
- make effective and efficient use of departmental resources (i.e. be administratively feasible).

2.2 International and National Developments

Considerable effort has been expended at national and international levels towards the development and implementation of environmental indicators, either in the context of “state-of-the-environment” reporting or in relation to sustainable development. The Organization for Economic Co-operation and Development (OECD), for example, released a set of core environmental indicators in 1994⁶ while Environment Canada began work on a national set of environmental indicators with the establishment of the Indicators Task Force in 1990.⁷ Similar work has been undertaken at the provincial level.⁸

³ One exception is an article by C. Wasserman and presented at the Third International Conference on Environmental Enforcement, held in Oaxaca, Mexico, 25–28 April 1994. The author notes the difficulty of measuring the success of environmental enforcement programs, identifying such problems as: (a) unreliable data collection; (b) regional and local differences in enforcement priorities; and (c) unintended impact of data collection on enforcement priorities. Nonetheless, he goes on to identify the following as possible performance measures: enforcement results, compliance results, progress in returning significant violators to compliance, measures of compliance monitoring, number of enforcement responses, timeliness of enforcement response, monetary penalties assessed, and measures of technical assistance. See C. Wasserman, “Principles of Environmental Enforcement”, *Third International Conference On Environmental Enforcement*, Oaxaca, Mexico, 13 (1994).

⁴ The authors of the article “Measuring Environmental Success”, for example, identify customer satisfaction as one of three ways to measure the effectiveness of environmental satisfaction measures. They suggest that customer satisfaction can be assessed in three ways: (a) tracking and evaluating purchasing behavior, (b) customer responses to surveys and (c) using focus groups for face-to-face discussions about expectations, issues and satisfaction. See Richard P. Wells, et al. “Measuring Environmental Success”, in *Measuring Environmental Performance* (1993).

⁵ In developing these criteria the following sources were considered Canadian Institute of Chartered Accountants, *Reporting On Environmental Performance* (1994); International Institute for Sustainable Development, *Coming Clean—Corporate environmental Reporting* (1993); Allen Hammond et al., *Environmental Indicators: A Systematic Approach to Measuring and Reporting on Environmental Policy Performance in the Context of Sustainable Development* (1995); Organization for Economic Co-operation and Development, *Environmental Indicators: Indicateurs d’environnement* (1994).

⁶ Organization for Economic Co-operation and Development, *id.*

⁷ The Indicators Task Force is made up of specialists from Environment Canada and Statistics Canada. See Environment Canada, *A Report on Canada’s progress Towards a National Set of Environmental Indicators* (1991).

⁸ See, for example, Government of Alberta, *Measuring Up* (1994), a report prepared by the Alberta government assessing performance of government programs.

OECD has identified three indicator types or categories: indicators of environmental pressures, environmental conditions and societal responses.⁹ The first two categories deal with, respectively, environmental pressures or stresses arising from human activity and the state of the environment.¹⁰ The third category—societal response indicators—refers to measures of individual or collective action to: (a) mitigate or prevent adverse environmental impacts arising from human activity; (b) halt or reverse environmental damage; and (c) preserve and conserve the environment and natural resources.¹¹ According to the OECD model, indicators of each type and category are then identified for specific environmental issues, ranging from climate change to soil degradation.¹²

Virtually the same framework has been adopted by Environment Canada. In a report released in 1991,¹³ Environment Canada put forward 43 indicators in eighteen environmental issue areas for discussion purposes. These served as the basis for consultations with government departments, stakeholders and members of the public.¹⁴ At present, and as a result of consultations, work is proceeding on the development of indicators for sixteen environmental issues.¹⁵

With a single exception, none of the indicators identified by OECD or Environment Canada are directly related to enforcement or compliance programs. The 1994 OECD report does refer to pollution control and abatement expenditures as a non-specific societal response indicator to be used as a “...general indicator of a country’s financial efforts directed at controlling and reducing environmental pressures from pollution....”¹⁶

Environment Canada has identified three key goals for its compliance and enforcement programs: (a) targeting of serious offenders; (b) maintaining a high level of compliance; and (c) recognition of performance leaders.¹⁷ In relation to these objectives, the following performance measures were identified: (a) compliance rates for environmental regulations and laws; (b) numbers of enforcement actions; and (c) trends in incidence of poaching and illegal trade in wildlife.¹⁸

2.3 The Provinces¹⁹

For the most part, Canadian provinces are also at the preliminary stage when it comes to both the development of indicators for enforcement and compliance programs generally and, more specifically, the use of PRIs.

The most recent business plan for Alberta Environmental Protection (AEP), for example, sets out performance indicators for the department’s three primary program objectives, none of which deal directly with its enforcement and compliance program.²⁰ According to AEP personnel, performance indicators for enforcement and

⁹ Allen Hammond et al., *Environmental Indicators: A Systematic Approach to Measuring and Reporting on Environmental Policy Performance in the Context of Sustainable Development* 10 (1995).

¹⁰ *Id.*

¹¹ *Environmental Indicators*, *supra*, note 5 at pp 11–12.

¹² The complete list of environmental issues (for which indicators were identified) given in OECD’s 1994 report is as follows: climate change, ozone layer depletion, eutrophication, acidification, toxic contamination, urban environmental quality, biodiversity, landscapes, waste, water resources, forest resources, fish resources, soil degradation, and general indicators not related to any specific environmental issue. Organization for Economic Co-operation and Development, *supra* note 5, at 12–15.

¹³ *Supra* note 7.

¹⁴ Environment Canada, *Canada’s National Environmental Indicator Series* (Online: Environment Canada’s Folio WWW Server: <<http://www1.ec.gc.ca/~ind>>, accessed 15 July 1998).

¹⁵ *Id.* at 2.

¹⁶ *Environmental Indicators*, *supra*, note 5 at p. 136.

¹⁷ Environment Canada, *Environment Canada: Business Plan 1996/97 TO 1999/2000*, (Online: Environment Canada, The Green Lane: <http://www.doe.ca/busplan/en/chapt_2.htm#results>, accessed 15 July 1998).

¹⁸ *Id.*

¹⁹ This section is based upon a review of the legislation, policies and programs of three sample jurisdictions: Alberta, British Columbia and Ontario.

²⁰ The three goals are: (1) to protect and maintain Alberta’s high quality air, land and water for the health and enjoyment of Albertans; (2) to manage Alberta’s renewable resources for the continued prosperity and benefit of Albertans; and (3) to protect and manage Alberta’s natural heritage for present and future generations.

compliance programs associated with the (Alberta) Environmental Protection and Enhancement Act (AEPEA)²¹ are under development but have not, as yet, advanced to the implementation stage.²² At a program level, numbers, types and outcomes of enforcement responses are tracked, as are calls from the public. AEP program staff use these statistics to give an overview of the enforcement landscape, including current issues, the response of industry and the public to these issues, the impact of investigation and enforcement activity, and so on.²³ It has been suggested that these sorts of measures may, at some future date, be incorporated as indicators.²⁴

In Alberta, there are currently three ways in which the public can have direct input into the Pollution Control Division (the division responsible for enforcement activities under AEPEA):²⁵ (1) through the 24 hour PERT line²⁶; (2) by contacting the Division directly; and (3) by applying for a s.186 investigation.²⁷ On a less regular basis, participants from stakeholder organizations (environmental or industry organizations for the most part) and from the public at large are asked to respond to new legislation, policy or program initiatives. As well, compliance by approval holders is regularly monitored by the Department, and the Pollution Control Division is alerted in the event of non-compliance.

Though not used nor identified as performance indicators *per se*, stakeholder and public input frequently prompt an enforcement response and, more generally, form part of the context in which enforcement and compliance work is undertaken. In addition to a one-on-one response, all calls to the PERT line are reviewed daily by inspectors and regularly by the Director of Pollution Control. If a trend or persistent problem becomes apparent, steps will be taken to address it in a comprehensive and proactive way. The same holds true for all complaints received by the division, regardless of the manner in which they are received.²⁸

The situation in Alberta regarding environmental enforcement and compliance program indicators appears consistent with that in Ontario and British Columbia. According to staff responsible for securing compliance with Ontario's Environmental Protection Act, the impact of their enforcement program is measured informally by "...traditional methods such as the number of prosecutions and the number of fines," while the impact of the compliance program has been measured by the "...traditional method of monitoring complaint response (i.e. are they still complaining)."²⁹ Although performance measures have been developed for the Ministry of Environment and Energy, indicators for enforcement and compliance programs are not among them.³⁰ Enforcement of rules, however, is one of the strategies identified for achieving environmental protection:

We will monitor and enforce the rules that protect our air, water and land. While continuing to be tough on polluters, we will work with other groups to prevent pollution and to achieve common environmental objectives. This includes inviting private enterprise, communities and individuals to find innovative solutions to environmental issues. These solutions will complement existing regulatory approaches.³¹

²¹ S.A. 1992, c. E-13.3 as above mentioned. This Act is the primary pollution prevention-pollution control legislation in effect in Alberta and is administered by Alberta Environmental Protection.

²² Personal communication, Aniko Szojka-Parnell, Strategic Management and Evaluation Branch, Alberta Environmental Protection (April 1997).

²³ Personal communication with Jillian Flett, Compliance Branch, Pollution Control, Alberta Environmental Protection (April 1997).

²⁴ *Supra* note 22.

²⁵ *Supra* note 23.

²⁶ PERT is the acronym for the Pollution Emergency Response Teams (one each in Edmonton and Calgary) operated by the Pollution Control Division.

²⁷ Section 186 of AEPEA allows any two resident Albertans over the age of 18 to apply for an investigation of a suspected violation of the Act or regulations.

²⁸ *Supra* note 22.

²⁹ Correspondence from the Ministry of Environment and Energy, Investigations and Enforcement Branch (13 June 1997).

³⁰ ONTARIO, Ontario Government Business Plans: Ministry of Environment and Energy:1997-98(Online: Government of Ontario: <<http://www.gov.on.ca/MBS/english/press/plans/ene.html#performance>>, accessed 15 July 1998).

³¹ *Id.* at p.4

Ontario is somewhat unique in that public involvement in environmental decision-making, including enforcement, occurs through a separate statute, the Environmental Bill of Rights 1993,³² under the administration of the Environmental Commissioner for the province. As yet no specific measures have been developed to assess the impact of that legislation on environmental enforcement and compliance programs, although the number and nature of comments received in response to postings on the environmental registry are tracked, as are requests for amendments to existing or new policy and legislation.³³

The Pollution Prevention Program of the British Columbia (BC) Ministry of Environment, Lands and Parks is currently responsible for monitoring and promoting compliance with permits and approvals issued under the Waste Management Act,³⁴ the primary pollution control legislation in that province.³⁵ The Ministry is in the process of identifying and refining program performance measures. At present, enforcement program evaluation, including monitoring of enforcement activities and public complaints and concerns, is undertaken by Pollution Prevention program staff and conservation officers.³⁶

Public input into enforcement activities is restricted to reports or complaints to regional offices directly or through the ORR (Observe, Record and Report) program.³⁷ Depending upon the circumstances, complaints will be initially investigated by Pollution Prevention staff with or without the involvement of a Conservation Officer. The number and type of complaints are monitored and reviewed on a regular basis. As in Alberta, members of stakeholder organizations and the public at large are routinely involved in consultations about legislative, policy or program initiatives.

BC's Five Year Action Plan 1997–2001 for the Pollution Prevention Program released last September does provide for the use of "client" and stakeholder surveys as an indicator of the quality of service provided through the program. The BC Ministry of Environment, Lands and Parks is in the process of identifying and refining performance measures. Several PRIs are included in the list of potential performance measures, for example:³⁸

- industry, resource user and public attitudes towards compliance (outcome indicator of pollution prevention, enforcement and compliance);
- number of industry stewardship programs: (a) initiated, (b) approved, or (c) implemented (output indicator of industry stewardship related to pollution prevention and remediation); and
- number of pollution prevention plans (a) requested by industry, (b) initiated, (c) approved, or (d) implemented (output indicator of pollution prevention initiatives related to pollution prevention and remediation).

In addition, the Ministry is considering performance measures for: public consultations and meetings; public and client surveys; general public information correspondence, inquiries and complaints; public and industry project agreements and participation in volunteer programs.³⁹

³² S.O. 1993, c.28.

³³ Personal communication, David MacRobert, in-house counsel for the Environmental Commissioner of Ontario (May and July 1997).

³⁴ S.B.C. 1982, c.41.

³⁵ Personal communication with Ted Sheldon and Greg Cheesman of the BC Ministry of Environment, Lands and Parks (May 1997).

³⁶ *Id.*

³⁷ This program operates two toll free numbers, 24 hours a day, 7 days a week. Callers are encouraged to report violations of federal and provincial environmental laws. The program is sponsored by the BC Ministry of Environment, Lands and Parks; the Department of Fisheries and Oceans Canada and the BC Wilderness Federation.

³⁸ Personal communication, Ted Sheldon, Senior Evaluation Analyst, BC Ministry of Environment, Lands and Parks (May 1997).

³⁹ *Id.*

3 The Potential of PRIs as Measures of the Effectiveness of Environmental Enforcement and Compliance Programs, Policies and Strategies

This section addresses two fundamental questions: (1) are PRIs a useful measure of environmental enforcement programs, and (2) what is required to realize the potential of PRIs?

3.1 Evaluation of PRI Effectiveness

Two sources may be consulted regarding the issue the of the utility of PRIs: (a) experts, including academics who study and practitioners who work with performance indicators; and (b) the source of PRIs, namely the people and institutions whose behaviors, attitudes and opinions make up the response base.

As was previously noted, existing literature has little to say about PRIs or, for that matter, performance indicators in general when it comes to environmental enforcement and compliance programs. Notwithstanding this deficiency, characteristics of useful indicators have been identified. What follows is the application of these characteristics or criteria to PRIs as measures of the effectiveness of environmental enforcement and compliance programs.⁴⁰ In applying these criteria, reference will also be made to the comments and observations of stakeholders and government personnel interviewed for the purposes of this paper.⁴¹

3.1.1 Criterion #1: Accurate and Relevant

To be useful, indicators must relate to and be consistent with program objectives and must be an accurate measure thereof. With respect to environmental enforcement and compliance programs, the question is: are there measures of behaviors, attitudes or opinions that are: (a) relevant to existing objectives of environmental enforcement and compliance programs, policies and strategies; and (b) accurate, in that they are both valid and reliable?

To the extent that environmental enforcement and compliance programs, along with other government programs, policies and strategies, are to be transparent and publicly accountable undertakings, public response, in the form of behavior or expressed opinions and perceptions, is clearly a relevant and, arguably, necessary indicator of success. One of the results Environment Canada wishes to achieve through its compliance and enforcement program over the next several years, for example, is that: “Canadians understand the law, know what is expected of them, and believe the law to be effectively enforced”.⁴² The relevance of public perception is clearly apparent and the use of a PRI might reasonably be assumed. Interestingly, PRIs are not included in the set of program measures.⁴³ The reason for this may be that neither public responses nor measures thereof are universally considered to be either reliable or accurate. Several of the government personnel and most members of industrial associations interviewed for the purposes of this paper considered the general public to be either misinformed or poorly informed. Consequently, these respondents assigned little or no value to public behavior, attitudes or opinions. Representatives of various industrial associations were also inclined to believe that the attitudes and perceptions of members of environmental nongovernmental organizations (ENGOS) were inevitably colored by political agendas and hence of little value. Members from all groups, including ENGOS, expressed concern about the reliability of opinion polls and surveys as measurement tools on the grounds that the questions tended to be too vague, on the one hand, or biased, on the other, and that interpretation was likely to be influenced by the identity of the commissioning agency.

⁴⁰ See comments associated with note 5, above.

⁴¹ See Appendix B for a list of persons interviewed.

⁴² *Supra* note 17, at p. 7.

⁴³ *Id.* The proposed measures are: (a) compliance rates for environmental regulations and law, (b) number of enforcement actions and (c) trends in poaching and illegal trade in wildlife.

3.1.2 Criterion #2: Useful and Meaningful

PRIs must summarize and simplify information about enforcement and compliance programs in a way that is useful to regulators and meaningful to the general public.

It is difficult to predict the ability of any one PRI to satisfy this criterion. Certainly PRIs have been used informally by environmental enforcement personnel for some time. A good example is the use of numbers and types of enforcement responses to gauge activity (output). Another is the use of compliance rates to assess the effectiveness of compliance and enforcement strategies. All three jurisdictions reviewed for the purposes of this paper reported that they monitored both of these indicators. It is interesting to note the reaction to these measures by non-government stakeholders interviewed for the purpose of this paper. Members of industrial associations expressed concern that non-compliance may be a function of unreasonable standards and thus may not bear any relation to enforcement activity; similarly, numbers of enforcement responses may not be an appropriate measure of the effectiveness of such activities. ENGOs were concerned about the validity of compliance rates based upon self-monitoring and reporting by industry. Members from both groups were somewhat skeptical about the ability of government agencies to be objective in assessing their own performance, even with the use of established indicators. Both groups indicated that they would have more confidence in an independent evaluator, for example an environmental ombudsman. Given these responses, it appears that in order for a PRI to be meaningful, there must be a clear and undisputed link between what is measured and program objectives. The measurement tool itself must be perceived as being valid and the interpretation of results must be, and be perceived to be, unbiased.

3.1.3 Criterion #3: Responsive To Change

A useful public response indicator is one that is capable of measuring change in behaviors, attitudes and opinions over time. As with the second criterion, it is likely that individual PRIs will satisfy this criterion to a greater or lesser extent. It is important that the change measured be relevant; in other words, that it be, at least in part, a consequence of enforcement and compliance activities.

3.1.4 Criterion #4: Administratively Feasible

In order to be administratively feasible, PRIs must make effective and efficient use of available resources. Some government personnel interviewed were of the opinion that PRIs might be “more trouble than they were worth”—indicating, perhaps, that the effort needed to develop, implement and interpret useful PRIs was not justifiable, given the availability of other enforcement and compliance indicators, such as compliance rates and numbers of successful prosecutions.

3.2 Suggestions to Implement Effective PRIs

Developments in three areas are necessary to ensure progress towards the effective use of PRIs as measures of environmental enforcement and compliance programs. These areas are: (1) use of existing tools and methodologies; (2) communication; and (3) interpretative models. Each is discussed below.

3.2.1 Existing Tools and Methodologies

As previously noted, environmental enforcement and compliance agencies are currently using behaviors, attitudes and opinions either as (a) informal indicators of the effectiveness of their programs, policies and strategies; or (b) indicators of the issues, people’s priorities and concerns, and so on. Awareness of the relevance of PRIs exists; what is required is a concerted effort to improve the collection and analysis of public responses. For example, when polls or surveys are commissioned by an environmental agency, specific questions particularly relevant to enforcement and compliance could be devised with the input of personnel responsible for those programs. While public perceptions of the adequacy of enforcement activities appear to be regularly canvassed by independent polling companies, all three groups surveyed for the purposes of this paper indicated that the questions asked of

respondents were typically so vague and general as to be virtually meaningless.⁴⁴ The use of focus groups, a not uncommon practice, to target attitudes and opinions about environmental enforcement and compliance programs might also be undertaken on a more regular basis to supplement the information generated through polls and surveys. One source of participants might be people who call environmental complaint or report lines.

3.2.2 Communication

There are two aspects to the communication issue: (a) communication within and between government departments; and (b) communication between departments and the public.

Enforcement and compliance personnel need more input into and more feedback from those responsible for communications and public relations. As indicated above, questions to be asked through polls and surveys require further refinement to be useful as sources of information about the impact of enforcement and compliance programs, policies and strategies. Feedback to enforcement and compliance programs about the results and the significance of polling results is equally important. If the reported practices of the three sample jurisdictions are representative, such two-way communication does not appear to be the norm.

As previously described, there is some reluctance to rely upon public response as a measure of the effectiveness of enforcement and compliance programs, partly because of a belief that public perceptions are not based on “the facts.” There is a need to disseminate accurate information to the public from a credible source in a meaningful manner. Stakeholders interviewed for the purposes of this paper were asked what factors they consider in determining the adequacy of enforcement and compliance programs. The resulting list included the following:

- the nature of the standards enforced: are they reasonable and attainable?
- the state of the environment: were environmental objectives actually met?
- degree of compliance;
- number of enforcement activities compared to the degree of non-compliance;
- the outcome of prosecutions;
- the source of information used to determine compliance and the state of the environment: is the information objective and reliable?
- resources available for enforcement and compliance program activities; and
- consistency of enforcement activities: are like offenses being treated alike regardless of the nature of the activity, location or offender?

With respect to sources of information, both industrial associations and ENGOs rated the reports of independent auditors (for example, an environmental ombudsman) and academics (particularly if they appeared in peer-reviewed journals) as the most credible sources of information about the environment. Both groups agreed that media reports (newspapers, magazines, radio or television shows) were the least credible source of information, although ENGOs viewed them somewhat more favorably than did industry. The groups disagreed about the relative merits of government-generated information, with industry rating it as being of mid- to high-credibility, and ENGOs rating it as having mid- to low-credibility. Industrial associations did not find ENGO-generated information to be of much value (too sensational and tied to an agenda) and ENGOs were highly suspicious of industry-generated information.

⁴⁴ For example the following, reported in the Decima Quarterly Report, Summer 1986: “Generally speaking, how would you describe the penalties imposed on companies that are found guilty of violating environmental regulations? Would you describe the penalties as: too severe? about right? not severe enough? no opinion?”

Comments such as these highlight the need to revisit both the content of communications to the public and the manner in which these are delivered. Specifically, are members of the public able to access information about environmental enforcement and compliance programs, and is this information, in their opinion, credible and relevant?

3.2.3 Interpretive Models

While clearer questions and credible information may be partial remedies for improving the relevance and reliability of PRIs based upon attitudes and opinions, it is the interpretation of behaviors that is problematic. As expressed by one regulatory respondent to the survey: assuming that calls (complaints) into the department are to be used as a PRI, should our target be fewer calls or more? What do numbers of calls, or for that matter, other types of behavior tell us about the impact of enforcement and compliance program activities?

Regulators interviewed for the purpose of this paper uniformly raised the lack of an interpretive or analytic framework as a barrier to the use of public responses, particularly behaviors, as indicators. Current literature offers no solution. None of the sources reviewed address the issue of interpretation.

It appears that this particular deficiency must be addressed through directed research undertaken by behavioral and social scientists, or other knowledgeable experts.

3.3 Concluding Comments

While the identification and use of PRIs to measure enforcement and compliance programs clearly needs some work, it is important to keep in mind that public responses in the form of behaviors, attitudes and opinions, are, in many ways, known quantities. Over the past several years, governments have developed considerable expertise in communicating and consulting with those to whom they are ultimately accountable. It is this expertise that can be put to work to refine PRIs.

Academics can be sources of information about the development of sampling instruments and interpretive models, with the private sector a source of practical expertise, particularly in implementing the proposals of the academics.

In short, implementing a process of effective PRIs is not necessarily a complex or costly undertaking. It can in some instances be limited to a onetime-only exercise, depending on the purpose; for example, to seek public views on a particular enforcement program or tool. On review of current government communications and outreach programs, it appears that much of the expertise already exists. All that may be needed is addition of targeted initiatives to supplement staff skills and budgets to ensure effective utilization of public opinion on enforcement.

Appendix A: Questionnaires

A.1 Government

1. How do you currently measure the success of your enforcement programs ? Is this different from the ways in which you measure the success of your compliance programs?
2. In what ways does your legislation provide for public and stakeholder involvement in enforcement and compliance? What provision is made at a policy level? How are opportunities for involvement provided at a program level?
3. What are the effects of stakeholder and public involvement upon enforcement and compliance programs? To your knowledge, are these effects different, or are they considered differently, from what they were in the past?
4. What, if anything, do you think public and stakeholder involvement brings to the assessment of enforcement and compliance programs?
5. On a scale of 1–5 (1 being most effective) how effective are the following ways of bringing a concern about a particular issue or event to the attention of government:
 - ___ contacting environmental protection officials directly;
 - ___ arranging a meeting with environmental protection officials to discuss the situation;
 - ___ contacting the media;
 - ___ contacting general enforcement agencies (i.e. the RCMP);
 - ___ formally requesting an investigation;
 - ___ contacting the Minister responsible directly; and
 - ___ contacting MP or MLAs directly.

Are there other, more effective ways of accomplishing this?
6. Are behaviors, attitudes and opinions useful performance measures of environmental enforcement and compliance programs? Under what circumstances *could* social responses be useful indicators of performance? *Should* social responses be used to measure performance?
7. How do you currently determine and track public and stakeholder attitudes about enforcement? About compliance? Is this different from what was done in the past?
8. Are polls and surveys meaningful indicators of attitudes and opinions? Why or why not? Are some polls more useful than others?

9. On a scale of 1–5 (1 being the most credible) how credible are the following sources of information about compliance and enforcement?

- ___ reports, summaries by an independent auditor, for example, an environmental ombudsman;
- ___ government performance reports;
- ___ government reports, summaries;
- ___ industry reports, summaries;
- ___ monitoring data—industry;
- ___ monitoring data—government;
- ___ ENGO reports, summaries;
- ___ academic reports, summaries;
- ___ newspaper or magazines; and
- ___ radio or television reports, programs.

10. On a scale of 1–5 (1 indicating the most impact) what impact would the following government activities have on public views about enforcement and compliance?

- ___ releasing reports by independent auditors, such as the report of an environmental ombudsman;
- ___ releasing annual performance reviews;
- ___ releasing government information in the form of news releases, newsletters, etc.;
- ___ holding seminars, workshops or meetings;
- ___ participating in trade shows;
- ___ participating in conferences; and
- ___ responding to individual inquiries, complaints.

Would your answer be different if you were attempting to affect the views of industry? Of ENGOs?

A.2 Stakeholders (ENGOS, Industry)

1. Who do you think is responsible for ensuring compliance with environmental standards? Who is responsible for enforcement? Who should be responsible for compliance programs?
2. What factors do you consider in order to decide whether enforcement and compliance programs are acceptable or not?
3. Do you use the following sources of information? How credible a source is each of these?

<i>Use</i>	<i>Credibility</i> <i>1 (low)–5 (high)</i>
___ reports of independent auditors, like an environmental ombudsman	___
___ government annual performance reports	___
___ government reports, summaries	___
___ industry reports, summaries	___
___ monitoring data—industry	___
___ monitoring data—government	___
___ ENGO reports, summaries	___
___ academic reports, summaries	___
___ newspapers or magazines	___
___ radio or television programs	___

Other?

4. On a scale of 1–5 (1 being the most likely) which of the following actions would you likely take to bring forward a concern about a particular issue or event:

- ___ contact an independent “watch dog” agency, for example, an environmental ombudsman;
- ___ contact environmental protection officials directly;
- ___ arrange a meeting with environmental protection officials to discuss the situation;
- ___ contact the responsible Minister directly;
- ___ contact the media or attempt to bring the issue to the public’s attention in other ways;
- ___ report an offense to general enforcement agencies (i.e. the RCMP);
- ___ if possible, request a formal investigation;
- ___ contact your MLA or MP.

Which of the above is **most likely** to influence government? What, in your opinion, is **least likely** to influence government? What would be the **most likely** way of bringing positive comments to the attention of: (a) government officials? (b) politicians? (c) the public?

5. Do you believe that you are able to influence government enforcement and compliance activities: (a) at a policy level? (b) with respect to their general programs? (c) with respect to a particular event or issue? Is your influence more or less than it was in the past?

6. Do you believe that you are able to influence other stakeholders' attitudes, opinions, and behaviors?
The public's?
7. Do you believe that social response indicators currently influence enforcement and compliance activities: (a) by government? (b) by the regulated community?
8. Do you think that it is important to involve stakeholders in the development of enforcement and compliance programs? With the assessment of these programs? How about the public?
9. What could be done at a government level to promote involvement of stakeholders and the public in the assessment of environmental enforcement and compliance programs?
10. Are polls and surveys useful ways of assessing public and stakeholder attitudes about enforcement and compliance programs? Are some polls or surveys better than others?

Appendix B: List of Questionnaire Respondents *(Interviews or written reply)*

B.1 Government

1. David Bradbury, Program Manager Investigations and Enforcement Branch, Ontario Ministry of Environment and Energy.
2. Greg E. Cheesman, Pollution Prevention and Remediation Branch, British Columbia Ministry of Environment, Land & Parks.
3. Jillian Flett, Head, Compliance Branch, Alberta Environmental Protection.
4. Aniko Szojka-Parnell, Strategic Management and Evaluation Branch, Alberta Environmental Protection.
5. Ted Sheldon, Senior Evaluation Analyst, Corporate Policy, British Columbia Ministry of Environment, Lands and Parks.

B.2 Stakeholders

Note: Questionnaires were sent to identified contacts for environmental and industrial associations listed in environmental directories covering Alberta, British Columbia and Ontario. Associations were selected if an interest in enforcement, law or policy was indicated.

1. Kerry Brewin, Trout Unlimited.
2. Jake Brooks, Independent Power Producers' Society of Ontario.
3. Brian Brown, Central Interior Logging Association.
4. Jim Fisher, Ontario Mining Association.
5. Judy Huntley, Bert Riggall Environmental Foundation.
6. Grey Jones, Western Canada Wilderness Committee.
7. Allan Laws, Canadian Association of Oilwell Drilling Contractors.
8. Brennain Lloyd, North Watch.
9. Frank Markson, Fort Saskatchewan Regional Industrial Association.
10. Greg Norman, Ducks Unlimited Canada.
11. Basil Seaton, Jasper Environmental Society.
12. John Sheehan, Friends of the Peace, Peace River Environmental Society.
13. Peter Sheering, Alberta Wilderness Society.
14. Brian Staszewski, Environmental Resource Centre.
15. Neil Shelly, Director, Environmental Affairs, Alberta Forest Products Association.
16. Andrea Stevens, Northwest Wildlife Preservation Society.
17. Jane Stock, British Columbia Nurseries Association.
18. Cliff Wallis, Canadian Nature Federation.
19. Sally Ulfsten, Stop and Tell Our Politicians.

Appendix C: Other Sources Consulted

1. David MacRobert, In-house Counsel, Office of the Environmental Commissioner for Ontario.
2. Rick Smith, Office of the Commission for the Environment and Sustainable Development, Auditor General of Canada.
3. John Stager, Professor, University of British Columbia.
4. John Thompson, Senior Policy Advisor, Natural Resources Conservation Board, Government of Alberta.
5. Elizabeth Murphy-Walsh, Acting Director of Review & Program Evaluation Branch, Environment Canada.
6. Gina Zsombor, Consultant, Communications Division, Alberta Environmental Protection.
7. Kernaghan Webb, Senior Policy Analyst & Project Team Leader, Office of Consumer Affairs Industry Canada.

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Annex 5

**Environmental Enforcement Indicators
in the European Union and its Member States**

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1 Introduction

The following report is a contribution to a project undertaken by the North American Commission for Environmental Cooperation which examines the effectiveness of government enforcement policies and strategies. The major focus is on the measurement and evaluation of the means to ensure compliance with environmental standards and, thus, the development of enforcement indicators. This report was commissioned to collect information on enforcement indicators for environmental law in the European Union (EU) and its Member States.

Enforcement of environmental law is a complex matter, further complicated in the EU because of the inter-relationship between European environmental policy and the national environmental legal systems.

EU environmental policy—mostly contained in directives—requires implementation and enforcement by the Member States. However, the EU requires a system of monitoring and control to ensure that its legal instruments are correctly implemented and enforced. Enforcement of environmental law in the EU takes place at various levels of government.

It is not the intent here to describe in detail the systems of enforcement with regard to all Member States. Time constraints did not allow the research necessary for such a comprehensive study. Furthermore, reflection on enforcement problems and development of enforcement policies and strategies are new and often thorny undertakings; to get full and accurate information is difficult and time-consuming. This report, therefore, is a first and modest review of this complex issue.

2 Environmental Law in the European Union and its Member States

2.1 The Interplay between European Union Environmental Policy and National Environmental Legislation of Member States

Environmental law in the European Union is no longer a purely national matter for the Member States. The European Union has been given considerable competency in environmental law, which it has used to enact its own environmental legislation in almost all areas of environmental protection. Since 1973, five action programs have been adopted, the most recent in 1993 entitled “Towards Sustainability. A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development”. The areas in which the European Union has adopted environmental legislation are usually classified as follows:

- general matters, including environmental research, environmental information, environmental impact assessment, land-use planning, emergency planning, institutional matters, and financial issues;
- air pollution and noise control, including air pollution control, ozone layer protection, climate change issues, and noise abatement;
- nuclear energy and protection against radiation;
- energy issues;
- hazardous substances, including chemicals, fertilizers, pesticides, and biotechnology;
- waste management;
- water resource protection, including drinking water, surface water, groundwater, coastal and marine waters; and
- nature conservation, including species protection, habitat protection, agriculture and forestry issues, and soil protection.

The common environmental policy of the European Union which leads to legally binding instruments is no substitute for the national environmental policies and laws of the Member States. The common European environmental policy is not exclusive. Responsibility for environmental protection is shared between the Union and the Member States. The division of responsibilities follows the classical rule of concurring jurisdiction: where the European Union has not taken action, the Member State remains responsible. If the European Union has taken action, the competency of the Member States is limited. In such a case, the European Union rule prevails and the national rule of the Member State is no longer applicable.

There are exceptions to this rule. The provisions of the Treaty Establishing the European Community, which provide the basis for European environmental policy, allow for stricter protection at the national level of the Member States. The requirement, however, is that national measures must not jeopardize the objectives of the common environmental policy, and that the Member State in question must communicate the national measure to the European Commission. Sometimes the directives address the problem specifically and concede authority to the national measures of the Member States, particularly when these provide stricter environmental protection.

Another basic principle is the principle of subsidiarity, which is now explicitly provided for in the Treaty Establishing the European Community. Article 3(b), inserted by the Maastricht revision of the Treaty, provides in its second paragraph:

In areas which do not fall within its exclusive competence, the Community shall take action, in accordance with the principle of subsidiarity, only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community.

Most measures taken by the European Union are in the form of directives and, to a lesser extent, regulations. Directives are addressed to the Member States and are binding with regard to their objectives. The Member States decide on the measures to be taken to achieve these objectives. Regulations, on the other hand, are directly applicable in the Member States. Regulations are often used to implement international conventions to which the Union is a party, for example, the Convention on International Trade in Endangered Species (CITES) or the Montreal Protocol.

2.2 Enforcement of European Environmental Policy

It should be noted here that three steps are necessary to enforcement of European environmental policy, the first two being:

- transposition of the European directives to national environmental law of the Member States (“implementation”); and
- application (“enforcement”) of the law as transposed to the national law of the Member States.

The general principle is that the Member States are responsible for enforcing European environmental policy. The Treaty Establishing the European Community contains a specific reference to this principle in its environmental chapter. Article 130 s (4) provides:

Without prejudice to certain measures of a Community nature, the Member States shall finance and implement the environment policy.

The third step is taken at the European Union level. The European Commission is given certain responsibilities and means to monitor implementation and enforcement of environmental policy by and in the Member States. They are described in greater detail in the next chapter.

3 European Environmental Policy and its Enforcement

3.1 Basis of European Environmental Policy

Before the modification of the European Treaties by the Single European Act, which became effective on 1 July 1987, there were no explicit provisions in the Treaties concerning European environmental policy. The European environmental policy was based on the general clause of Article 235 of the (then) EEC Treaty which gave the Community all the powers to take the measures necessary to achieve its objectives. The political consensus which existed since the early 1970s, that the European environmental policy was necessary, helped to overcome the legal gap and, consequently, there were no real disputes about a basis for a European environmental policy.

The Single European Act of 1 July 1987 added explicit provisions regarding European environmental policy to the EEC Treaty (Article 130 (r), (s), and (t) EEC Treaty). The three articles regulated objectives, principles and the decision-making of the European environmental policy.

Another provision which was also added to the EEC Treaty (Article 100 (a)) should be mentioned here. This article concerns the harmonization of national laws and regulations of Member States for purposes of achieving harmonization of the internal market. Environmental laws and regulations of Member States may require harmonization as well. Consequently, a large number of European directives were based on Article 100 (a).

The Treaty of Maastricht (“Maastricht”) establishing the European Union, in force since 1 November 1993, again modified the provisions concerning European environmental policy. The amendments mainly concerned the decision-making process. Before Maastricht, directives based on the environmental policy chapter required unanimity for their adoption. Under Maastricht, most of the decisions are taken by a qualified majority. This procedure, called the “cooperation procedure” (Article 189 (c) EC Treaty), also gives more power to the European Parliament. For some areas (taxes or land-use planning), unanimity continues to be necessary.

The most recent revision of the EC Treaty (by the “Treaty of Amsterdam” of 2 October 1997, to be ratified by all Member States of the EU) also concerned environmental policy. The first, and more formal aspect, is the renumbering of the Articles of the EC Treaty. The relevant provisions, after the entry-into-force of the Treaty of Amsterdam, will be: Articles 174, 175, 176 (instead of Articles 130r, 130s, 130t) and Article 95 (instead of Article 100a). The second aspect concerns the basis of the European environmental policy laid down in Article 174 (new). The requirement that environmental policy be integrated with other policies of the Community has been deleted.

A third point concerns the decision-making procedure. According to Article 175 (new), the “co-decision procedure” replaces the cooperation procedure. The “co-decision procedure” further strengthens the vote of the European Parliament. It is a procedure applying the qualified majority rule. The exceptions provided for in the Maastricht Treaty continue to exist. Unanimous decisions are required concerning taxes, land-use planning, water resource management, and energy policy.

The following chapters of this report continue to refer to the numbering in the revised EC Treaty (i.e., the EC Treaty as modified by Maastricht).

3.2 Enforcement of European Environmental Policy: The General Rule

Enforcement of European environmental policy involves transposition of directives to national laws of Member States and application of these transposed directives, as well as enforcement of regulations which are directly applicable in the Member States. It is the task of the European Commission to monitor the enforcement of European environmental policy. Article 155 of the EC Treaty provides:

In order to ensure the proper functioning and development of the Common Market the Commission shall: ensure that the provisions of this Treaty and the measures taken by the institutions pursuant thereto are applied...

It should be noted that Article 155 speaks of “application” of the European law, which means that the Commission not only must monitor the transposition into national law but also the application of the transposed law and the regulations.

In practice, the monitoring activity of the Commission relates to the following three areas:

- whether the measure of the European environmental policy has been transposed into national law;
- whether the transposition into national law was timely, comprehensive and correct; and
- whether the transposed law is correctly applied in the Member States.

The sources of information available to the European Commission to monitor compliance with the Directives are the following:

- the notifications received from the Member States concerning the transposition into national law;
- direct complaints to the European Commission, mostly by citizens and environmental groups;
- questions raised in the European Parliament; and
- petitions addressed to the European Parliament which the Parliament passes on to the Commission for response.

The European Commission has two key processes it may utilize to monitor enforcement activities of its Member States. The Commission may hold informal consultations and negotiations with the Member State which is alleged not to comply with European measures. Second, the Commission may initiate the formal non-compliance procedure which is provided for in Article 169 of the EC Treaty. This formal procedure consists of several steps:

- communication with the Member State in question requesting a statement by the Member State;
- statement by the European Commission which gives reasons why the Commission believes that the Member State in question has violated European law, this statement being addressed to the Member State;
- if the Member State does not comply with the requirements contained in the statement of the Commission, the Commission may sue the Member State before the Court of Justice of the European Union.

3.3 Measures to Improve Enforcement of European Environmental Policy

3.3.1 *Reporting Directive 1991*

Reporting on the implementation or transposition of European measures is an important instrument of monitoring compliance. In practice, reporting on implementation has often been inconsistent. In the past, reporting requirements outlined in the various directives were different. Sometimes reporting was required, sometimes it was not. Sometimes the requirements regarding the contents of the reports varied, as did the requirements for the frequency of reporting.

In 1991, in order to harmonize reporting requirements, the Council adopted a Directive on “standardizing and rationalizing reports on the implementation of certain directives relating to the environment” (Directive 91/692/EEC; Official Journal of the EC L 377, p. 48, 31 December 1991). It reformulated the reporting provisions for a number of directives and also established a committee to assist the Commission in its monitoring functions.

The Directive provides that for most EC environmental policy directives, Member States must submit reports every three years. Reports shall be drawn up on the basis of questionnaires or outlines drafted and sent by the EC Commission six months prior to the start of the period to be covered by the reports. The reports themselves shall be submitted within nine months of the end of the three-year period covered.

With regard to Directive 76/160/EEC (Directive concerning the quality of bathing waters within the Community), reports must be submitted every year, based on questionnaires or outlines provided by the EC Commission, and submitted before the end of the year. The committee to assist the EC Commission is composed of representatives of the Member States and the EC Commission.¹ The committee submits to the EC Commission drafts of measures to be taken. The EC Commission, however, may take measures which are not in accordance with the opinion of the committee. In this case the measures must be communicated in Council. The EC Commission may then defer the application of the measures, or the Council, by a qualified majority, may make a different decision.

3.3.2 *Fifth Action Programme*

The Fifth Action Programme, adopted on 1 February 1993,² addresses in a separate chapter the problems of implementation and enforcement of European environmental policy. It discusses the reasons why implementation and enforcement of European environmental policy has been weak. The Action Programme specifies a number of factors which in past have contributed to implementation problems, including:

- a lack of overall policy coherence, partly due to an evolving, sometimes shifting, agenda as the scope of environmental policy grew, and partly because much of the environmental legislation was developed in an ad hoc manner;
- the narrow choice of instruments, whereby perhaps too great a reliance was placed on regulation of the “command and control” type;
- the need for unanimous agreement within the Council of Ministers, frequently necessitating political compromise, which has resulted, in some cases, in measures which are difficult to put into practical operation;

¹ Article 6, Directive 91/692/EEC.

² COM(92)23 final, Vol. II, 27 March 1992; Council Decision 93/C/38/01, Official Journal C 138, p. 1, 17 May 1993.

- the preponderant recourse to Directives as the form of legal instrument, which has often given rise to difficulties in their incorporation into quite widely differing national statutory codes and administrative procedures, with consequential problems of interpretation and practical implementation; and
- management inadequacies at all administrative levels, from the Community down to local authorities.³

The Action Programme proposes various strategies to improve implementation and enforcement. First, several institutional proposals are made, such as the establishment of a consultative forum, an implementation network, and an environment policy review group. In addition, proposals were made concerning improvement of legislation, implementation, integration of policies, involvement of the public, environmental liability, and involvement of the European Environment Agency, and regarding the reports on implementation.

More specifically, the implementation and enforcement strategy provided in an Action Programme provides as follows:

- I. A Consultative Forum will be established to provide for consultation and information exchange between the industrial/production sectors, the business world, regional and local authorities, professional associations, trade unions, environmental and consumer organisations and relevant Directorates-General of the Commission; it is envisaged that this Forum will act as an umbrella organisation, with specialist subgroups set up as necessary to deal with specific topics or issues. The common interest in moving towards sustainability and the need to increase levels of awareness and consensus in the application of shared responsibility underline the importance of this Forum.
- II. An Implementation Network [will be established] comprising representatives of relevant national authorities and of the Commission in the field of practical implementation of Community measures; it will be aimed primarily at exchange of information and experience and at the development of common approaches at practical level, under the supervision of the Commission. Without prejudice to the specific responsibilities and prerogatives of the Commission in regard to implementation and enforcement under Articles 155 and 169 of the Treaty, the Network can help to promote consistency in the practical application of Community policy and rules as between the Member States. This will involve, inter alia, exchanges of information on technical developments, compliance initiatives and precautionary actions. Member States might also avail of the Network's expertise or assistance for advice on local or national compliance mechanisms, audits and reporting arrangements.
- III. An Environment Policy Review Group comprising representatives of the Commission and the Member States at Director-General level will be established to develop mutual understanding and exchange of views on environmental policies and measures. It will be modeled on the Committee of Directors-General of Industry which has been operating very effectively for a number of years past. One of its essential purposes is to fill the gap resulting from the fact that communications between the Commission and the Member States on environment issues have largely been confined to deliberation of specific proposals within the Council and exchanges in relation to infringement proceedings.

These three dialogue groups will serve, in a special way, to promote a greater sense of responsibility among the principal actors in the partenariat, and to ensure effective and transparent application of measures. They are not intended to duplicate the work of committees established by Community legislation for the purposes of follow-up in respect of specific measures, nor by the Commission in relation to specific fields of interest such as consumer protection, tourism development, etc., nor by Member States for implementation and enforcement of policy at national level. Finally, they will not substitute the existing dialogue between industry and the Commission, which it is intended to strengthen, in any event.

³ Towards Sustainability, Commission of the EC, COM(92) 23 final, vol. II, p. 75.

Among the practical reforms to be undertaken will be:

Improvement in Legislation

- A more careful choice and preparation of instruments: the legislative approach may not always be the best choice as a first step even though it may have an essential role to play in the longer term.
- Relevant legislative measures and standards should benefit from prior consultation of the Consultative Forum and, before finalisation of content, should be subjected to an “enforceability assessment”.
- Environmental legislation should incorporate specific enforcement provisions, notably where standards are prescribed.
- There should be a practical follow-through on all new legislation in terms of training programmes, seminars and workshops.

Implementation

- Directives adopted at Community level must be transposed in national legislation within the time-frames decided by the Council.
- Clean-up programmes and monitoring plans agreed to in Council must be put in place in conformity with the time-frames adopted.
- All Member States that have not already done so should establish enforcement bodies and procedures to ensure full and equal compliance with both legislative and authorisation-associated requirements.
- The reporting requirements of various Directives and Regulations, recently rationalized by a composite Directive on reporting (Official Journal L 377, 31 December 1991, 91/692/EEC) must be assiduously adhered to.
- Because of the implications for the relative competitiveness of firms within the Internal Market, as well as for the purposes of applying the “polluter pays principle,” a comprehensive review of fines and penalties applied in different parts of the Community will be carried out before end-1993.
- Optimum transparency as regards implementation of legislation and, in particular, as regards authorisations for emissions into the environment must be assured.

Integration of Policies

- In pursuance of the Treaty (Article 130r.2) and the objective of sustainable development, the environmental dimension will be fully incorporated into all other Community policies.
- An assessment of the implications for the environment will be made in the course of drawing up Community policies and legislation with special care taken in the areas of internal market, international trade, industrial, energy, agriculture, transport, regional development and tourism.
- Member States should undertake similar integration by applying environmental impact assessments to their own plans and programmes.
- Non-compliance with EC and national legislation can result in damage to the environment, as well as to property, both in the physical and in the financial sense; it can also create distortions in competition between enterprises. In this context, the provisions of Article 171 of the new Treaty in regard to action by the European Court in the event of non-compliance, including the possibility of imposing a lump sum or penalty payment, could have an important incentive or corrective effect.

Involvement of the Public

- Given their right of access to environmental information (Directive 90/313/EEC [Official Journal L 158/56, 23 June 1990]) the public must be enabled to participate as fully as possible in the decision-making processes for construction authorisations, operating permits, emission/discharge licences, etc.; they have a direct interest in the quality of their living environment, and, in addition, can provide an important spur to good performance by companies in their area—perhaps even as employees or managers; this principle must also apply for information at the disposal of Community institutions;

- An accessible and efficient complaints facility should be developed at local, regional and national level to improve confidence between public, competent authorities and industrial or business establishments. In this context, complaints should be considered less a nuisance than a resource. They are an indication to enforcement agencies of something amiss and can keep the competent authorities in touch with the realities of situations from which they may be geographically remote or which they are not in a position to monitor on a continuing basis.
- Individuals and public interest groups should have practicable access to the courts in order to ensure that their legitimate interests are protected and that prescribed environmental measures are effectively enforced and illegal practices stopped.

Environmental Liability

- The Commission has already proposed a Directive in regard to civil liability for damage to the environment caused by waste (Official Journal C 251 of 4 October 1989).
- As soon as practicable, the Community will establish a mechanism whereby damage to the environment is restored by the person or body who is responsible for the damage incurred; care will have been taken that the “polluter pays principle” is fully respected.
- Where the author of environmental damage cannot be readily identified—for instance, in the case of pollution from diffuse sources—other mechanisms for liability-sharing should be devised.

Involvement of the European Environment Agency

Under the terms of the instituting Regulation, the issue as to whether the Agency should have a role in monitoring implementation of Community measures was postponed for decision in the context of a review to be conducted after its first two years of cooperation. However, as a generator of environmental data, as a body charged with ensuring the quality and comparability of data, and as producer of state-of-the environment reports, the Agency will have a key role to play in the area of implementation and enforcement, in any event.

Reports on implementation

Finally, the Commission will continue to provide reports to the Council, the European Parliament and the general public on the extent and quality of implementation and enforcement throughout the Community. Accordingly, as the quantity and quality of information is improved in consequence of improved reporting by the Member States and availability of more dependable data through the European Environment Agency, together with the potential experience and observations of the proposed Network on practical implementation of Community measures, these reports will serve both as a performance indicator and as an incentive mechanism for general improvement of implementation and enforcement.⁴

3.3.3 Annual Reports by the European Commission on the Application of Community Law

Since the beginning of the 1980s, the European Commission has published annual reports on the state of application of the Community law. These reports also include a chapter on the environment. The structure of the chapter on “Environment” is as follows:⁵

- 1 Introduction
 - 1.1 General situation
 - 1.2 Notification of national implementing measures
 - 1.3 Conformity of national implementing measures
 - 1.4 Incorrect application of Directives
 - 1.5 Freedom of access to information
 - 1.6 Environmental impact assessment

⁴ *Towards Sustainability*, Commission of the EC, COM(92) 23 final, vol. II, p. 75 ss.

⁵ 1996 Report, *Official Journal of the EC*, C 303, p. 48, 14 October 1996.

- 1.7 Action needed
- 2 Situation Sector by Sector
 - 2.1 Air
 - 2.2 Chemicals
 - 2.3 Water
 - 2.4 Noise
 - 2.5 Waste
 - 2.6 Nature
 - 2.7 Radiation protection
 - 2.8 Progress in implementing Directives applicable to the environment

The 1996 Report notes delays in transposal of European Environment Policy, for example, with regard to the Directives on genetically modified organisms (not transposed in Greece and Luxembourg), or atmospheric pollution from new and existing incineration plants (not transposed in Italy). The Report also noted a number of cases where transposition was not in conformity with EC Directives. The Report concludes that action is needed to improve implementation and enforcement of European environment legislation. The following excerpt of the Report illustrates more specific and detailed findings:

“It is clear that the problems regarding implementation of Community environmental law thrown up in past years’ reports have not yet gone away. Delays in notifying national implementing measures are commonplace and national legislation once enacted is often not in conformity with the requirements of Community law. As for the actual monitoring of application of Directives, the frequency of complaints and petitions is evidence that the public are not making use of the possibility of getting administrative authorities and the courts to order measures for the proper protection of the environment.

To improve the application of Community environment law, the Commission will focus its efforts first and foremost on measures to prevent infringement situations from arising. To this end it is planning to make full use of the committees provided for by the Directives to improve the timely transposal of Directives and the quality of transposal instruments.

The Commission is also looking into the possibility of stepping up the frequency of meetings with the national authorities to find the quickest and most effective solutions to problems raised by complaints and petitions.

The fifth programme of action called for the establishment of a network for the application of Community environment law. There is an informal network (IMPEL—Implementation and Enforcement of EU Environmental Law) which has so far been active especially on questions of inspection and monitoring; there is a more and more pressing need for a wider range of activities in relation to the implementation of Community environment law, as provided for by the fifth programme.”⁶

⁶ *Id.*, p.61.

4 European Union Measures to Improve Enforcement of Environmental Law in the Member States

4.1 Overview

A strategy generally recognized as improving enforcement of environmental law is the involvement of the public in administrative procedures and access to courts to challenge administrative actions. A basic requirement for effective involvement of the public is the provision of information. In 1990, the Council adopted a directive on the freedom of access to environmental information, the purpose of which is to harmonize relevant provisions in the laws of the Member States.

Public participation is also addressed in two basic directives which may be considered as cornerstones of the European environmental policy: The 1985 Directive on Environmental Impact Assessment and the 1996 Directive on Integrated Pollution Prevention and Control.

Another approach to improve enforcement is to stimulate the self-responsibility of business. One economic instrument used in a number of industrialized countries is environmental auditing. In 1993 the European Union adopted a regulation which established a voluntary system of auditing in the Union.

4.2 Access to Information

The “Council Directive of 7 June 1990 on the freedom of access to information on the environment”⁷ became effective on 31 December 1992. By this date the Member States had to implement the requirements of the Directive. Not all Member States implemented the directive in time. For example, the Federal Republic of Germany established its environmental information law only in 1994.⁸ The basic provision of the Directive is Article 3. It provides for a right of access to environmental information. The right is granted every individual, and every organization, without obligation to prove an interest. There are several exceptions to the right of access to environmental information listed in Article 3, par. 2 which provide the “classical” exceptions to freedom of information.

A request for information may be refused. However, the authority refusing the request must give reasons. The public authorities from which information is requested are obliged to respond to the request as soon as possible, at the latest within two months. Another important provision is Article 7, which requires Member States to provide general information to the public on the state of environment.

4.3 Public Participation in Decision-Making

Public participation in administrative decision-making is a basic strategy to improve compliance with environmental law. This is recognized in the 1985 “Directive on the assessment of the effects of certain public and private projects on the environment”.⁹ Article 9 addresses public participation by requiring that competent authorities inform the public of the contents of the decision and any conditions attached thereto, and the reasons and considerations on which the decision is based.

The new “Directive concerning integrated pollution prevention and control” provides for public participation as well.¹⁰ The purpose of this Directive is to achieve integrated pollution control procedures in the Member States. In the past, procedures were often sectoral and focused on specific environmental media. Article 15 of the directive addresses access to information and public participation in the permit procedure. It provides that Member States must ensure that the public is provided an appropriate period of time for review and comment on any applications

⁷ *Official Journal of the EC* L 158, (23 June 1990) p. 56.

⁸ Law of 8 July 1994, in force on 16 July 1994.

⁹ EIA Directive 85/337/EEC, *Official Journal of the EC* L 175, (5 July 1985) p. 40.

¹⁰ Directive 96/61/EC of 24 September 1996, *Official Journal of the EC* L 257, (10 October 1996) p. 26.

for permits for new installations or for substantial amendments before the competent authority reaches its decision. Article 15 also requires that any decisions, including at least a copy of the permit and any subsequent updates, must be made available to the public. Similarly, the results of monitoring of releases must also be made available to the public.

4.4 Environmental Audits

The Council Regulation adopted on 29 June 1993 on “allowing voluntary participation by companies in the industrial sector in a Community eco-management and audits scheme”¹¹ established, as is indicated by the title, a voluntary system of environmental auditing. Participation by businesses is voluntary. However, when they choose to participate in the program, they must comply with certain requirements.

The voluntary environmental audit is considered an additional tool to evaluate and improve environmental performance of industries and the provision of the relevant information to the public.¹² The scheme is without prejudice to existing Community or national laws or technical standards regarding environmental controls, and without prejudice to the duties of companies under those laws and standards.¹³ This also means that verification and validation of environmental audits by independent verifiers is without prejudice to the competence of the enforcement authorities in the Member States, with regard to regulatory requirements.¹⁴

The core of the scheme is contained in Articles 3 and 5 of the Regulation:

“Article 3

Participation in the scheme

The scheme is open to companies operating a site or sites where an industrial activity is performed. In order for a site to be registered in the scheme the company must:

- (a) adopt a company environmental policy, in accordance with the relevant requirements in Annex I, which, in addition to providing for compliance with all relevant regulatory requirements regarding the environment, must include commitments aimed at the reasonable continuous improvement of environmental performance, with a view to reducing environmental impacts to levels not exceeding those corresponding to economically viable application of best available technology;
- (b) conduct an environmental review of the site on the aspects referred to in Annex I, part C;
- (c) introduce, in the light of the results of that review, an environmental programme for the site and an environmental management system applicable to all activities at the site. The environmental programme will be aimed at achieving the commitments contained in the company environmental policy towards continuous improvement of environmental performance. The environmental management system must comply with the requirements of Annex I;
- (d) carry out, or cause to be carried out, in accordance with Article 4, environmental audits at the sites concerned;
- (e) set objectives at the highest appropriate management level, aimed at the continuous improvement of environmental performance in the light of the findings of the audit, and appropriately revise the environmental programme to enable the set objectives to be achieved at the site;
- (f) prepare, in accordance with Article 5, an environmental statement specific to each site audited. The first statement must also include the information referred to in Annex V;
- (g) have the environmental policy, programme, management system, review or audit procedure and environmental statement or statements examined to verify that they meet the relevant requirements of this Regulation and the environmental statements validated in accordance with Article 4 and Annex III;

¹¹ *Official Journal of the EC* L 168, (10 July 1993) p. 1.

¹² Article 1(1).

¹³ Article 1(3).

¹⁴ Article 4(5).

- (h) forward the validated environmental statement to the competent body of the Member State where the site is located and disseminate it as appropriate to the public in that State after registration of the site in question in accordance with Article 8.

Article 4

Auditing and validation

1. The international environmental audit of a site may be conducted by either auditors belonging to the company or external persons or organizations acting on its behalf. In both cases the audit shall be performed in line with the criteria set out in part C of Annex I and in Annex II.
2. The audit frequency shall be determined in accordance with the criteria set out in Annex II H on the basis of guidelines established by the Commission in accordance with the procedure laid down in Article 19.
3. The environmental policies, programmes, management systems, reviews or audit procedures and the environmental statements shall be examined to verify that they meet the requirements of this Regulation, and the environmental statements shall be validated, by the independent accredited environmental verifier, on the basis of Annex III.
4. The accredited environmental verifier must be independent of the site's auditor.
5. For the purposes of paragraph 3 and without prejudice to the competence of the enforcement authorities in the Member States with regard to regulatory requirements, the accredited environmental verifier shall check:
 - (a) whether the environmental policy has been established and if it meets the requirements of Article 3 and the relevant requirements in Annex I;
 - (b) whether an environmental management system and programme are in place and operational at the site and whether they comply with the relevant requirements in Annex I;
 - (c) whether the environmental review and audit are carried out in accordance with the relevant requirements in Annex I and II;
 - (d) whether the data and information in the environmental statement are reliable and whether the statement adequately covers all the significant environmental issues of relevance to the site.
6. The environmental statement shall be validated by the accredited environmental verifier only if the conditions referred to in paragraphs 3 to 5 are met.
7. External auditors and accredited environmental verifiers shall not divulge, without authorization from the company management, any information or data obtained in the course of their auditing or verification activities.”

The competent bodies in the Member States register the validated sites (Article 8). The EC Commission is notified of the sites and, in turn, annually publishes a list of all registered sites.¹⁵ Companies may use for their registered sites a statement of participation. However, the statement of participation may not be used to advertise products and may not appear on the products themselves or on the packaging.¹⁶

The preamble to the Regulation specifies that, while the audit scheme at the first stage is limited to the industrial sector, it is considered “desirable to apply on an experimental basis similar provisions to sectors outside industry, such as the distribution trades and the public service.”¹⁷ It also provides that Member States, on an experimental basis, apply provisions analogous to the eco-management and audit scheme to sectors outside industry.¹⁸

¹⁵ Article 9.

¹⁶ Article 10.

¹⁷ *Ibid*, Preamble.

¹⁸ *Ibid*, Article 14.

It should be noted here that a regulation which is directly applicable in the Member States may still leave room for measures taken by those States. According to the Regulation, the Member States are required to establish a system for the accreditation of independent environmental verifiers and for supervision of their activities.¹⁹ Basically, the national law of the Member States must regulate the licensing of environmental verifiers which, for example, the Federal Republic of Germany has done in its law of 7 December 1995. Environmental verifiers must examine the environmental policies, programs, management systems, reviews or audit procedures in the environmental statements to be submitted by the companies.²⁰

¹⁹ *Ibid*, Article 6.

²⁰ *Ibid*, Article 4.

5 Enforcement of Environmental Law in Selected Member States of the European Union

It is likely that most Member States would agree that enforcement of environmental law is deficient and needs improvement. According to available information, however, few countries have started to study the problems or to develop strategies and policies for improvements. Where such initiatives are undertaken, they have focused on sectors, such as water (e.g., Netherlands, or France). The following reviews some examples of initiatives undertaken by selected Member States to implement improved systems for environmental enforcement, including mechanisms to monitor and evaluate compliance.

5.1 Germany

5.1.1 *Competences/ Responsibilities / Structures*

Competences and responsibilities

In the Federal Republic of Germany, the legislative competence or jurisdiction concerning environmental matters is shared between the federation and the *Länder* (the states within the federation). Environmental legislation is, to a large extent, federal legislation. Most of the competence with regard to environmental matters and environmentally relevant matters are concurring competence. Article 74 of the Federal Constitution lists all of these matters. For a few other matters the federation has the competence to enact a framework legislation. This is the case for hunting, nature conservation, water resource management, and allocation of land and land-use planning.²¹ The federation has exclusive competence concerning commerce and shipping treaties, customs and trade matters, trade liberalization, exchange of goods and payments, as well as air transport and railways.²²

Enforcement of environmental legislation is basically the responsibility of the *Länder*. The *Länder* enforce the federal laws (and their own laws) as their own. While supervision by the Federal Government takes place, it is limited to legal questions to ensure that the *Länder* comply with the laws.

There are few areas where the *Länder* act “on behalf of the federation.” An example is the production of nuclear energy. Here the supervisory powers of the Federal Government are larger. The Federal Government ensures both compliance with the federal laws and practicability.

Laws are enforced by federal institutions in the areas of the foreign service, administration of federal lands, federal railways, federal mail, federal waterways, shipping and air transport.

Administrative structures

At the federal level, most environmental competences are concentrated in the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The Ministry was established in 1986, immediately after the Chernobyl incident.

The environmental responsibilities of other ministries are as follows:

- Ministry of Economy: energy, competition issues, mining, industrial installations (not air pollution and noise matters);
- Ministry of Agriculture: agriculture, forestry and fisheries;
- Ministry of Transport: all environmental matters resulting from traffic, road construction, air transport, maritime transport, and navigation on internal waters;

²¹ Article 75 of the Federal Constitution.

²² *Ibid.*, Article 73.

- Ministry for Public Health: environmental matters resulting from the production and marketing of food and drugs;
- Ministry for Public Works: land-use planning and urban planning; and
- Ministry of Research and Technology: promoting environmental scientific research.

There is also a large number of federal institutions which were established mainly to collect data and conduct research. The most important institutions are the Federal Agency for the Environment (*Umweltbundesamt*) and the Federal Agency for Nature Conservation (*Bundesamt für Naturschutz*).

With regard to enforcement, the organizational structure of the *Länder* administration is more important. While there are differences between the 16 *Länder*, some general remarks are possible. With the exception of the small *Länder*, Berlin, Bremen, Hamburg, Saarland, and Schleswig-Holstein, three levels of government must be distinguished: ministries, district governments (*Bezirksregierungen* or *Regierungspräsidien*), and local governments (county governments or municipal governments). Local governments not only enforce federal and state laws, they also assume additional responsibilities when they act as autonomous agencies. These responsibilities may relate to: quality of local environment reports, nature conservation inventories, environmental monitoring, and pilot projects in waste management, to cite a few examples.

With regard to enforcement, the most important levels of governments in the *Länder* are the district governments and the local governments. These agencies are responsible for issuing licenses and monitoring compliance with license conditions. The *Länder* have also established other environmental institutions which are basically responsible for scientific research and advisory services.

5.1.2 Policies, Programs, Plans and Strategies for Improving Enforcement of Environmental Law

In Germany there are no official reports and analyses concerning the state of enforcement of environmental law. No official reports could be identified either on the federal or the *Länder* level dealing with enforcement matters. Therefore it is also not surprising that there are no official policies, programs, plans or strategies for improving enforcement of environmental law in Germany.

Several academic studies undertaken during the past 20 years dealt with deficiencies in enforcement. Some of these were comprehensive in the sense that they deal with all areas of environmental policy; some were sectoral. The most recent comprehensive study on the state of enforcement of environmental law was undertaken by Gertrude Lübbe-Wolff in 1996.²³ What follows is a summary of the major findings (reproduced from pp. xx-xxxviii of the study):

- In Germany there has never been systematic reporting on enforcement of environmental law. Several studies have been undertaken since the 1970s which indicate that there are “massive enforcement deficits.” Deficits exist particularly in areas where administrative agencies take actions on their own initiative (monitoring, supervision, inspection).
- The causes for the deficits in enforcement are: a) deficits in organization and with regard to personnel; b) deficits and problems in existing environmental legislation; and c) enforcement-unfriendly attitudes of all parties involved.
- It may be possible to overcome some of these deficits by privatizing enforcement responsibilities. However, privatization should not completely substitute governmental action. Controls are required to ensure the effectiveness of enforcement.

²³ Lübbe-Wolff, Gertrude, *Modernisierung des Umweltordnungsrechts: Vollziehbarkeit – Deregulierung – Effizienz*, (Bonn, *Economica Verlag*, 1996).

- Some of the deficits result from unclear and conflicting legislation. Therefore, environmental legislation must be modified to make it clear, comprehensive and harmonized.
- In the past, enforcement of environmental legislation was not controlled. It is suggested that an institution be established, for example, an ombudsman, to control enforcement.
- Deficits of enforcement also result from the fact that enforcement measures are at the discretion of government agencies. It is therefore suggested to provide for an obligation to take enforcement action.
- Adjustment periods play a major role in environmental law enforcement. However, in Germany, adjustment and adjustment periods are not regulated. It is suggested that this problem be clearly addressed in environmental legislation.
- Where possible, economic incentives should be used, particularly taxes and charges. It is suggested, however, that economic incentives should not substitute command-and-control action. Economic incentives have the potential to complement governmental action.
- Where possible, regulation should address the risks of substances and products instead of installations and activities. Regulation of substances and products is considered to be more “enforcement-friendly.”
- Deregulation is considered helpful, but only to a certain extent. Deregulation does not mean no action. There are a few techniques which may be used, for example, a provision of objectives to be achieved, instead of a provision of measures to be taken. However, it is suggested that mechanisms be established which control the achievement of objectives.
- Self-regulation measures by industry have a certain potential to improve enforcement. This is particularly the case for environmental auditing. However, here again, it is suggested that such measures should not completely substitute command-and-control measures. They are means to supplement enforcement measures by government.
- In Germany, certain enforcement measures such as inspection need to be strengthened. The powers of inspecting agencies should be clearly defined in environmental legislation.
- Although administrative sanctions exist in Germany, they are not sufficiently effective. It is suggested that administrative sanctions be separated from criminal sanctions, and that the former be purely administrative sanctions, meaning that fault need not be found.
- To improve enforcement, the public must be much more involved than in the past. The public must have access to environmental information, regular reporting on enforcement of environmental law is necessary, and standing to sue in environmental matters must be more liberally accorded than at present.

5.1.3 Enforcement

As already indicated, there are no official reports on the situation of environmental law enforcement in Germany. There is no regular reporting by enforcement agencies. Also, there are no reports of an official nature which deal with enforcement of environmental law. Reliance must be made on academic studies which have been undertaken during the last 20 years. Studies are documented in Lübke-Wolff.²⁴

Those studies indicate that enforcement is weak and inconsistent. Differences exist with regard to licensing procedures where governmental agencies are forced to take actions, and areas such as monitoring and supervision of industrial activities where agencies take actions at their own initiative.

The studies also indicate that there are differences with regard to subject matter.²⁵ For example, enforcement is reportedly stronger in the area of air pollution control than in water pollution control. Enforcement is also stronger in areas where government agencies carry out traditional tasks. Enforcement is weaker where new responsibilities have to be carried out.

5.1.4 Involvement of the Public in Environmental Law Enforcement

The important role the public plays in enforcing environmental law has already been underlined.

Legislation on access environmental information exists in Germany in the form of the European Directive on access to environmental information (see above), which has been implemented via Germany's Environmental Information Act. Citizens and environmental groups have the right of access to environmental information. Problems exist in practice; it seems there are particular difficulties with applying the exceptions to the right of access to information.²⁶

Participation of the public in administrative procedures is widely possible. In particular, procedures such as licensing and environmental impact assessment are open procedures which allow everyone to participate. Participation of the public in other enforcement activities, such as monitoring and supervision, however, is almost non-existent. This may change with the implementation of the European directive on integrated pollution prevention and control, which requires that the public be involved in monitoring. Article 15 par. 2 of the directive requires that the results of monitoring of releases, as required under the permit conditions and held by the competent authority, be made available to the public.

Standing to sue is limited. Only those whose individual rights are affected by government action may challenge the action before administrative courts. There is no citizen suit in Germany. Environmental organizations have standing to sue only with regard to nature conservation matters, and only in a few *Länder*.

5.1.5 Industry Self-Monitoring / Auditing

The European Union Regulation on environmental auditing is directly applicable in Germany (see above under European Union).

²⁴ *Id.*, pp. 1–9.

²⁵ *Ibid*

²⁶ *Bundesgesetzblatt* (Federal Gazette) (1994) I, p.1490.

5.2 Denmark²⁷

5.2.1 Status of Environmental Law Enforcement

Danish society may be characterized as one in which compliance with legal rules is generally good. Danish people obey the laws which they find sensible and reasonable. The degree of compliance, however, may vary individually and with regard to subject matters.²⁸

Generally, the situation of enforcement of environmental law in Denmark is positive, reportedly due to a positive attitude toward environmental concerns. Historically, Danish people (business and citizens) are cooperative, with many disputes being resolved without recourse to formal (administrative or judicial) procedures.²⁹

Inspections of enterprises and of activities with impacts on the environment were not considered necessary before 1986, when on-site inspections became mandatory.³⁰ As a consequence, environmental staff in counties and municipalities, responsible for enforcement of environmental law, increased by 100%.³¹

5.2.2 Responsibilities and Capacities

Municipalities

In Denmark, municipalities are most important for enforcement of environmental law. The available manpower in municipalities is 900 man-years (officers only), 50% of which is used for licensing, planning and other official tasks, and the other half of which is used for advisory tasks (enterprises, 250 man-years; agriculture, 50 man-years; others, 150 man-years).³² Each year, 35,000 site visits are undertaken. This means that each enterprise is visited every third year. The figure does not include the site visits which take place as a result of complaints by, for example, neighbors or environmental groups.

Counties

The available manpower in Danish counties is 1,000 man-years. The most important tasks of the counties are environmental planning, licensing, groundwater protection, waste disposal, recipient supervision (environmental quality monitoring) and enterprise supervision. The counties supervise some 2,500 industrial enterprises, 400 landfills, 500 fish farms, 500 municipal enterprises, and 1,500 municipal sewage treatment plants. All together, counties undertake 6,300 site visits per year.³³

Danish Environment Protection Agency

The capacity of the Danish EPA is said to be from 300 to 350 man-years. The Danish EPA is responsible for the management of chemical substances and for the supervision of other business which for some reason is placed under the supervision of the EPA.

It is important to note that the Danish EPA monitors the supervisory activities of the municipalities and counties. It compiles annual reports on the basis of data submitted by those enforcement agencies. The EPA also hears complaints concerning these activities.³⁴

²⁷ The information on Denmark is based on the publication: *Environmental Administration in Denmark*, Mogens Moe (edited by the Ministry of Environment and Energy, Denmark / Danish Environmental Protection Agency, 1995).

²⁸ *Ibid.*, p. 169.

²⁹ *Ibid.*, p. 170.

³⁰ Revision of the Environment Protection Act; p. 170/171.

³¹ *Ibid.*, p. 171.

³² *Ibid.*, p.172.

³³ *Ibid.*, pp172–173.

³⁴ *Ibid.*, p.174.

5.2.3 Administrative Actions and Measures to Enforce Environmental Law

Danish enforcement authorities are authorized to exercise the following actions and measures to ensure compliance:³⁵ “de facto legalization” concerning activities which are undertaken by enterprises but have minor impacts on the environment; expansion of deadlines, if acceptable reasons for not complying with previous deadlines are given by enterprises; recommendations, with subsequent agreements between enterprises and authorities; warning letters; cessation notices; prohibitions; restoration injunctions; and direct interventions, when enterprises refuse to comply with orders or when acute pollution occurs.

The following outlines the most recent available statistics regarding administrative actions):

	Counties	Municipalities
Supervisory site visits	9,000	35,000
Recommendations	1,250	14,000
Warnings and injunctions	450	4,700
Police reports	100	200
Prohibitions, etc.	30	180

5.2.4 Police and Criminal Proceedings

In general, all negligent breaches of environmental laws are punishable. However, only a small portion of these are reported to the police—from 300 to 500 cases per year.³⁶ Police investigate the cases with the involvement of prosecutors which are part of the police force.

Fifty percent of the cases are settled before they reach the courts. This means in practice that the fines which are imposed are being paid by enterprises or others. As of 1995, some 1,500 criminal environmental cases had been reported.³⁷

It is also interesting to note that in Denmark, in addition to individual persons, enterprises, municipalities and the state may also be penalized. The stigma of being penalized is understood to also have repercussions for the politicians and civil servants.³⁸ So far, however, there have been only 20 cases against municipalities. As of 1995, no case had been brought against the State.

³⁵ *Ibid.*, p.175 et seq.

³⁶ *Ibid.*, p.180.

³⁷ *Ibid.*, p.181.

³⁸ *Ibid.*

5.3 The Netherlands

The Netherlands regularly publishes progress reports on its environmental law enforcement policies and responses.³⁹ The Netherlands makes a basic distinction between administrative and criminal enforcement. Administrative enforcement comprises the monitoring of compliance and, where necessary, the use of administrative sanctions. Available sanctions include: enforcement order; *astreinte* (environmental enforcement bonds); closure order; and license revocation.

A warning is usually issued before these sanctions are used. Criminal enforcement is directed towards the investigation, prosecution and punishment of breaches of the law. It is purely repressive in nature.

5.3.1 Administrative Enforcement

Recent enforcement reports provide information on enforcement with regard to the following laws: Environmental Management Act; Hazardous Substances Act; Nuclear Energy Act; Pollution of Surface Waters Act; Transport of Dangerous Substances Act; Pesticide Regulations; Manure Regulations; and Green Laws (Nature Conservation Laws).

Environmental Management Act

The Act is enforced by the Inspectorate for the Environment, the provinces and municipalities. The Inspectorate for the Environment has regional offices (regional inspectorates) which monitor the enforcement performance of the provinces and municipalities.

According to the report, the number of inspections undertaken in the years 1993 and 1994 has increased. As a result, the number of warnings and official reports has also increased. Enforcement activities of the provinces and municipalities are also reported to have improved in 1993 and 1994.⁴⁰

Contraventions were detected by the Inspectorate for the Environment in 50% of the 16,000 inspections carried out in 1993, and in 49% of 17,000 inspections in 1994. Most contraventions were sanctioned by warning letters. In only a few cases was an enforcement order, an *astreinte* (a temporary closure order), a temporary exemption order, or an official report used.⁴¹

As indicated above, the municipalities are monitored by the Inspectorate for the Environment. Their performance is rated each year and may be classified as poor, insufficient, reasonable, or good. A “reasonable” rating has been given to compliance levels in municipalities.⁴²

Hazardous Substances Act and Decrees

The Act and the Decrees are enforced by the Inspectorate for the Environment. The Report states that compliance with the Cadmium Decree is inadequate, mainly because companies were not aware of the existence of the regulations. The situation of the enforcement of the CFC Decree has improved, with the number of contraventions falling from 38% in 1993 to 36% in 1994.

Nuclear Energy Act

This Act is also enforced by the Inspectorate for the Environment. The Report states that compliance with the regulations of the Act is generally good.

³⁹ The data on the situation of enforcement of environmental law in the Netherlands is based on the document *Sixth Progress Report on Environmental Law Enforcement* edited by the Ministry of Housing, Spatial Planning and the Environment. The Report covers the years 1993 and 1994.

⁴⁰ *Ibid*

⁴¹ 6th Progress Report, p. 11.

⁴² *Ibid*, p. 11.

Pollution of Surface Waters Act

This Act is enforced by the *Rijkswaterstaat* and the Water Boards. The *Rijkswaterstaat* has a separate enforcement action plan entitled “Enforcement in the 1990s, not more but different.” With regard to enforcement, the 6th Progress Report states provides:⁴³

Rijkswaterstaat

For the *Rijkswaterstaat*, 1993 and 1994 were dominated by the implementation of the action plan contained in the policy document “Enforcement in the 1990s, not more but different.” This document, which dates back to 1992, set forth guidelines for the intensification of the enforcement of the Pollution of Surface Waters Act. The objective is to ensure that enforcement methods are consistent, effective and efficient.

The number of reported violations as a proportion of inspections fell slightly during the period under review. Criminal proceedings were instituted in more cases, however. After an initial fall, greater use was made of administrative instruments.

Hardly any situations in which non-compliance is tacitly tolerated occurred during 1993 and 1994. There was an increase, however, in cases where a temporary exemption order was used to anticipate a new or modified licence.

Spills of oil and cargo residues on inland waterways remain a problem. The ban on discharges is difficult to enforce because of the mobile and round-the-clock nature of inland shipping. The Central Commission for the Navigation of the Rhine is preparing regulations to prevent the generation and (illegal) discharge of flush water and cargo residues from vessels.

Water Boards

The sharp increase in the number of inspections made by the water boards (about 47,000 in 1994 compared with about 17,000 in 1991) also led to a rise in the number of reported contraventions. Contraventions expressed as a percentage of the number of inspections fell from 12 in 1991 to 7 in 1994, however.

The use by the water boards of criminal law instruments showed an upward trend during the period under review. As far as administrative instruments are concerned, enforcement orders were used less frequently in 1993 than in 1994, but *astreintes* were employed more frequently.

The designation of investigating officers by the Ministry of Justice some years ago gave rise to problems. For this reason an agreement was made between the Ministry and the Association of Water Boards in 1993 that for various laws the designation of extra-ordinary investigating officers would be based on categories of personnel.

Transport of Dangerous Substances Act

Reportedly, enforcement activities of the National Transport Inspectorate have increased considerably in the years 1993 and 1994. In 1994 there were 22,000 inspections, an increase of 62%, compared with 1993. The increase occurred mainly in the road transport sector. In 1994 contraventions were reported for 13% of inspections, compared with 10% in 1993. Compliance, particularly in the road transport and inland shipping sectors, left much to be desired. There was a slight improvement with respect to road traffic compared with 1993, however. Contraventions are less frequent in the rail and air transport sectors because enforcement can be better targeted in these sectors.⁴⁴

Pesticides and Manure Regulations

Pesticides and Manure regulations are enforced by the General Inspectorate of the Ministry of Agriculture, Nature Management and Fisheries. These regulations are important in the Netherlands as they apply to more than 100,000 farms. Official reports and warnings were reduced by 30% in the years 1993 and 1994. The Report states that, in general, compliance with the Pesticide Regulations was good. With regard to the Manure Regulations, the Report concludes, that according to the impression of the General Inspectorate, the Regulations are being better observed.

⁴³ *Id.*, pp. 13,14.

⁴⁴ *Id.*, p. 14.

Nature Conservation Laws

The laws in question are the Forestry Act, the Birds Protection Act, the Hunting and Shooting Act, the Nature Conservancy Act, and the Endangered Exotic Animals and Plants Species Act. Compliance with the Forestry Act, the Birds Protection Act and the Hunting and Shooting Act was reported to be generally good. Compliance with the Nature Conservancy Act and the Endangered Exotic Animals and Plant Species Act, however, was poor, the latter Acts being “regularly contravened”.

5.3.2 Criminal Enforcement

Contraventions of the environmental laws referred to above constitute offenses under the Economic Offences Act. Most of these cases, however, are settled out of court. Only 20 percent of the cases reach the courts, 86% of which result in convictions.

5.3.3 Trends and Perspectives on Enforcement

According to the Report, progress has been made in tackling situations where non-compliance had been tolerated in the past. Furthermore, in 1994 a project was initiated to design regulations aimed at reducing the incidence of non-compliance. Also, the implementability and enforceability of regulations have been assessed with regard to both new and existing regulations.

Between the central government and the provinces and municipalities, agreements have been arrived at to achieve “adequate levels of enforcement” by 1 January 1995. As this turned out to be too optimistic, the deadline was expanded to 1 January 1997.

For the Netherlands, self-regulation becomes increasingly important. Companies are given more freedom to determine how they wish to meet the environmental objectives. However, monitoring and reporting will be required to provide the information needed by the authorities to determine whether self-regulation is effective and agreements are being honored.

In the future, high priority will be given to tackling serious environmental crime. Extra financial resources are being allocated to the police to cover the costs for a special police investigation.

5.4 Sweden

Sweden publishes statistics on the application of the Swedish Environment and Protection Act. A report received from the Swedish Environment Protection Agency summarizes the activities of the supervising and licensing authorities in 1995:⁴⁵

“In Sweden there are about 7,700 plants that require licences for their operatives. Applications from 1,950 of these have not been examined at all, and 600 have received so-called exemption decisions. The county administrations supervise about 3,950 of these plants, of which 400 are so-called A-objects (licences to be tried by the National Franchise Board). For 11 per cent of the supervised A-objects and 51 per cent of the B-objects supervised by the county administrations and municipal environmental committees, no control programmes have been established. The statistics indicate that the various supervisory bodies are aware of about 16,600 plants, which do not require licences but are required to notify their respective municipal environment committees (C-objects). About 40 per cent of these plants have not made any such formal notifications. Control programmes exist for only some 30 per cent of the plants excluding those who were not notified. More than 930 A and B plants have licences that are more than ten years old. These licences need to be reviewed. About 1 per cent of the new hazardous plants which applied for licences during 1995 were licensed by the National Franchise Board, while the remaining 99 per cent were licensed by the county administrations. During the same period, the municipal environment committees

⁴⁵ *Myndig heternas arbete enligt miljö-skyddslagen* (1995), p. 39.

have considered about 980 notification matters about new activities. Inspections are most frequently made at the most hazardous plants (A-objects). The plants are generally notified about a visit in advance. 325 crimes and offences against the Environment Protection Act were reported during 1995.”

5.5 France

According to available information, in France no comprehensive reports have been undertaken to date on enforcement of environmental law in general. Some data were provided concerning water pollution control in 1995.⁴⁶

The data concern the application of Article L. 232-2 of the rural code, which penalizes the discharge of substances into surface waters, resulting in negative impacts on fish. In 1995, 503 contraventions were submitted to the public prosecutor, of which 82 (16.3%) were dismissed, 263 (52.3%) were settled by arrangements, and 158 (31.4%) were prosecuted.

Water pollution resulted from urban, industrial and agricultural sources. It is classified as follows: chemical pollution (mainly industrial discharges), 20%; organic pollution (urban, industrial, agricultural activities), 30%; pollution by hydrocarbons (various sources, including individuals), 30%.

The Water Act of 1992 (Article 22) provides sanctions for illegal activities leading to water pollution. No statistics, however, were given on its application.

⁴⁶ Communication from the French Ministry of Environment, dated 7 October 1997.

6 Conclusions

This overview is not intended as an in-depth study, but to show that in the European Union and its Member States enforcement of environmental law is understood to be a crucial issue. At least at the level of the European Union, strategies—or, more modestly, “approaches”—have been developed to improve implementation and enforcement of EU common environmental policies. Major steps were the 1993 Action Programme on Sustainable Development and the annual reports on compliance with EU legislation, including environmental legislation. The annual reports regularly analyze implementation and enforcement problems and suggest means for improvement.

These efforts at the Community level will lead to improvements in the enforcement situation, because environmental law in the Member States is increasingly influenced by Community legislation. Control of implementation and enforcement of Community legislation indirectly promotes enforcement of environmental law in the Member States. At the Member State level, so far, enforcement strategies and policies have been initiated in some countries with regard to some sectors. In other countries, such as Germany, enforcement strategies and policies are a matter of academic debate which, some day, may also lead to legal and administrative reforms.

