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Recommendations on Performance Measurement for Environmental Enforcement Authorities of Eastern Europe, Caucasus, and Central Asia

First Draft, 1 June 2006

Environmental compliance and enforcement (ECE) indicators are measurable pieces of information that characterise performance of environmental compliance assurance systems, the impact of these systems on the status of environmental compliance, and various benefits (or losses) directly associated with this status. The current document is a first draft of guidelines that present good international practice in order to improve ECE indicators in the region of EECCA. It will be finalised by autumn 2006 with the aim of being approved at the 2007 annual meeting of REPIN.

ACTION REQUIRED: The participants of the REPIN meeting and other members of the network are asked to comment the current text, identify gaps, and provide their suggestions for a core set of 20-30 ECE indicators to be used in the EECCA region for performance measurement at the national level and for cross-country comparisons.

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FOREWORD

In democratic societies, governments are exposed to increasing pressures to demonstrate and improve the results of their activities. In response to these pressures, various sets of indicators have been used to measure performance, optimise policy and strategy decisions, help to meet targets at the lowest cost for the society, and ensure that authorities are transparent and accountable. Accurate, complete, impartial and easy-to-understand information is needed not only by the public administration, but also by business circles, NGOs, and other stakeholders.

Environmental Compliance and Enforcement (ECE) indicators have recently been gaining attention in the international context as important measures of public authorities' efforts to promote compliance with environmental laws and regulations. For example, the "Guiding Principles for Reform of Environmental Enforcement Authorities in Eastern Europe, Caucasus, and Central Asia (EECCA)" called for application of indicators that would allow the assessment and continuous improvement of compliance assurance programmes. This policy document was endorsed in the Ministerial Declaration at 2003 Kiev "Environment for Europe" conference and 56 participating countries were called to implement its recommendations. Globally, the International Network for Environmental Compliance and Enforcement (INECE), in the partnership with the OECD and other partners, has developed the "Performance Measurement Guidance for Compliance and Enforcement Practitioners".

The current document describes good international practice that could help to improve performance measurement frameworks used by environmental enforcement authorities in the region of EECCA. It builds upon the INECE guidance and the results of two in-depth country studies in Armenia and Russia, a regional inventory of ECE indicators, and discussions within the Regulatory Environmental Programme Implementation Network (REPIN) of EECCA.

The development of this document is one of the activities undertaken within the OECD programme of work with non-member countries in the context of the Task Force for the Implementation of Environmental Action Programme for Central and Eastern Europe (EAP Task Force), for which the OECD Environment Directorate serves as a secretariat.

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INTRODUCTION

Purpose and target audience

1. The environmental enforcement authorities of EECCA need improved performance measurement tools that would serve as basis for sound policy and operational decisions. To facilitate this task, the current document provides good international practice on designing and using Environmental Compliance and Enforcement (ECE) indicators.
2. The guidelines are mainly intended for environmental authorities:
 - **Staff of environmental enforcement authorities**, in particular managers, are the primary audience for the Guidelines as they are responsible to monitor operations, adjust strategies, allocate or redirect appropriate resources (both human and financial) to specific programme elements, and enhance accountability to stakeholders and the public. They can use the guidelines to initiate, design, and implement reforms of ECE indicators;
 - **Senior policymakers** in environmental ministries can use the guidelines to lead their implementing branches toward performance-based management.
3. Other stakeholder groups can also benefit from the current document:
 - **Legislators and Ministries of Finance** can become aware of ways to get a full account of the functioning and impact of environmental compliance assurance systems and will make better informed decisions about re-designing regulatory framework and allocating budgetary resources;
 - **Citizens' environmental organisations** can monitor operations or environmental enforcement authorities and ensure that they carrying out their mission in a publicly accountable manner.
 - **International organisations** can use an additional performance measurement tool when designing, monitoring, and evaluating environmental projects and programmes they support.

Challenges of performance measurement in EECCA

4. In EECCA countries, over thirty core ECE indicators are routinely collected within relatively structured frameworks. Examples of key indicators are the number of inspections, number of violations, number of fines and amounts collected, and number of criminal cases. The scope of collected data is quite comprehensive: Commonly, the ECE indicators cover the entire corpus of environmental legislation and are broken down by media-specific programme areas, by industry sector, and geographic area. Often non-compliance patterns are analysed by specific articles of the Administrative and Criminal Codes. Regular reporting to internal and external audiences ensures a certain level of transparency and accountability.
5. At the same time, indicators are designed around activity counts and much less attention is paid to their use to make strategic and operational decisions. Enforcement authorities measure the intensity of inspection and the extent of application of enforcement tools without showing the connection between

these activities and expected behaviour (compliance) and environmental changes. Reports miss data analysis and are not tailored to stakeholder needs. Other major problems include:

- A widespread use of output indicators as “targets” and association of high performance with high numbers of inspections, investigated violations, or monetary sanctions applied regardless their behavioural and environmental effect;
- Lack of indicators that would demonstrate causal links between activities and environmental results;
- Absence of measures of cost-effectiveness;
- Poor standardisation of terminology and processes used for performance measurement that opens up opportunities for misinterpretation or manipulation of data;
- Absence of ECE indicators that would cover the application of innovative instruments of compliance assurance.

6. Demand for ECE indicators is growing as recognition is growing that continuous feedback from practice is needed to correct environmental legislation and policies. Currently, such feedback is limited and when a law or a policy proves to be ineffective government officials often yield to the temptation to issue a corrective document without understanding the roots of failure. Such a scenario, which perpetuates “symbolic” regulation and policy-making, becomes a serious threat to governments’ credibility.

OVERALL DESIGN OF PERFORMANCE MEASUREMENT SYSTEMS

Basic notions

7. Performance measurement is the process of (i) developing indicators whose values can be systematically tracked to assess progress made in achieving predetermined goals and (ii) using such indicators, and other tools, to actually assess progress. Performance measurement is just one element of strategic management that involves an iterative cycle of planning, budgeting, implementation and evaluation. By generating and analysing indicators, performance measurement supports the decision making process.

8. A performance measurement system consists of indicators, a formalised data collection process, and a diagnostic tool that describes performance implications of the data, e.g. compares actual performance with a benchmark or a target. Indicators are defined as measurable pieces of information (parameters, or value derived from parameters) that describe a phenomenon/ environment/ area and possess a synthetic meaning.

9. Environmental compliance and enforcement (ECE) indicators are measurable pieces of information that characterise performance of environmental compliance assurance systems, the impact of these systems on the status of environmental compliance, and various benefits (or losses) directly associated with this status. Compliance is a response to regulation and compliance assurance manifested through the state of technical and behavioural conformity with regulatory requirements. ECE indicators are performance measures that help authorities to maximise the results of environmental regulation at a minimum cost for society. They are indicators of societal response to environmental challenges. If analysed in combination with indicators of environmental conditions, ECE indicators can help to assess the quality of policies, laws, and regulations.

Purpose of performance measurement

10. Environmental enforcement authorities should ensure that the design and use of ECE indicators satisfy the following needs:

- Demonstrate the degree to which environmental enforcement authorities are achieving their goals and desired results, and motivate further improvement;
- Monitor programme operations and help to ensure that resources are estimated, budgeted and used appropriately to accomplish strategic and annual activity plans;
- Support activity planning and optimise compliance assurance instruments and their mixes;
- Facilitate the use of human, material and financial resources in a cost effective way;
- Guarantee coherence and coordination across national and sub-national agencies, specific compliance assurance programmes, and jurisdictions;
- Enhance transparency and accountability towards external stakeholders, including legislative bodies, central budget authorities, non-governmental stakeholders and the general public.

11. In modern compliance assurance systems, the major aim of ECE indicators is to help policy makers and programme managers determine whether the pursued goals and the strategies to achieve compliance within the regulated community are working. Commonly, results of such evaluations are used as a basis for identifying problem areas and making changes in the design of strategies to improve environmental effectiveness and cost efficiency. Therefore performance measurement should be fully integrated into strategic management thus placing strategy and vision, goals and objectives in the focus of policymakers and managers. This should stimulate enforcement agencies to set realistic and measurable targets, and select the most effective and efficient mechanisms for assuring regulatory compliance.

Minimum criteria for assessing and selecting indicators

12. The ECE indicators should have the following characteristics:

- **Relevant:** reflecting the compliance assurance goals and the needs of external stakeholders;
- **Transparent:** promoting the understanding about organisation's operation and performance and ensuring accountability;
- **Comprehensive:** addressing the important programmatic and operational aspects;
- **Reliable, credible and feasible:** being based on data that are complete and accurate, as well as incorporating advanced information technology;
- **Functional and feasible:** encouraging constructive behaviour among staff members and balancing the cost of measurement, data collection and analysis with the value of this information.

13. There is no absolute set of indicators that can be applied to all situations: What works for one country or one regulation might not work for another. Therefore, these criteria need to be adapted to country specific circumstances.

SCOPE OF INDICATORS

14. Indicators should be used at all levels of implementation (national, sub-national, and municipal). Differences may well exist between various sets of indicators used by authorities at national and sub-national levels and still those sets be adequate to the mandate, goals and strategies of a given authority. National-level sets of indicators should be designed to ensure comparison between various assessments and reveal any lack of cross-national coherence.

15. A combination of indicators – covering the profile of the regulated community and instruments of compliance assurance, measuring input, output and outcomes, generic or project-specific, aggregated and disaggregated, from a national and local perspective – should be used. The number of indicators should, however, be limited to those ones that are essential for producing data that aids programme evaluation and decision-making.

Major clusters of indicators and the need for sub-categories

16. At a minimum, ECE indicators should reflect:

- **The regulated community:** This category should give a good understanding of the profile of the regulated community. First of all, this concerns the number of facilities belonging to largest polluters and small and medium sized enterprises needs to be known. Authorities have to know the number of issued (valid and expired) permits or other documents authorising a certain level of environmental impact, use of a particular technology, etc. Other useful parameters can be the age of infrastructure (both production and pollution control facilities), costs of compliance, and any other information judged useful;
- **Instruments of compliance assurance:** Indicators are needed to characterise (i) compliance promotion (e.g. number of training hours provided to the regulated community, inquiries per specific topic or piece of legislation, web site hits, etc.); compliance monitoring (e.g. number of self-monitoring reports from industry, on-site visits, in-depths assessments, complaints from citizens, etc.), and enforcement (number of administrative and criminal cases, specific sanctions applied, imposed and collected monetary penalties, etc.);
- **Institutional capacity and governance:** Institutional capacity can be assessed based on the quality and quantity of resources, e.g. number and training level of personnel; the capacity to commission sampling and analysis of regulated pollutants, etc. Adherence to good environmental governance can be measured, e.g., using the rate of confirmed appeal cases, the rate of satisfied information enquiries from citizens or the regulated community or time of delay in responding to such enquiries;
- **Achievement of strategic results:** This category can include, for instance, compliance rates, amount of recovered economic gains that facilities obtained through unlawful activities, integrated indices of environmental performance (such as “Operator Performance Rating” in England and Wales), or simpler parameters, such as frequency and gravity of accidents within the sector, number and seriousness of violations, amount of emissions and their reduction due to enforcement actions, use of environmental management systems, etc.

17. Within major clusters, authorities need to use categories and sub-categories of indicators. For instance, the category of “compliance monitoring actions” (belonging to the “instruments” cluster) can include such sub-categories as information requests, on-site visits, in-depth investigations, and offsite review of company’s reports. Regulated facilities can be grouped according to their (i) risk for the environment and (ii) compliance profile. Non-compliance episodes can be classified according to their seriousness. And so on.

18. Within each category of indicators, the share of its different elements could be determined, *e.g.* the share of planned inspection versus complain-driven or other kind of reactive inspections. This can help authorities to detect patterns of problems and facilitate targeting.

Aggregation levels

19. Dealing with cases collectively can often be more cost-effective, particularly if this highlights an industry-wide problem that the industry itself may not see, or when it points to patterns of problems in different sectors or regions. In order to identify high incidence phenomena (*e.g.* most common violations in a sector or geographic area), authorities should pursue the practice of aggregating and analysing ECE indicator data according to:

- Segments of the regulated community (*e.g.* industrial sectors, municipal utilities),
- Environmental media (*or:* environmental concerns, major legal acts), and
- Geographic areas (*or:* jurisdictions, environmental enforcement authorities).

20. At the same time, aggregated data should be complemented with facility-specific data. For example, authorities should be able to search for all seriously non-compliant facilities, or those out of compliance for the longest period of time. Presenting facility-specific data is much in line with interest of the general public: Generally, people are interested in what is happening in their neighbourhood, rather than in country-wide information as the citizens cannot associate it directly with their own welfare.

Correlation with programme elements (inputs, outputs, and outcomes)

21. The environmental enforcement authorities should use the programme matrix (logic model) to correlate indicators with programme elements as shown in Figure 1 below. 22. The **programme matrix** is a theoretical “road map” of the programme implementation, upon which the ongoing progress assessment and final evaluation of performance are based. Within this framework, indicators characterise:

- **Inputs:** Inputs include time, staff, funding, materials, equipment and the like that are necessary to carry out an activity. Input indicators can be used to show government’s commitment and are important components for determining programme efficiency and return on investment when considered together with outcomes;
- **Outputs:** Outputs are activities, events, services and products that reach a regulatee. These indicators demonstrate a level of effort toward an outcome, but they do not indicate the degree to which the outcome is achieved;

- **Outcomes:** Outcome indicators measure the results of an agency's outputs, and are generally divided into two categories: (i) **intermediate outcome indicators** that measure progress toward a final outcome, such as a change in behaviour or other results that contribute to the end outcome; and (ii) **final outcome indicators** that measure the ultimate impact of activities.

23. If used correctly, a programme matrix clearly demonstrates causal links of a chain from inputs and activities to outcomes. Within this framework, the environmental enforcement authorities should use a mix of input, output, and intermediate indicators in order to identify what types of activities produce results most effectively and adjust strategies accordingly. Intermediate indicators are needed to be introduced to overcome the limitations of current indicators that fail to reflect environmental results, reveal very little about the state of compliance (*i.e.* what percentage of the regulated community is in compliance or what the level of compliance is in its key segments) and do not assess the success of strategies and tools.

Figure 1. Sample programme matrix

The hierarchy of programme elements:	Examples of indicators:
<p>FINAL OUTCOMES State of the environment</p> <p>↑</p>	<ul style="list-style-type: none"> • Improved water quality (e.g. sufficient oxygenation) • Reduced bioaccumulation of pollutants in food chains
<p>INTERMEDIATE OUTCOMES Behaviour change or reduced pressure on the environment</p> <p>↑</p>	<ul style="list-style-type: none"> • Greater understanding of rules and of how to comply • Improved practices at the regulated facilities • Increased compliance rates • Reduced emissions of pollutants
<p>OUTPUTS Activities</p> <p>↑</p>	<ul style="list-style-type: none"> • Compliance assistance provided • Number of inspections conducted • Enforcement actions taken
<p>INPUTS Resources</p>	<ul style="list-style-type: none"> • Personnel • Facilities • Funds for operational and capital expenses

Source: Based on Performance Measurement Guidance for Compliance and Enforcement Practitioners, INECE (2005).

24. Outcome indicators should be monitored but they cannot be a reliable means of institutional performance because outcomes are influenced by many factors and there is a weak causally linked to the activities of a single actor. Also, measuring changes in end outcomes can be very expensive, the end outcomes may take years to appear, and improvements in end outcomes (such as air or water quality) can be influenced by many factors beyond the scope of government activity.

ANALYSIS OF DATA: INNOVATIVE APPROACHES

25. In order to create value, performance indicators should be not only collected, but also analysed and used to make decisions, for instance, validate the compliance assurance strategies or, on the contrary, reveal problems in the design of these strategies. Improving data analysis should become a priority for EECCA environmental enforcement authorities as this is likely to substantially increase the value of data that are currently collected and filed away without their users realising that potential value.

Compliance rates

26. Environmental enforcement authorities of EECCA should start routinely monitor the percentage of facilities in compliance with environmental laws – the so-called “compliance rates” – within specific segments of the regulated community. These can be derived based on currently collected data. It is recommended that compliance rates cover only the most significant requirements. When reporting compliance rates, it should be indicated the percentage of facilities where compliance was checked in comparison with the entire universe of regulated (controlled) facilities.

27. Environmental enforcement authorities should take into consideration the fact that the reasons for which facilities are chosen for inspection can dramatically affect the calculated compliance rate. A poor compliance rate would be naturally expected if authorities inspect facilities on the basis of complaints or other information suggesting the presence of a problem. In general, it will be difficult to extrapolate such compliance rates to all other facilities. This requires to periodically abandon the strategy of targeted compliance monitoring and to inspect random samples of various sectors of the regulated universe, which can be determined using statistical modelling. Sound approaches are needed for selecting a statistically valid subset of facilities to inspect since in practice no government agency can afford to inspect all the facilities every year.

28. Sometimes interpretation of compliance rates poses difficulties, *e.g.* a high compliance rate can be misleading if the largest polluters remain out of compliance (or out of control indeed). Because of such difficulties of interpretation, it may not be reasonable to keep programme managers accountable for changes in compliance rates. Compliance rates, however, can serve as a surrogate measure of environmental protection. They can give a clear signal for keeping up management attention in specific areas and are more constructive measures of performance than relying on input and output counts alone.

Timeliness of response

29. The environmental enforcement authorities should be able to determine the timeliness of response – the time it takes to either respond to a violation, or achieve compliance. Ideally, many types of enforcement actions should be as swift as possible so that the offender can be returned to compliance as quickly as possible. Timeliness can be evaluated by monitoring trends and, sometimes, by comparing actual results against predetermined goals. Success is then measured by comparing the actual schedules with these timeliness goals. Goals can only be set for those types of enforcement actions that consistently take a predictable time to complete. These are usually the earlier and more routine (administrative) enforcement actions.

30. Enforcement actions involving later stages of legal procedures are generally too unpredictable to be evaluated in this way. Judging performance based on time for completing an action may not be possible or appropriate in some cases, such as criminal cases, that required detailed investigation before an enforcement action is filed. Care may be necessary to ensure that use of timeliness as a measure of programme success does not encourage enforcement personnel to take simple administrative action instead of a more time-consuming court enforcement action.

Use of ratios and indexes

31. The practice of calculating ratios and indexes should be introduced to allow comparison between indicators of the same or different kind and make relationships visible and interpretable. This can provide information on the efficiency of an activity, on the intensity of an impact, or on the quality of a value or achievement. Furthermore, ratios and indexes can help determine linkages between environmental performance and compliance behaviour, on one hand, and the economic and social dimensions of development – on the other hand.

32. Also relative figures can be useful in comparing two authorities of different organisational scale. Normalised data, which relate an absolute figure (e.g. number of inspection) to a common denominators (e.g. number of large facilities), will enable programme managers to compare the relative performance of two units in assuring compliance, regardless of differences in size, and determine factors that drive higher or lower performance. It is important that environmental enforcement authorities use only those that are important for their programmes, best capture the message that needs to be communicated, and support internal decision-making.

33. Several ratios and indexes can be calculated on ready-available data, for instance:

- Ratio of facilities holding a permit in relation to the total number of regulatees that is subject to permitting – this can describe the rate of spontaneous compliance, but also can indicate the gaps in outreach programmes or insufficient severity of non-compliance responses;
- Ratio of facilities inspected in relation to the total number of regulatees – it can describe the enforcement presence of authorities;
- Index of personnel available per 1,000 large facilities and 10,000 Small and Medium-sized Enterprises (1995 = 100) – it can identify sharp changes in the institutional potential;
- Ratio of factual inspector salary to the minimum consumer basket – describes the incentive framework for personnel's integrity.

Visual presentation of data and links to interventions

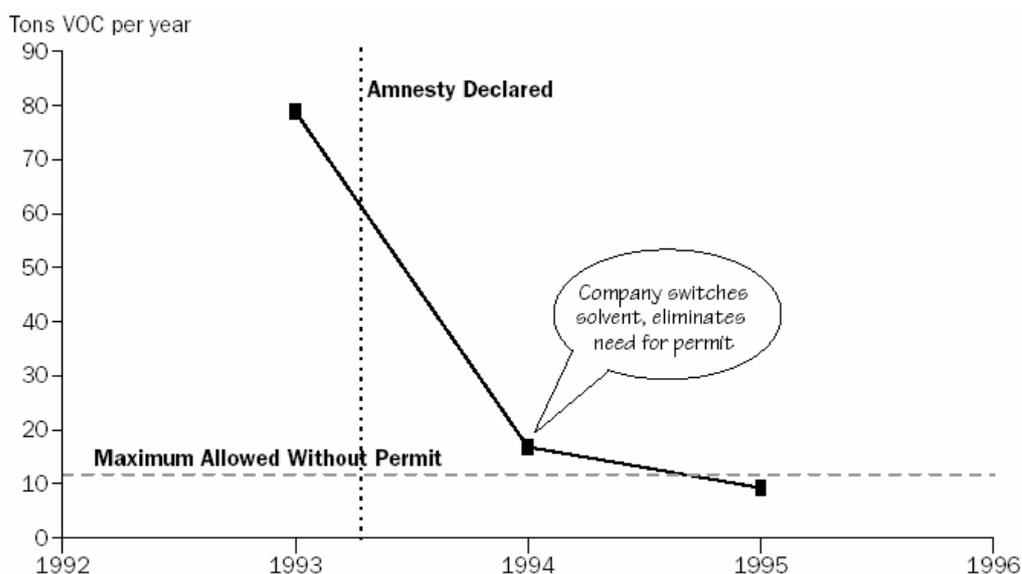
34. Visual presentation of data should be used to facilitate explanation of concepts, statistics or facts. By using visual representation of performance information (e.g. tables, charts, flowcharts, maps, etc.), agencies could help themselves set priorities and target action on the most pressing problems. Progressively, Geographic Information Systems (GIS) could be used to identify geographic patterns of non-compliance, e.g. to view the compliance status of all facilities in a watershed in the context of integrated water management.

35. Stronger emphasis should be put on the use of trends over time or comparisons across sectors, regions, or agencies. Trend data is important so that changes in performance over time or compared to a reference point can be assessed. Also trends can be depicted relative to interventions whereby information about

non-compliance should be linked to information about the enforcement action taken in response. Box 1 illustrates how adding information about the date of an agency action onto a graph imparts a better understanding of whether an agency action accomplished the intended results.

Box 1. Combining Trend Data with Dates of Agency Actions: An example from United States

The figure below captures what happened at one business after a state pollution control agency announced a one-time amnesty for sources that immediately and voluntarily disclosed that they had emitted volatile organic compounds (VOC) without the required permits. This firm disclosed its discharges, conducted a pollution prevention analysis, and switched solvents to bring emissions of VOC below the level required to obtain a permit. By threatening enforcement but offering a one-time dispensation for cooperating companies, the amnesty program seems to have achieved the desired effect of reducing pollution. The company benefited as well. By switching solvents, it avoided the costs of securing a permit. It is not our intent, by showing this graph, to argue for or against amnesty programs, but rather to suggest how data in agency systems could be used to assess their effectiveness. With continued trend tracking, the agency could monitor whether or not effects such as the one seen here are sustained over time.



Source: Metzenbaum, S.H. (2003) More Nutritious Beans, in: The Environmental Forum, March/April 2003, The Environmental Law Institute, Washington, D.C.

Comparative assessments with strongest performers and in retrospective

36. Environmental enforcement authorities should adopt benchmarking of their own performance and also the performance of regulatees. Within this approach, performance is improved based on studying the strongest performers and circumstances that underpin stronger performance. In practice, leaders can serve as *de facto* goal setters. Benchmarking is not a quick fix, done once for all time. Benchmarking efforts may extend over a number of months and it is vital to repeat them periodically so as not to fall behind in rapidly changing circumstances when good practices become outdated.

37. Sometimes, benchmarking does not necessarily identify best practices, because stronger performance may be explained by conditions or characteristics not related to the actions of government. Studying the strongest performers can, however, lead to the identification of the factors that do explain strong performance levels and motivate performance as fair comparisons with “peers” can be stimulating factor.

38. Also comparison should be made with previous years, analysing positive or negative changes in the performance of a given jurisdiction. Such retrospective comparison has the potential to boost performance due to the intrinsic desire to improve performance and achievements over time.

REPORTING

Needs of different audiences and ways to reach them

39. Disclosing performance – making available or disseminating data and indicators – is crucial in order to show value and raise agency’s credibility, establish a positive public image and raise society’s support. Greater transparency of an environmental enforcement authority should be ensured within different audience since their needs are different. For instance:

- Internally, ECE indicators are used to adjust strategies and tools, and develop budgets;
- The legislature and the government can use information to make policy and funding decisions;
- The regulated community can use ECE information to estimate their compliance and environmental performance, and compare themselves to their competition;
- Environmental NGOs can use ECE indicators to act as “watchdogs”; and
- The general public can use information to make consumer and community-based decisions.

40. Diverse mechanisms could be adopted to reach different audiences, such as:

- Publication of annual plans and annual reports (in hard copy and on the Internet);
- Development of data bases with ECE indicators that are accessible via Internet;
- Personal communication with stakeholders;
- Issuance of press releases and articles in mass media, etc.

Language and structure of communication products

41. The language and structure of any communication product should make the access to information easier. Meaningful headings and subheadings should be identified to help the reader grasp the important information as quickly as possible and easily navigate through the document. Reports should have concise (up to 4 pages) executive summaries to give programme managers and policy makers, and other stakeholders, an overview of the main findings and recommendations of the report that they can digest easily in a short amount of time. Writing style should be clear and simple, so as ideas are easily and quickly understood by the reader.

42. Publicly disclosed information should be simple but not simplistic. It should be provided in a context that allows meaningful interpretation, and visualized to facilitate understanding. Statistics about non-compliance or enforcement actions should be accompanied with brief narrative information. Aggressive information campaigns at the time of significant events will stimulate people's interest in ECE issues. In order to reach the general public more effectively, it might be useful to identify up to 10 indicators that present a high interest for mass-media.

Structure of annual reports

43. Annual reporting should be extended to fully fledged reports that contain narrative description, analysis of ECE indicators, and policy recommendations. The annual reports could be structured around the following headings:

- Goals, organisation and resources of the enforcement authority;
- Overall performance, including analysis of instruments and cross-programme comparison;
- Issues (medium)-specific results and challenges;
- Progress in regions;
- Compliant tracking and public relations;
- Inter-agency co-ordination and feedback;
- Financial reporting.

44. Besides data about performance for the current year, the annual reports should also provide data about performance in the previously completed fiscal/calendar years to set a retrospective benchmark.

Limitations in disclosing information

45. The environmental enforcement authorities should be informed about and take into account of certain limitations in disclosing information about environmental compliance assurance programmes and their results. These limitations will be mainly caused by:

- ***Danger of abuse of public information by the regulated community:*** Is it possible that putting data and agency strategies online will reveal too much information to regulated entities, allowing them to adapt their behaviour to avoid enforcement actions;
- ***Confidentiality and security limits of information disclosure:*** Very little information cannot be reported publicly because of its confidentiality. At the same time, there are indeed security concerns in publishing facility locations on the Internet, especially for plants with hazardous material.

46. Internal guidelines on dealing with media inquiries should be developed. In any communication with media about the regulated community procedural fairness and the presumption of innocence will be maintained. Particularly, no comment will be made to the media that may:

- Prejudice a person's right to a fair hearing or legal process;
- Lead to intrusion upon the privacy or safety of others involved in the investigation (such as complainants, witnesses and suspects); or
- Prejudice any past or future actions of the environmental enforcement authority.

47. Even after completion, the details of an investigation should remain confidential. The actual outcome of an investigation may, however, be publicized.

INSTITUTIONAL FRAMEWORK FOR PERFORMANCE MEASUREMENT

Major requirements

48. Performance measurement should be part of responsibilities of the environmental enforcement authorities, mandated either in the primary or secondary legislation. The internal regulations of the enforcement authorities should designate a unit responsible for design and use of ECE indicators. Procedures need to be developed to routinely collect, analyse and report ECE indicators.

Assessment of institutional capacity

49. Institutional capacity should be assessed as it will also influence the selection of indicators. In this regard, key questions to ask when considering which ECE indicators to use include:

- **Information needs:** What are the current information needs for decision-making and outreach? Who are the stakeholders? What data is being collected and how is it used? Are new indicators needed as a result of change in strategies or enactment of new laws?
- **Data quality:** Do the scope, quality, and analysis of data meet the decision-making and outreach needs? How accurate should be the measurement? Are there guidelines to ensure national consistency and comparability of data?
- **Data collection and storage:** How frequently should data be collected? Who will collect the data? Who will ensure quality control and quality assurance of data? Where will the data be stored? Is there an existing data system that collects timely and accurate data? Can it be enhanced? Will the data be computerised? What resources are needed to obtain the necessary data?
- **Data analysis:** Who will analyse the data? How should the data be reported, and to whom?

Standardisation

50. National level agencies should standardize ECE indicators, i.e. to ensure (i) the attribution of a same meaning to a single indicator or data category by all users and (ii) the use units that enable appropriate comparison and exchange of data among environmental authorities and other entities. National standardisation of data should not constrain what information an agency chooses to collect, nor automatically constitute a reporting requirement. Each data element (parameter, indicator, or index) should be represented by a name, definition, format (maximum length and data type), and where applicable, permitted values. In addition, explanatory notes can be provided relating to the definition and use of the data element.

51. Standardisation should be mandated by the legislature or the competent executive agency (e.g. the Ministry of Environment or the Department of Statistics). Environmental enforcement authorities can initiate the process of standardisation, secure political support and funding, draft the standard, and engage in a broad dialogue with sub-national units and other stakeholders while drafting the standard. Training for all involved actors should be provided after the data standard is adopted.

52. Data standards should be reviewed periodically to maintain their usefulness and applicability. It is desirable that standardisation be implemented in parallel with information systems development.

Data management systems

53. Enforcement authorities should build comprehensive, accurate, and user-friendly data management systems that would be capable of storing, integrating and analysing various kinds of data across programme and geographic areas. These systems can be organised in several big blocks, including specific information about regulatees (permit conditions and self-monitoring reports), data on compliance promotion and compliance monitoring, and non-compliance response information. They should ensure full traceability of individual cases, from non-compliance discovery until a full execution of decisions related to non-compliance response.

54. Establishing clear data management procedures should be a first step toward this situation. Uniform procedures of data production and transfer, and requirements for a timely update of information, can strengthen the usefulness, quality and accessibility of information. Automated data storage systems need to be developed to improve access to primary data and enable direct consultation of dossiers electronically through local area networks. Periodic auditing of procedures and information management systems for the purpose of verifying their practical application and ensuring their use by staff is recommended.

55. Although upgrading information systems can be costly and difficult to design, this has the benefit of providing avenues to retrieve and analyse information more effectively. Effective information management can enable a better targeting of resources towards the most serious compliance and environmental problems, and there is no other option to track the growing number of the regulated entities and to deal with the data reported by these entities and environmental enforcement units at the sub-national level.

Measuring performance of sub-national units

56. Besides measuring own performance, the national-level authorities should assess sub-national units. This should be done in view of improving performance and harmonising approaches and capacity across all geographic units, rather than punishing outsiders. Normalisation of data is necessary to enable comparisons. For instance, comparing the total numbers of inspections in two regions will be meaningless if one is characterised by a small number of large facilities and the other one has many Small and Medium-sized Enterprises (SMEs). To make comparison possible, the number of inspections in specific segments of the regulated community needs to be divided by the number of facilities in each segment.

Mechanisms for feedback and partnerships

57. National level enforcement authorities should establish effective feedback mechanisms on ECE indicators and a forum for sharing best practices. The sub-national authorities should be able to comment on existing indicators, their interpretation and collection approaches, as well as to propose new approaches for performance measurement. They also should have the opportunity to share experience from adopting innovative instruments and ECE indicators. This will benefit the development of compliance assurance at all level.