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Meeting of the Informal Network on Compliance and Enforcement

Athens, 3-5 December 2003

REFERENCE HANDBOOK ON ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT IN THE MEDITERRANEAN REGION

Part I

ORGANIZATIONAL ISSUES

In cooperation with

WHO

UNEP
Athens, 2003

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PREFACE

Within the framework of the MED POL Programme Phase III for the Assessment and Control of Marine Pollution in the Mediterranean adopted in 1996, special reference is made on the pollution control component to assist countries to fulfill the provisions of the Protocol for the Prevention of Pollution from Land-based Sources and Activities (LBS Protocol). In fact, Article 6 of the Protocol, which was signed in 1980 and revised in 1996, calls for the strengthening and/or establishment of systems of inspection related to land-based pollution.

Among the activities for the promotion of the environmental inspections, a workshop of experts on Compliance and Enforcement of Legislation in the Mediterranean for Control of Pollution resulting from Land-based Sources and Activities, was convened in Sorrento, Italy in 2001, to review progress in that field and discuss future activities. As a result, it was recommended that guidelines on compliance and enforcement be developed, indicating the general lines to be followed rather than going into detailed recommendations.

These guidelines have been prepared, reviewed and commented upon by the National MED POL Coordinators and the final text provides the framework for the enhancement and strengthening of the environmental inspection systems in the Mediterranean. The countries may use them to specify their own code of conduct and practices to be followed by their Inspectorates.

Following the preparation of the said guidelines, it was felt that more information was needed on a number of technical issues, so that reference information developed adequately could better assist the implementation of the guidelines. As a result, the Handbook containing more detailed information was produced, under the technical supervision of WHO/MED POL and with the assistance of a team of five experts.

The purpose of the Handbook is to raise the level of performance of the environmental inspectors and support the above mentioned guidelines by providing details on assessing, developing, implementing and sustaining a viable inspection programme.

All aspects of an inspection programme are covered, including planning and designing enforcement programmes, international cooperation, non-point sources of pollution and compliance strategies, enforceability of permits, self-compliance, environmental negotiations, public participation, voluntary agreements, profiles of inspectors, inspection policies and planning, sampling, inspection techniques and training. To address those elements of comprehensive inspection programmes, the Reference Handbook includes the following:

- Organization issues
- General procedural issues
- Human infrastructure
- Sampling

The above structure appears in the four volumes, each one presenting a specific subject related to environmental inspections. The experts team is composed by professionals with long-standing experience on inspectorates in their countries. The texts reflect the authors experience from different angles and different philosophies that enrich the contents. It may happen that some issues are mentioned in more volumes. This is due to the fact that repeated issues provided another perspective and/or are needed for the complete understanding of the specific volume. The experts team is composed by the following scientists:

Mr Yasser Sherif is a former Head of the Environmental Inspection Unit in the Egyptian Environmental Affairs Agency (EEAA). He was responsible for preparing Part I related to "Organizational issues".

Mr Rani Amir is the Director of Marine and Coastal Environment Division in the Israeli Ministry of Environment. He was responsible for preparing Part II related to "General procedural issues".

Mr Allan Duncan is former Chief Inspector of Her Majesty's Inspectorate for Pollution (HMIP) in the UK. He was responsible for preparing Part III related to "Human infrastructure".

Mr Robert Kramers is a specialist in the Dutch Information Centre for Environmental Licensing and Enforcement. He was responsible for preparing Part IV related to "Sampling".

Mr Robert Glazer is former Head of a regional inspectorate for the Ministry of the Environment in the Netherlands and coordinator of the European Network for the Implementation and Enforcement of Environmental Law (IMPEL). He was responsible for preparing the Guidelines on compliance and enforcement and acted as a coordinator and reviewer for all four parts of the Reference Handbook.

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1. Defining Inspectorate Core Business

Differences between the tasks and responsibilities of inspectorates of the different Mediterranean countries depend not only on the development phase of the environmental legislation in each country and the existing of capacity needed to implement and enforce this legislation, but also on policy decisions taken in each country to address the challenges it meets. However, these differences revolve around the relative focus and level of involvement in the inspectorates' basic tasks, which remain the same.

1.1 The Inspection System

In order to be able to identify the inspectorate's core business, it is important to examine the inspection system and its different activities (Figure 1.1). The inspection system includes two types of activities; the first is the normal (standard) activities of compliance checking and non-compliance response activities (checking-response cycle), which forms the core of such system. The second type is the occasional activities resulting from feedback to the elements composing the context of normal activities. The implementation of the normal activities requires the development and implementation of three tools:

- Regulatory requirements
- Permits
- Non-compliance response policy

Feedback from the checking-response cycle affects such requirements through the assessment of progress towards compliance and related barriers, and accordingly forming different cycles, closely related to the main checking-response cycle. Accordingly, the inspection system should not be addressed independently of its context since its inputs, outputs and performance are highly related to such components.

1.1.1 Normal Activities: Checking-Response Cycle

Compliance is achieved when regulatory and permitting requirements are met through the implementation of desired modifications in processes, raw materials or work practices, among others. The nature of the activities of checking compliance is, therefore, related to the scope of these requirements. Achieving compliance is a shared output of both the establishments on one side and the inspectorate and competent authorities on the other side. While the responsibility for complaisance to laws limits and conditions is solely to that of the formers, compliance checking and non-compliance response, including enforcement, undertaken by the inspectorate and environmental authorities play a necessary role to provide incentives to comply.

Compliance checking activities result in the identification of cases of non-compliances with regulatory requirements and permits. The non-compliance response could vary according to the type of violation from the implementation of enforcement measures to compliance promotion.

Compliance Promotion

This approach contributes to the enhancement of environmental performance of industrial establishments through guiding them in utilizing the technical and financial support mechanisms, which address waste management and treatment, applying self-monitoring systems and at source pollution control programs. All aiming at only one goal, namely compliance to the set conditions of the law/permit.

- ***Enforcement of Legislation***

Enforcement is the application of statuary means of coercion and sanctions to ensure compliance. However, in practice, enforcement is related to many issues, among which:

- The budget and human resources allocated to the inspectorate.
- Regulators requirements
- Affordability of compliance measures

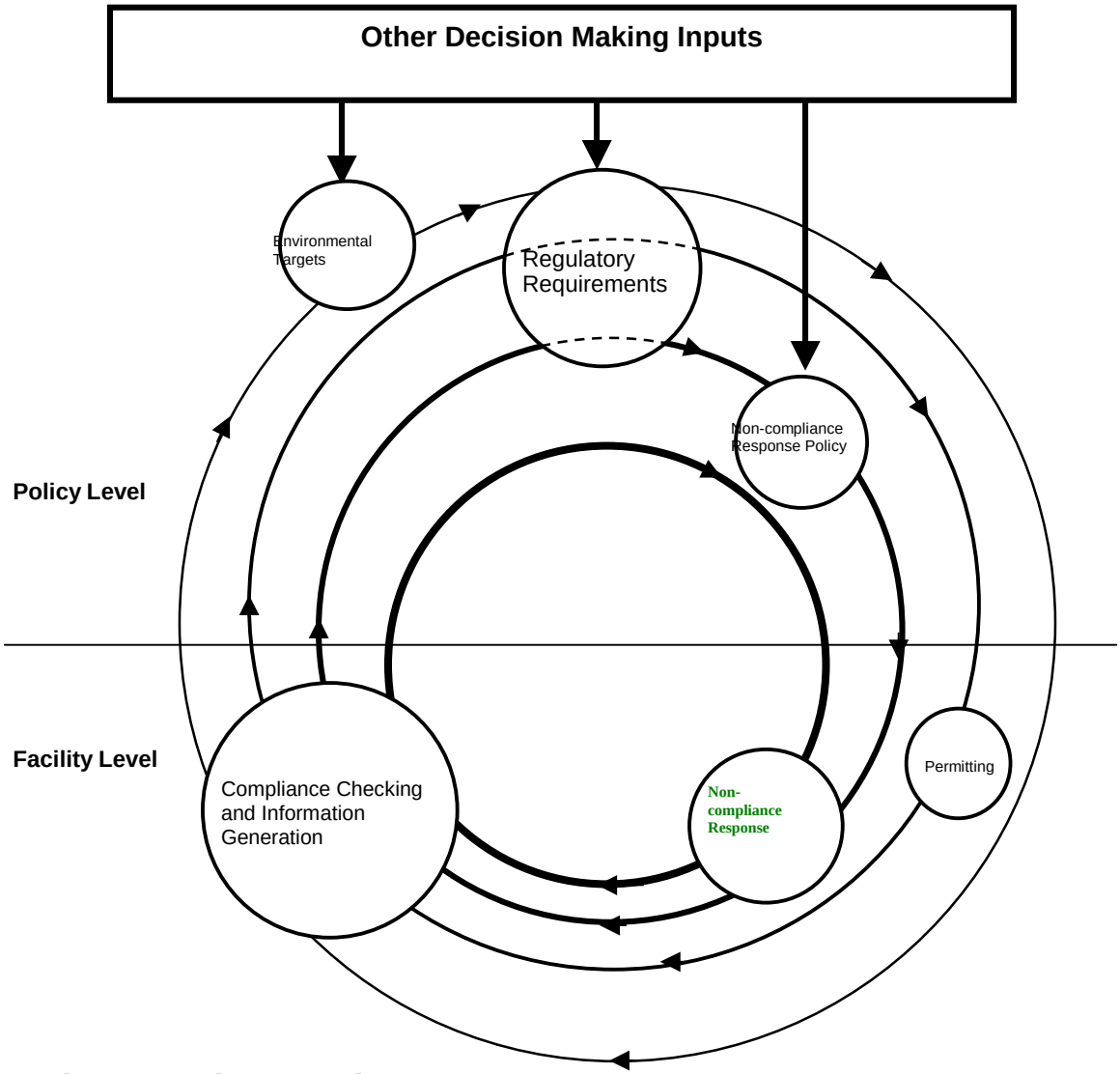

Figure 1.1: The Inspection Context

1.1.2 Adjustment Activities: Feedback Cycles

- ***Feedback to Non-compliance Response Policy***

In order to insure the compliance of the establishments, non-compliance response is implemented according to a clear policy. The non-compliance response policy is developed based on the national policy of the country and the regulatory requirements.

The non-compliance response policy receives feedback from the compliance checking activity regarding the suitability of the different response actions and the needs for policy

adjustments. Such modifications are undertaken based on the regulatory framework and whether it allows such modifications.

In Egypt, the formulation of a clear enforcement policy was identified as an important tool to provide inspectorates with specific decision rules to apply to the cases they encounter. Clear definitions should be given for different cases of non-compliances in order to undertake appropriate enforcement measures. The policy should account for elements that should be continuously updated based on strategic principles and according to the changing conditions such as economic conditions, the general state of industrial compliance, environmental priorities, etc. Moreover, the policy should address fixed definitions and principles that are less likely to change with time. The policy should clearly address the facilities rights1.

- ***The Second Cycle: Feedback to the Permitting Process***

The permitting[2] process is undertaken within the regulatory requirements. Permitting should be followed by compliance checking to check the compliance with the permit conditions. The feedback received from the compliance checking process could be used to adjust the requirements of the permitting system, if the environmental regulations pertaining to permitting allow such adjustment. For example, in the Egyptian environmental law, the permit for hazardous substances and waste handling could be revoked in case inspection activities prove that the facility violated the conditions of the permit and it could be modified if it was proved that the permit had not taken into consideration severe negative environmental impacts.

- ***The Third Cycle: Feedback to Environmental Regulations***

Regulatory requirements are developed based on the national decision making inputs and according to the environmental targets identified based on these inputs. The regulatory, and permitting, requirements are the main issues addressed in the compliance checking activities.

On the other hand, compliance checking feeds back, through the assessment of progress towards compliance and related barriers, to the regulatory requirements in at least three ways:

- The implementability of requirements, is an important result of the assessment of progress towards compliance. This should obviously have been taken into account at their design stage. However, a perfect design is known not to exist and experience based on implementation is critical for design improvement.

- In conjunction with an assessment of ambient environmental improvements (which should represent the ultimate objective of the environmental management scheme), compliance checking generates important information about the compatibility of the requirements to environmental objectives. For example, in Egypt, allowable limits are given for both stack and ambient emissions. However, in some cases, complying with

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1 A proposed outline of such policy is found in the paper: Sherif, Y., Abou Elailah, D., *Closing the Enforcement Loop: The Need to Formalize Enforcement Policy,* presented in Environment 2001, Cairo, Egypt

2 Permitting is used here generically. Not all countries have a developed environmental permitting system, but each has a licensing process that takes to an extent into consideration environmental requirements.

the ambient conditions require the implementation of pollution control equipment for stacks such that the stack emissions are much less than the allowable limits.

- The feedback process is an essential element in assessing the enforceability of regulations based on the compliance and enforcement experience.

Changes to the regulatory requirements could be suggested if practical experience in compliance and enforcement has detected flaws in the regulations prohibiting proper implementation and compliance, thus assisting in a process of continuous improvement of the laws and regulations for the protection of the environment.

1.2 The Inspectorate's Core Business

The elements of the inspection system, described above, should exist in any country, yet the inspectorate's scope of coverage of these elements may differ from one country to another. However, compliance checking is the activity definitely undertaken by the inspectorate since it is the main node of the inspection system.

Besides compliance checking, the inspectorate might do all or some of the activities required for:

- Permitting;
- Compliance promotion; and
- Enforcement.

- ***Permitting***

In some countries, the inspectorate plays a pivotal role in permitting, while in other cases, other separate organizations undertake this responsibility. Arguments could be made to support both arrangements. For the former, it is argued that the best party to inspect is the one that knows the permit best. For the latter, it is argued that the separation of responsibilities infuses more independent and unbiased checks in the system.

- ***Compliance Promotion and Enforcement***

Compliance promotion is also sometimes undertaken by inspectors in the form of information and/or generic advice, but in general, promoting compliance includes a wide range of possibilities some of which could be handled in the field by inspectors and other require the involvement of the inspectorate and other environmental authorities and organizations. Depending upon the general level of compliance, the inspectorate may take a stronger or more lenient approach to enforcement as a response to non-compliance. Moreover, there is a high likelihood, as a result of the incremental development of environmental legislations, that enforcement authority would lie, for a number of issues, with several organizations. In fact, in many cases, the inspectorate does not only do inspection but also coordinate the inspection activities of other organizations. The effectiveness of the whole scheme depends on the distribution of roles and responsibilities as well as the level of coordination between different organizations within the framework of an inclusive strategy (see chapter 2). Compliance promotion is definitely a softer approach to achieve compliance. However, it should not be confused with the lack of enforcement, or condoning, which projects the lack of will or capability to take strong positions concerning violations. Such image is, obviously, not conductive for a stable culture of compliance.

The inspectorates' core activity of compliance checking is information intensive, both in terms of generation and provision to different levels of decision-making regarding the development of national directives, environmental policies and strategies, usually undertaken

by organizations other than the inspectorate. Quality management of information generation and flows is a necessary, although not a sufficient, condition for effective decision-making. Non-compliance response and feedback loops will enable the inspectorate to monitor the system performance and detect any problem and take the necessary decisions accordingly.

1.3 Quality Management for Implementation and Enforcement

In order to operate successfully, inspection bodies should maintain a continuous high quality performance. This can be achieved by providing a body of well-defined instructions, working methods, control mechanisms and performance indicators, which result in pre-defined outputs and quality levels.

Performance indicators should evaluate:

- The quality of the field inspection: feed-back on performance of inspectors, accuracy of inspection, time needed for inspection.
- The consistency and quality of the inspection report: completeness, consistency and correctness.
- The performance of the inspection/enforcement body: tracking correction of violations, comparison with targets.

Continuous feedback to the inspection systems and elements should be secured to ensure an effective system and achieve continuous improvement of performance.

2. Inspectorate Strategy

A proper description of the inspectorate strategy is a prerequisite for a successful operational activity of any inspectorate. For private businesses, it is accepted that without an appropriate strategy, failure is a matter of time. This is also true for public agencies, although " failure" and "time" may take different dimensions.

A regular update of the strategy is essential because conditions under which the strategy was developed might have changed and timely appropriate adjustments to changing conditions must be made. Rigid strategies and rigid types of organization and management will not survive in a continuously changing world.

Every time a new legislation comes into force, hundreds of facilities are subject to it. It is impossible for the inspectorate to continuously check for compliance at every facility. A challenging aspect of compliance and enforcement programs is, therefore, to develop strategies to make the most effective use of resources available to inspectorates.

Policies and strategies are often confused. In fact they are closely related, but while policies guide the decision making process at higher or lower levels of the organization, strategies are decisions already made to commit the resources of an organization in a given direction. It is obvious that policies and strategies should be consistent since they provide the framework of plans. In any case, a strategy must achieve the balance between the demands and the reality taking into account the capability and capacity of the facility.

2.1 Factors Influencing the Development of Strategies

A number of factors are taken into consideration when strategies are being developed. The development of inspectorate strategies is based on its mandate, the context in which it operates as well as on its knowledge of environmental status and criteria for setting priorities. The relative weight of these factors varies greatly from one country to the other and could lead to diverging inspectorate strategies. Although a higher homogeneity in these factors will probably result in a partial convergence of strategies, a strategy, by definition, is never totally imposed by its contextual inputs.

2.1.1 Clear Mandate

The simple question of "what is it that we do" is not always as simple to answer. However, a clear answer is a prerequisite for the development of a strategy. Is the inspectorate mandate "to enforce laws", "to insure compliance" or "to contribute to the improvement of environmental conditions"? A strategy to fulfill one of these possible mandates is not necessarily responsive to the other.

2.1.2 Human, Financial and Material Resources

- ***Internal Capabilities***

The inspection and enforcement strategy depends to a great extent on the resources allocated to environmental protection. Resources will most likely fall short of all what an inspectorate should do to fulfill its mandate. The strategy therefore focuses on what the inspectorate would do within the resource constraints, to maximize achievements in the context of its mandate.

- ***External Resources***

While devising the inspectorate's strategy, it should be clear that internal resources of the organization represent only a part of national resources that could be allocated for environmental protection. Mobilizing resources not totally under the inspectorate's authority is an important element of the strategy. Resources external to the inspectorate could be those of the regulated community itself which could be mobilized through self-monitoring and self-reporting requirements. Resources of other regulatory agencies could be streamlined through cooperation agreements or protocols.

2.1.3 Institutional Context

- ***Roles and Responsibilities of the Different Regulatory Agencies***

In some countries, overlaps in inspection duties between different competent authorities are not totally avoided. Depending on whether and how the inspectorate will deal with this issue, it can be an advantage or a burden.

Effective coordination between concerned parties makes resources add up to those of the inspectorate. The experience of specialized personnel in their specific fields such as industrial safety, occupational health and irrigation water quality can be an asset to the inspection process, if properly exploited. Information about the facilities can also be made available to all parties minimizing expenditure of time and money.

The strategy of the environmental inspectorate should have a clear approach to coordination between different regulatory agencies which allows the optimization of resources whether on the financial or human level. It is also in the interest of the inspected establishments not to have to deal separately with different inspection entities. Coordination can take one or more of the following formats:

- Information exchange,
- Information sharing;
- Joint inspection campaigns,
- Inspection committees; or
- Joint planning.

- ***Self - monitoring Requirements***

Some environmental regulations specifically require that facilities implement self-monitoring plans, approved by the regulatory authority. This means that once the plan is approved, inspectors will make sure that it is correctly implemented without having to repeat all measurements and analyses. This would alleviate the burden of inspection costs. However, extensive infrastructure is required to implement such requirements. The methods and protocols of measurements and analyses should be standardized, and should be undertaken by certified laboratories. Without standard methods and certification protocols, a self-monitoring scheme cannot be effectively implemented. Moreover, without an approved self-monitoring plan, the relevance of data generated by the facility to the inspectorate is not ensured.

- ***Self-reporting Requirements***

Self-monitoring requirements do not necessarily impose reporting on the facilities. Data generated could be stored at the facility for inspection upon demand. Self-reporting is different; it requires facilities to report the data they generate to the regulatory authority.

Depending on the critical nature of pollutants released, the receiving environment or the compliance history of the facility, reporting could be legally required to be either

- Periodically; or
- Continuously, which could be on-line through electronic communication
- Cases of non-compliance are reported on the spot to allow for prevention of large-scale impact.

Self-reporting has essential requirements such as data transfer protocols. Self-reporting is also less effective when the data analysis capabilities of the inspectorate are limited. It might even be counter-productive if facilities realize that the data they provide does not produce relevant reactions.

2.1.4 National Development Plan

The national priorities of developing countries could lean towards economic and social development at the expense of environmental issues. This does not necessarily mean changing environmental compliance targets but will influence enforcement policies; where inspectorates could provide longer grace period for achieving compliance. In some cases, the law allows grace periods to be included in the permitting procedures. In other cases, especially with the absence of a system of environmental permitting, the periods should be determined according to clear decision rules included in non-compliance response policies. The inspectorate is not free to decide the grace periods, its role will be limited to adapting the principles of the non-compliance response policy to specific cases.

The non-compliance response policy should take into consideration the development priorities. Issues of concern might also include:

- Industrial migration from the “North” where environmental standards are higher to the “South” where standards are less stringent. Strengthening environmental legislations and effective enforcement is obviously a political issue in this context.
- Many industrial facilities in developing countries have old production lines and outdated technologies that generate large pollution loads. Waste treatment in this case, will not be the right solution unless rehabilitation is performed first. Waste minimization and pollution prevention measures should be a priority for these facilities.

The main objective of enforcement policies is to achieve compliance. The inspectorate should take into consideration whether a solution exists for a pollution problem. This solution should also be affordable for the facility to implement it. Requiring solutions that cannot be implemented with affordable cost is equivalent to either asking the facility to shut-down its operation or to pollute whenever the inspectorate is not “looking”. This type of discrepancy between the legal requirements and the actual possibilities for implementation should not exist in a system detailing specific requirements in an environmental permit. However, it is often encountered in the case where general requirements, applying to all types (sizes, sectors) of establishments, are detailed in the law.

2.2 Environmental Status

Environmental status has two major components:

- ***Information Related to Emissions Released by Facilities***

Each inspectorate should allocate time to generating, maintaining and updating a databank of all potentially polluting facilities. A certain percentage of the available time should be allocated to update this overview. It is advisable to develop an accessible database, that can be easily updated by the inspectors. Sources of information could be

inspection reports (whether on individual facilities or as a result of campaigns), self-monitoring data and public complaints. The latter, although not as quantified, gives an important check on environmental performance of the facilities.

- ***Ambient Monitoring Programs***

Air and water quality data in the different areas or for specific streams or water bodies should be available to the inspectorate management. Monitoring of ambient air and water bodies on the national level depends largely on the degree of development of the country. It is clearly a burden for developing countries, but the dependence of the inspectorate strategy's efficiency[3], among other environmental decisions, on the availability of this information should encourage the concerned parties to consider such investments not only in terms of its real costs but also its efficiency benefits.

It is also possible to reduce the costs of ambient monitoring through requiring the reporting of pollutant in terms of loads and not only in terms of concentration as some legislations require. For example, the Egyptian law prescribes self-monitoring concentrations and does not require general self-reporting. On the other hand, the law does not prohibit reporting. In fact, facilities are required to report only deviations of the monitoring results from prescribed discharge standards. In some cases, specific facilities in sensitive areas, especially large cement factories, are required to maintain a continuous on-line reporting of their monitoring results to the environmental authorities. The application of the GIS system to releases can categorize areas according to loads of specific pollutants and facilities according to their pollution profile.

The substantial time and effort spent by the establishments to prepare the pollutant release report and by the regulatory authority to prepare the database for the information system, is justified by the possibility to identify the level of pollution of a specific receiving media with a minimum number of sampling points thus saving future time and effort. Softwares have been used successfully for estimating air and water quality at a distance from the point source of release, which allows tracking back pollution to specific sources.

2.3 Setting Inspection Priorities

Inspectorate's strategy will ultimately lead to a feasible annual plan for inspections taking into account: human resources, available budget; compulsory inspections (by law); specific (thematic) inspection campaigns; complaints investigation; court actions; inspectorate advisory functions (to permit authorities and to policy makers); annual reporting and contingency activities like addressing the press and public in special cases.

Inspection plan priorities are set according to the following criteria. The relative importance of these criteria will depend upon the inspectorate's strategy.

- Quantity of pollution generated
- Industrial sector
- Nature of the pollutant
- Type of receiving medium
- Nature of area
- Size of the establishment
- Intensity of natural resources consumed
- Special or new environmental laws
- Number of inspections

3 Inspection strategy efficiency is a measure of the achievements of the strategy (outputs) in relation to the effort exerted (input).

- ***Quantity of Pollution Generated***

The size of the facility is an indication to the generated pollution load within the same activity type. When comparing different sectors, it is important for the inspectorate to be aware of the pollution load generated even when the facilities are complying with environmental legislation. Such information will be important to assess parameters such as the carrying and regenerative capacity of the receiving media and hence inspection priorities for specific areas. Small Quantity Generators (SQG) discharging hazardous materials such as laboratories could have less impact, if properly managed, than Large Quantity Generators of a non-hazardous pollutant discharged within the regulatory concentration limits.

- ***Industrial Sector***

Environmental pollutants differ from one sector to another. Some sectors are known for their high pollution loads such as the chemical industries, the petroleum sector and some activities of the textile sector such as dyeing and sizing. Accordingly, the type of industrial sector is an important factor in setting inspection priorities.

- ***The Nature of the Pollutant***

The impact of a pollutant varies according to the type of pollutant, its physical state, its hazardous nature, its degradability and its environmental fate. The nature of the pollutant is one of the factors that determine the targets of an inspection plan.

- ***Type of Receiving Media***

In some cases, the adverse impact of pollutants is reduced as the pollutant form is changed from the gaseous to aqueous to the solid state. However, it is believed that moving in such direction facilitates pollution control, accordingly in some cases, priority is given to air pollutants. For example, the presence of lead in the gaseous form requires the implementation of control measures and monitoring program, whereas lead contaminant of solid waste does not require such level of control due to its low leachability. The priority should thus be established according to the sensitivity of the receiving medium and its assimilation, criteria that are usually associated with the nature of the area and its carrying capacity.

- ***Nature of the Area***

Some areas require special consideration for their economic, social or environmental importance. The nature of areas could be classified as follows:

- Sensitive areas such as coastal areas, major sources for potable water and for irrigation, agricultural areas
- Specific areas such as tourist areas, important agricultural areas
- Natural Protectorates
- Highly polluted areas
- Highly polluted residential areas where industries are concentrated

- ***Size of the Establishments***

Establishments can be divided into small, medium and large industries. Medium and large industries are quite similar but small industries have a specific nature as they usually lack the advanced technology and financial resources. Moreover, the number of employees in such facilities is usually small and the activities are limited, which makes it unfeasible to

implement pollution abatement measures in each facility. In case a group of the same facilities is established in one area, it might be effective to consider the implementation of a central abatement measure. The implementation of such options requires an organizational effort that might be at a level higher than that of a single facility.

- ***Intensity of Natural Resources Consumed***

Resource consumption is an important issue that is often not regulated. However, comparison in relation to baseline of typical consumption values in a specific activity gives an important lead to the possibilities of win-win interventions.

- ***Special or New Environmental Laws***

With the promulgation of new environmental laws or regulations, inspection priority will shift towards checking and promoting compliance with these laws and updating the information system of the inspectorate.

- ***Number of Inspections***

Routine inspection activities are essential to the integrity of an enforcement programme. Accordingly, the inspection plan should be mainly based on such activities while allocating time for complaint-based inspection.

2.4 The Strategy Document

The inspectorate strategy document is essential for showing the structured and consistent approach in inspection activities. The document clearly indicates the limitations of the inspectorate and the goals to be achieved. The inspection strategy document should address issues such as:

- ***Inspection Planning***

- Criteria for setting inspection priorities
- Methodology to evaluate the inspection process

- ***Coordination Principles***

- Information exchange mechanisms
- Cases requiring joint inspection
- Roles and responsibilities of each entity
- Joint planning mechanisms

- ***Inspection Approach***

- The level of inspection whether to conduct detailed inspection of all processes or limit inspection to end-of-pipe and end-of-stack
- The ideal number of inspection necessary to achieve inspection objectives within the allowable limits
- Criteria for conducting administrative checking instead of field visits to save time and resources

- ***Non-Compliance Response***

- Criteria for implementing different enforcement approaches
- The adequate level of compliance promotion necessary to build up sufficient reproachability
- Criteria upon which facilities are pre-notified before implementation of enforcement activities
- The timeliness for implementing enforcement actions and coordination with other regulatory entities

3. Code of Conduct for Inspectors/Inspection Protocols

Once the strategy of the inspectorate has been formulated and time-bound plans developed, inspectors must be given guidance to undertake inspections during which the inspector performs different roles.

- Gathering evidence related to environmental performance;
- Advancing the process of achieving compliance; and
- Representing a governmental agency.

There is a natural tension between the first two roles, which in addition to the third role, requires a professional code of conduct to which all inspectors should abide. The actual conduct of inspectors is related to two complementary tributaries:

- Personal qualifications of the inspector; and
- Procedural guidance, training and monitoring from the inspectorate

Relying exclusively on one of these two necessary issues will always prove insufficient. Personal qualifications are addressed in chapter 5. On the other hand, the inspectorate must develop internal guidelines for the inspectors, such as:

- General code of conduct for inspectors
- Procedural guidelines concerning:
- The inspection equipment to be used and sampling/analysis procedures to be applied
- Inspection procedures including those guiding the fields visits as well as the pre and post field visit activities
- Conducting interviews.

Moreover, the inspectorate should provide guidance to inspectors concerning their health and safety on the job.

3.1 Gathering Evidence

The inspector is responsible for gathering information to determine whether a facility is in compliance and for collecting and documenting evidence concerning violations that may have occurred. As described in chapter 1, this evidence is used to provide important inputs to all cycles of the inspection system. Moreover, it is used to support the development of enforcement cases, as well as, to help the inspector prepare for and give testimony when required. Therefore, inspectors are required to follow certain procedures to ensure that whatever evidence they collect will be admissible in a court of law. There are three major components to adequately perform this task:

3.1.1 Prove that a Violation has Occurred

Every inspection must be conducted as if it would go to court and be contested. Every shred of evidence and documentation supporting that evidence may be contested as inaccurate, misinterpreted or compromised. The enforcement case often hinges upon the expertise and professionalism of the inspector.

There are different means to collect evidence, each should follow its own acceptable and standard procedures.

- ***Conducting Interviews***

The interview is one of the most significant tools authorized for conducting an inspection. How inspector asks a question can be more important than the question itself. Guidelines could be developed for inspectors include, types and methods of interviews, and communication.

- ***Sampling and Analysis***

Sampling and analysis may be necessary to document potential evidence of non-compliance. Therefore samples must be:

- Representative of a material or event. There must be an inspection plan to determine which chemicals or parameters to look for.
- Analyzed using appropriate Standard Operating Procedures (SOP). SOPs are written documented procedures that should be used for collecting any type of samples. This ensures reproducibility and consistency. Inspectors should use only laboratories that adhere to written SOPs. While there may be modifications of the method to fit unique circumstances, all deviations from the SOP must be exhaustively documented.
- Analyzed according to an appropriate method of analysis. What the inspector is sampling and why he samples will determine the method of analysis. Usually this is performed under a Quality Assurance Plan. Once the appropriate method is selected, the inspector must then determine the precision and accuracy of the results.

- ***Documentation***

Note-taking and documentation (collect registers, documents, samples, photographs, video) is very important for information gathering, statements recording (statements made by facility personnel, or issues verified by sight, smelling, or measurements). Guidelines could be developed for inspectors should include note-taking and information gathering techniques.

3.1.2 Establish that the Procedures and Policies were Fairly and Equitably Followed

There are two major necessary conditions that should be fulfilled to support that the violator is not being unduly “picked on”:

- ***The Selection of the Facility***

The rationale for inspecting a specific facility should be based on e.g. the facility’s compliance record, initiated by a complaint, is part of an inspection plan (random, pollutant-oriented, area-specific, or the like). Repeated inspections for a specific facility without acceptable reason could be challenged by the facility and could put the inspector unnecessarily in a compromising situation.

- ***Standard Procedures are Followed***

An inspection plan should be prepared before the actual field visit. Based on this plan, inspectors should get their equipment ready before the site-visit (cameras, sampling/measuring devices, containers). Inspectors should adhere to the inspection plan and follow inspection protocols. However, field conditions may dictate plan modifications. Reasons for such modifications should be thoroughly documented.

3.1.3 Support a Potential Court Case

A necessary condition for a potentially successful court case is the evidence collected and supported to prove the violation. However, some additional information is also beneficial.

- The underlying environmental or public health need for the requirement being violated is already considered when the requirement is developed. However, it may be necessary to reiterate the importance of compliance with the requirement to justify and support an enforcement case. This is particularly true when a case is being argued in front of a decision-maker expected not to be familiar with the environmental or public health basis of the requirement

3.2 Relation of the Inspection Team with the Establishment

In conducting field inspection, it is important that the inspection team maintains a good working relation with the industrial establishment and respects its constraints, rules and other rights. The following are the main principles that should be followed.

- Cooperation between inspectors and industrial establishment management is the best way to reach good results.

- Inspectors should restrict their on-site activities to the normal working hours of the facility, as much as possible, and minimize the disruption caused by the inspection visit. The inspectors should always be aware that the facility “raison d’être” is to do its own business.

- The inspection team should implement appropriate field note taking methods and proper document control procedures, particularly when the company asserts a “confidential” claim. Respect for the facility’s constraints should always be the rule as long as it does not affect the proper conduct of the inspector’s duties.

- Confidentiality is also important for inspectors. Inspectors must assure that important documents are not left unattended at the facility. All inspectors should maintain a sensitivity to multi-media issues and implications and freely discuss, with other members of the team, observations/findings relating to one or more fields covered by the environmental laws and other relevant laws. Sensitive discussions, however, should not take place in front of facility personnel or on company telephones.

- The inspectors represent the environmental authority, and thus must conduct themselves in a professional manner and maintain credibility. Polite and rational discourse is a mandatory skill. As an agent of the government, the inspector should constantly strive to maintain the highest standards of thoroughness, ethical conduct and quality assurance. Inspectors must set an example in the implementation of proper procedures.

- Fairness and equity must be cornerstones for the inspector’s work. The tendency to become obsessive of the authority and power given to them should be prevented, and literally fought, by all means. The power of authority should always be preceded by the power of knowledge and thorough work.

Based on such general principles, and the specific context of each country, the inspectorate should develop a handbook to provide detailed guidance to inspectors.

3.3 Health and Safety of Inspectors on the Job

Field inspections involve a certain degree of risk and the inspector also has the responsibility to protect himself from such risk. He also has the right to be provided with all information, equipment and authority to be able to protect himself properly. Health and safety guidelines are developed to provide the inspectors with the information necessary to make the correct health and safety decision in the field. These guidelines present health and safety principles and identify methods to recognize and evaluate the hazards associated with field activities and select the appropriate protective equipment and clothing.

3.3.1 Planning and Alertness

Inspections of manufacturing plants, laboratories, and wastewater treatment plants are each associated with various hazards. A safe field inspection depends on the early recognition, evaluation and control of hazards. This should be an integral part of inspection planning. However, it is not always possible to predict all possible hazards. The inspector should also be trained to complement the planning exercise during the visit with his focused use of the senses to detect any potential hazards.

3.3.2 Protection and Risk Minimization

During field activities, it is not always possible to totally eliminate hazards, however, it is possible to reduce the risk associated with these possible hazards, through:

- Use of monitoring or testing equipment;
- Use of engineering controls;
- Use of personnel protective equipment and clothes; and
- Employee training

The information collected about potential risks, protective gears and equipment should be complemented by adequate training for inspectors so as not to overexpose themselves to risks. Lifting and climbing as well as sealing with power sources and electric equipments instructions are daily occurrences in the inspector’s job and there are ways to reduce the risks associated with them.

3.3.3 First Aid

Risks cannot be totally avoided, and accidents might happen. In order to minimize their negative effects, inspectors should be aware of basic first aid techniques.

4. Financial Issues, Funding, and Budgeting

Available resources are the major limiting factor on the ability of inspectorates to carry out inspections. Moreover, although the inspectorate's expenditures are not limited to conducting inspections, this is normally the one item in which most of its budget is spent. Both operating and capital costs could be allocated to inspections. Operating costs generally include:

- Personnel, including training
- Office supplies and publications
- Laboratory material and chemicals
- Vehicle/fleet maintenance
- Maintenance for computers, laboratories and publication equipment
- Field sampling material
- Funds for contractor support

Capital costs include significant one-time expenditures that have useful of at least one year. Examples include:

- Central and regional laboratories
- Office space
- Computers
- Vehicles
- Other miscellaneous items

The inspection plans should, therefore, be closely linked to the preparation of budgets for inspectorates. It is most practical that inspection plan cover a time period, which is the same as the budgeting span of inspectorates.

The general concept under which the inspectorate is performing its duties has basically been that of the "Beneficiary Pays Principle". Society at large should benefit from a cleaner environment, which is a public good. Therefore, the inspectorate is financed through the general state budget. In fact, some segments of society benefit more than others from the inspectorate functions and should in principle have a higher support for the provision of this public good. However, it should be noted that those who benefit more are usually those starting from a lower environmental quality. In terms of fairness as well as political realities, charging those segments of the society a higher share is unacceptable.

However, as governments become leaner in human resources and budgets, funding for monitoring the state of the environment is becoming increasingly difficult. This trend causes a major problem in countries where national environmental management has reached a rather steady state. The problem is obviously more critical for countries where a major expansion of activities is still needed to improve environmental conditions.

In its search for more diversified resources, an inspectorate's funding is supported by other equally acceptable principles such as "cost recovery" and the "Polluter Pays Principle".

4.1 Assessing the Financing Gap

Before financing needs for the inspectorate are actually assessed, it is only possible to consider options for closing a financing gap at an abstract level. For example, whether a financing gap is expected because of an expected increase in activity, movement to more costly (sophisticated) activities or because there is a high likelihood of a budget cut, is necessary to seriously consider alternative approaches to closing the gap.

4.1.1 Establish the Baseline

This is necessary in a number of respects. First, any projection will use historical data whether in a basic form such as level of employment, wage level, in a more dynamic form such as historical trends or in an analytical form such as person.days or average cost of laboratory chemicals per inspection. Second, and before any projections are made, the efficiency of the current operations and possible improvements should be assessed. Finally, the current assets and their expected useful lifetime is necessary for capital budgeting. It is clear that a thorough understanding of the current operations is needed to assess future needs.

4.1.2 Projection of Costs

Even if activities continue at their current level, there is a projected increase in personnel costs (as a result of salary increase). Moreover, a periodic replacement of capital assets will be needed. A higher growth in expenditures should be well justified in terms of alternative programs considered and their cost effectiveness.

4.1.3 Constant Feedback

Tracking costs and revenues should be a constant activity to indicate areas in which efficiency improvements are possible as well as areas where transfer between items are expected to balance out and improve effectiveness. It is also helpful in updating costs, rates and trends upon which future budgets are based.

4.2 Possible Lines of Action

Trying to increase resources seems to be the first line of action. A number of possible revenues sources are detailed in section (4.2.2). However, other options should be considered in conjunction with such effort. It should be noted that none of these possible options excludes the others.

4.2.1 Reducing Demand

- ***Redistribute Burdens***

A possible line of action to counteract the scarcity of resources is to prescribe monitoring obligations to the polluters. The self-monitoring of industrial activities and sometimes regular reporting to authorities is obligatory in a number of countries. This does not eliminate the responsibility of authorities to do their own monitoring and to ensure that laws, regulations, and permit conditions are complied with. However, this still transfers a major burden to the regulated community consistent with the Polluter Pays Principle. This option, however, needs a regulatory intervention. It also requires the existence of an extensive infrastructure especially in terms of authorized laboratories as well as the standardization of sampling and measurements methods.

- ***Out-source Services***

A possibility to cope with the budget problems is to outsource monitoring of the quality of the environment. It is clear that this is possible if the total budget is not constrained but for example there is a ceiling on acquiring equipment, or if some of the potentially acquired equipment will not be frequently used, thus increasing the fixed costs per measurements. The other possibility where this approach would work is when there is a higher confidence in the efficiency of the private sector as a service provider. Another option opened by this

approach will be to charge the facility for out-sourced monitoring services rather than spending the scarce resources of the inspectorate.

- ***Higher Efficiency***

Given limited resources, the inspectorate should always thrive to a higher level of efficiency. An accurate definition, shared by all members of the inspectorate, of the nature of its output is a pre-requisite for efficiency. An output specified in terms of number of inspections is obviously different than that specified in terms of units of pollutant reduced. The selective focus on specific areas, sectors and pollutants is based on such definition.

An accessible and constantly updated database is another necessity for increased efficiency, saving the inspector's time that could have been spent in reconstructing case histories easily made available through adequate information management.

Inspection planning, implying an accurate identification of priorities and objectives, is also a necessary activity for a higher efficiency. Field inspection activities, and accordingly time and resources, spent should be limited to those implied by the inspection's objectives.

Multi-media inspections are generally more efficient than multiple single-medium inspections. A targeted investment in human capacity and technical skills can prove highly rewarding on the long term.

- ***Preserve Effectiveness***

The inspectorate is involved in numerous activities including routine inspections, inspection campaigns, complaints-based inspection, enforcement activities, annual reporting, training and other needed activities. The use of available limited resources should optimize the involvement of the inspectorate in the different activities. This should be well planned so as not to overwhelm the inspectorate or result in a low involvement in any of the activities. As a principle, the inspectorate should not be totally involved in one activity while not active in the others. Being dormant in one activity, such as the routine inspection, affects other activities, for example, by leading to an increase in the number of complaints. Moreover, reduce planning activities might not allow for achieving the required objectives. As effectiveness is closely related to the quality of human resources, training should never be, as it is often the case, the first candidate for reducing expenditure.

- ***Synergies with Other Government Authorities/Programs***

Existing structures and functions within the government should be utilized to assist compliance and enforcement activities. Information exchange between various government entities would avoid duplication of effort and overlapping activities and would allow for the effective utilization of resources. Moreover, joint planning and periodic meetings are important to ensure effective cooperation. The extent to which government entities can share and leverage resources reduces the amount of revenue funding required not only for compliance and enforcement, but also for other government programs as well.

- ***Compliance Promotion***

Recurrent and persistent non-compliance increases the costs to inspectorates. A higher level of compliance should, therefore, effectively contribute to the reduction of these costs. A comparative cost-effectiveness analysis should be conducted for options considered to complement the typical enforcement approach.

Several factors contribute to creating a responsive climate for compliance. They include:

- Provide awareness and technical assistance to the facility
- Build public support
- Publicize success stories
- Provide economic incentives and creating financial arrangement
- Build environmental management capability within the facility
- Maintain a transparent enforcement system
- Show flexibility in implementing enforcement actions

4.2.2 Developing Revenue Sources

Revenue sources could be totally new or could already exist but need to be directed towards financing the inspectorate activities through a dedicated fund or an ear-marked allocation in a more general fund. An inspectorate cannot, and should not, be totally financially independent. As mentioned earlier, the public service rendered by the inspectorate, and the public good thus created, should mainly be financed by public funds. However, additional resources to support these public funds may prove necessary.

- ***Environmental Charges and Taxes***

These include product taxes and charges, effluent taxes and charges, and administrative charges. Environmental charges and taxes (on pollutant emissions) are more appropriate source of revenue than user charges/fees. User charges (water, solid waste, and wastewater) levied to recover the cost of public services, such as wastewater treatment, are the basis for the revenue of a specific fund aimed at financing the service (they are classified as cost recovery based instrument). These are, therefore, not totally appropriate as a revenue source for a general inspection fund. Only part of this revenue could be allocated to finance inspection activities directed to the specific user. Otherwise, the use of the funds will not be consistent with its definition.

Product charges have several advantages over emission charges including ease of collection and enforcement, and are more easily incorporated into the existing tax system, avoiding the need for wholly new systems of administration and control. In general all types of environmental taxes and charge systems will work best when they are simple and transparent.

- ***Environmental Fines and Non-compliance Fees***

Penalties and fines can be used to provide a revenue source for environmental funds. Non-compliance fees are similar in being imposed on polluters which do not comply with environmental requirements and regulations. The main difference between these instruments is that the latters are proportional to selected variables such as damage due to non-compliance or profits linked with reduced non-compliance costs. Because both are related to a state of non-compliance, they cannot assure a stable revenue base on the long-run. They should not be relied on as the main sustainable source of fund revenues for inspection. However, they are the ideal sources for the short term and, if legally possible in specific countries, they could be used to establish a dedicated fund for the inspectorate.

- ***Donations***

Inspectorates may receive donations from external and internal sources. Donations are also not reliable on the long run, but sometimes, depending on a country's economic

situation, they are more reliable that state budget sources. They could complement the role of non-compliances fees and fines on the short term.

- ***Charges or Services Rendered against Fees***

The following revenue options could be considered. However, they need to be tailored to avoid possible conflict of interest resulting from the dual role in some cases as service provider and a regulator.

- Administrative charge for review of environmental impact assessments (EIAs), as well as the proponent's appeal fees.
- Administrative charge for permits.
- Charge for conducting laboratory analyses to third parties and rental of laboratory equipment.
- Charge for sampling analyses for repeated non-compliance.
- Charge for environmental inspection (might also be in cases of repeated non-compliance).

4.3 Political Support

It should be clear to the inspectorate that whatever action it chooses to take, political support is needed for it to materialize. Budgets are allocated through other governmental agencies and innovative financing or funding initiatives might need regulatory actions. The inspectorate should have a dual approach to mobilizing this political support through bureaucratic channels as well as through public opinion. The balance of the two components depends upon the decision-making mechanisms of specific countries. In any case, it is most likely that inspectorates should earn their political support through the perceived value of their achievements.

5. Human Resources Management and Personnel Planning

Inspection is a labor-intensive activity. Therefore, the human resources in an inspectorate are crucial, both in terms of quality and quantity, as well as adequacy for the evolving functions of the inspectorate and the changes and trends that are inevitable in the field of environment.

5.1 Size of the Work Force

The optimal size of the inspectorate depends on many factors. These are:

- The actual involvement of the inspectorate in all elements of the inspection system (see chapter 1)
- The scope and extent of environmental requirements that have to be met, the complexity of the environmental regulations, and the type of inspection that is asked for.
- Desired ratio of inspectors to number of facilities that require inspection.
- Expected level of non- compliance.
- Administrative and management resources needed to support inspection and permitting activities.
- Complementary responsibilities with other governmental agencies.

The ratio of inspectors to the number of facilities to be inspected is the most critical factor affecting the optimal size of the inspectorate. It is related to the above factors as well as:

- The level of experience of inspectors;
- The complexity of the facilities to be inspected; as well as
- The inspectorate's strategy

Given the specificity of each context, other countries' figures have minimal relevance. Rates, averages and trends should be locally based and continuously updated to feed into reasonably accurate human resources plans.

5.2 Different Activities Require Different Technical Skills

The activities performed by the inspectorate are dominated by inspections and this is reflected on the personnel profile. Moreover, other employees are usually related to the number of inspectors. However, as seen below, inspectors themselves are not a homogenous group. A thorough analysis of the skills needed for the different activities of the inspectorate is necessary.

5.2.1 Inspections

- ***Integrated/ Specific Inspections***

Integrated inspections require a pool of knowledgeable and experienced inspector while for specific inspections a more specialized inspector is needed.

- ***Emission and Process Performance Checking***

Inspection to check emissions without looking at internal processes needs a generalist. However, a different type of inspector is required, if inspection requires process knowledge to

establish compliance or to understand the causes of non-compliance. In a number of countries, generalists usually do the first inspections and specialists follow, if needed.

- ***The Nature of the Facility***

According to the nature of the facility, there could be a need for highly qualified personnel to execute detailed on-site inspections and quality reporting skills. In the case of highly complex facilities, an expert could be needed.

In case of simple small facilities, a junior inspector, with lesser experience in the field, but who have worked with a senior inspector on more complex tasks, will suffice. In some cases, only visual inspecting may be needed.

- ***Complaints***

In order to avoid the disruption of accumulated knowledge of facilities, it is not advisable to separate the pool of inspectors active in complaints from those active in regular inspections. In a number of countries, complaints are handled by a rotating crew of inspectors. In any case, it is important that inspectorate planning is not overruled by complaints so that the inspectorate does not become a complaint driven organization.

- ***Permits Checking***

As described in chapter 1, permitting is often not within the mandate of the inspectorate. In the case it is, it needs technically trained personnel in administrative control of permits and application for permits. Rotating permit writers and inspectors will improve their performance in both activities.

The mix of inspectors' skills and number should ideally be driven by the inspection approaches and strategies adopted by the inspectorate. It is, however, more likely that the reverse happens. Strategies and approaches are constrained by the pool of inspectors available or acquirable.

Naturally, present and likely new resources have to be taken into account, when Short-Term and Long-Term Plans for Inspections are under preparation and when these plans are approved by the inspectorates. In fact, available resources dictate, how many establishments can be inspected in a certain time period and how efficiently inspections can be carried out. Available resources must be taken into consideration when formulating realistic inspection plans that can actually be executed.

5.2.2 Administrative, Management and Judicial Actions

- ***Management***

Supervision and quality control requires one person per ten to fifteen inspectors at the most. For less experienced inspectors, more coaching will be required from supervisors. Accordingly, the span of supervision would be smaller. It is preferable that coordination with other authorities is undertaken by a restricted number of people, higher up in the organization. At the limit, this is limited to the manager supported by an administrative employee with experience is taking care of such duty. Other management activities would include the preparation of periodic plans for inspections and plans for resource development and capacity building.

- ***Post-inspection Activities***

The number of inspections ending up in court cases depends on the legislation as well as the compliance status and culture of a specific country. Knowing the rate of these cases per inspections performed is important for identifying the human resources required to cope with the judicial aspects in the inspectorate. The number of experienced lawyers or persons with a degree in law will depend on this rate as well as the characteristics of the national judicial system.

- ***Administrative Support***

Inspectors should write and type their routine reports according to a predefined formats and templates. However, in some cases, administrative support is needed for special report typing. Moreover, such support is needed for filing, telephone answering and keeping up agendas. Good support in this respect saves the inspectors valuable time for duties they are trained, and hired to do.

5.3 Common Personal Qualifications

The inspector's job requires a number of qualifications. Technical competence alone does not help the inspector perform properly. Specific work habits and personal characteristics are necessary conditions for inspectors whatever their special technical skills or level of expertise are. A professional inspector needs to be all of the following:

- Self confident
- Objective, fair and consistent
- Decisive, but also flexible as the situation dictates
- Scrutinizer (probing, curious, thorough and meticulous, alert and rational)
- Communicator (receptive and clear)
- Team player (work with colleagues)
- Planner (plans ahead, uses resources effectively and always well prepared)
- Output oriented (completes paperwork, consults experts and understands bureaucracy)
- Morally superior (polite, punctual and ethical)

It is obviously difficult to find all these characteristics in one person. Part of this difficulty is overcome through team working while the major part should be addressed through proper hiring and continuous training.

5.4 Personnel Planning

In human resources management, inspectorates have at least to take care of the following:

- Personnel planning is an essential part of the human resources management.
- New staff should be accompanied with budgets and funding.
- A personnel management plan should be incorporated in the long term planning.
- Staff training is essential.

In the Egyptian law of labor, occupational health inspectors should be periodically trained to build their capacity and continuously enhance their performance.

Inspectorates should act ceaselessly to gradually increase the quantity and quality of inspection resources. As part of the Short and Long-Term Inspection planning, inspectorates

should elaborate a justified Plan for the Development of Inspection Resources. The following items should be included in the plan:

- The quantity and quality of present human resources of the inspectorate for compliance inspections.

- Analysis of what can be done with present resources and what are the main factors related to resources, which restrict the ability of the inspectorate to carry out inspections efficiently.

- Analysis of needed human resources.

- Analysis of what will be the impact on the ability of the inspectorate to carry out inspections, if needed resources are provided, i.e. what could be done with new resources.

- A proposal/plan for the human and material resources.

- Which are of major importance i.e. which have to be organized/purchased most urgently (resources having the top-priority).

- Which are urgently needed and which should be organized/purchased as soon as possible (resources having a high-priority).

- Which are needed which should be organized/purchased in the nearest future.

5.5 Inspectors Training

Training of inspectors and team leaders is one of the factors that develop and increase the efficiency of inspection on industrial establishments. Therefore, the inspectorate should provide sufficient basic training to all inspectors before they undertake inspection activities.

Both training courses and on-job-training are needed for inspectors, according to their qualifications and tasks. Formal examinations should be carried out in conjunction with courses to measure the capabilities of the inspectors according to scores and levels that inspectors must reach.

In order to prepare the inspectors to assume their duties, the early training modules for inspectors should cover the following aspects:

- Safety and occupational health
- Objectives and importance of environmental inspection
- Planning of inspection activities
- Roles and responsibilities of the inspection team in different inspection stages
- Important environmental regulations
- Local industries, production processes, associated utilities and environmental pollution generated
- Inspection of the facility registers and documents; environmental register and hazardous waste register
- Using inspection checklists, preparing inspection reports and judicial impoundment records
- Information collection methods, observation techniques and communication skills
- Sound environmental management of industrial establishments, self-monitoring system and cleaner production technology

- Pollution abatement systems for air and water pollution, management of solid wastes, management of hazardous substances and wastes, etc.
- Sampling and using mobile measuring equipment

Training of inspectors is a continuous process. Inspectors should take part regularly in extensive training programs. These training programs can focus on specific issues or current general issues related to the ever-evolving context of industrial environmental inspections. The training should be tailored to the needs of the inspectors. Examples for general training modules could be found in the “Catalogue of North American Environmental Training Courses, Commission for Environmental Cooperation, 1996” and EPA, “Principles of Environmental Enforcement”, 1992 and “Training Course for Multimedia Inspectors”, 1998.

6. Centralized Versus Decentralized Inspection Systems

The nature of the inspection system imposes the decentralization of a number of its activities to provincial levels. This is due to the fact that:

- In most countries, establishments are spread on a wide geographical area, an aspect requiring inspectors to be nearer to the field.
- Establishments to be inspected are usually numerous and their inspection requires high human and financial resources that could never be made available in a centralized system.
- In a world of limited resources, decentralization will allow streamlining of a wider pool of resources.

Decentralization allows the national level to benefit from the involvement of local and regional levels in inspection activities. Such involvement varies from one country to another. Due to the differences in the social, cultural, political and economic nature of countries, it is difficult to set a standard opinion regarding the application of a certain level of decentralization. However, it is recommended that the level of decentralization takes into consideration the general administrative approach applied in the country.

The inspection system is one element in a larger network that is characterized by a high interaction between its components. The system is highly interrelated with other environmental systems such as environmental permitting. It is also related with non-environmental systems such as licensing and urban planning regulations. Problems arise when these systems are not compatible regarding the level of decentralization. The situation is more complicated when the environmental regulations are the responsibility of more than one entity. In all cases, it is important that the decentralization of the inspection system be compatible with other systems with which it interacts to ensure its effectiveness and the achievement of its objectives.

In exceptional cases, due to circumstances related to the nature of the country, the configuration of the inspection system might take one of two extremes:

- The first is a totally centralized system where only one entity is responsible for setting inspection policies, plans and implementation. This system is usually adopted in small countries where the number of establishments are limited. A totally centralized system is not appropriate in large countries with large number of establishments since the inspection activities would require extensive human resources for field inspection, hardly available in case only one entity is involved. Moreover, the application of centralized systems in large countries would allocate less time to activities related to planning, setting priorities, performance evaluation and feedback, which might affect the credibility of the inspection entity. The inspectorate’s responsiveness to public complaints might make time allocated for routine inspection also limited.
- The second is a highly decentralized system where the local and regional levels are responsible for setting inspection policies, plans and implementation based on national directives. This approach is only possible when the political system itself is decentralized (e.g. in federal systems).

The most common decentralization levels are:

- Decentralization of inspection implementation at the local and regional levels based on inspection plans set at the national level. This approach to decentralization is based on a delegation of tasks.

- Decentralization of inspection planning and implementation activities to the local and regional levels based on policies set at the national level. The regional and local levels set their own individual plans based on such policy.

Given the existence of political will, the main barrier to decentralization is related to the low peripheral technical and financial capabilities. In some cases, the total lack of technical and financial resources at the regional and local levels does not allow for decentralization of inspection activities to be considered in the first place. However, in view of future benefits, costs of building technical and financial resources of provincial levels, upon which the decentralization of activities are based, should be considered as the transitional costs to be borne by the central level.

6.1 Prerequisites for a Decentralized Inspection System

In order to maintain an effective decentralized system, the following requirements are recommended.

6.1.1 Clear Distribution of Responsibilities

There should be a clear distribution of responsibilities between the different levels involved to ensure effective utilization of resources and avoid duplication of efforts. The distribution of responsibilities should take into consideration the available resources, technical capabilities and environmental context. This distribution should be based on clear criteria such as:

- Size of establishments
- Complexity of activities
- Sectors
- Geographical location

6.1.2 Coordination Mechanisms

The development of coordination mechanisms between the different levels involved in the system is an essential pre-requisite to decentralization. The coordination mechanisms could include:

- Joint planning
- Reporting
- Meetings
- Information exchange
- Technical support

6.1.3 Standardization of Inspection Tools

The standardization of inspection tools including inspection checklists, reports and methodology play a very important role in the homogenization of approaches to achieve set objectives and enhance the effectiveness and credibility of environmental inspection. Such standardization should be complemented through the development of operational procedural manuals and information generating mechanisms.

6.1.4 Quality Control

Being a dynamic process targeting delegation and improved performance, the decentralization process is highly affected by the performance of peripheral authorities. Assessment, follow-up and quality control should be integral parts of the system. The quality

control procedures would be highly important to identify needs for capacity building, administrative interventions or modifications in the inspection approach.

6.1.5 Capacity Building

Capacity building of different levels involved should be undertaken to homogenize the inspectors understanding of inspection tools and methodology. Such capacity building activities should be tailored according to the nature of activities undertaken by each level.

6.1.6 Clear Enforcement Policy

With the decentralization of inspection and enforcement activities, it is essential to set a clear enforcement policy, to guide different levels during the process. A consistent and effective enforcement policy helps to ensure that establishments are treated fairly and contributes to building and strengthening the credibility of environmental requirements.

The policy should be jointly developed by policy makers, legal advisors and field inspectors. It should set the decision rules upon which appropriate enforcement procedures will be based taking into consideration the right of the facility to a clear justification for the implementation of a specific enforcement measure. The rules should be clear and flexible to avoid rigid approaches, which may be detrimental to the whole enforcement process and should include conditions to guard against the mis-use of enforcement powers. The objective should always be achieving the compliance of the establishment and consequently environmental protection.

6.2 Gradual Decentralization

It is important that the shift from a centralized to a decentralized system be gradual so as not to overwhelm the periphery with inspection activities, which are usually mastered not only through advanced training, but most importantly through practical experience.

In inspection systems, this sequential decentralization is usually based on inspection activity, sector, size of establishment or location. In each of these cases, quality control and assurance are important aspects to evaluate the effectiveness of the process.

If decentralization will be gradual based on type of activities, it is preferable to begin by compliance checking activities. Field investigation required for compliance checking makes it a resource-intensive activity and thus the decentralization of such activity will allow the central level to benefit from the resources at the peripheral levels and allocating more time for planning and supervision of the decentralized activities. Moreover, the adoption of such scheme will allow time for the national level to implement quality control procedures, essential to identify problems and improve the system. The compliance checking activities could also be gradually decentralized by size or sector.

7. Non-compliance Responses

Checking compliance with regulatory requirements and identifying violations is only one step in the inspection system. This step is followed by the selection and implementation of the non-compliance response, with the objective of achieving environmental compliance rather than punishment. Non-compliance response strategy is an integral part of the inspectorate strategy since it provides the decision rules upon which post-inspection actions are based.

There is a number of approaches to non-compliance response; some of which are voluntary encouraging and assisting the change, while others are regulatory, based on law requirements that directly or indirectly reduce or prevent pollution. As detailed below, the success of the command-and-control approach depends to a great extent on the implementability and enforceability of the requirements.

7.1 Factors Affecting Enforceability

7.1.1 Authorities

Environmental laws are most effective if they provide sufficient authority, without which the enforcement process would not be able to create compliance. The credibility of an enforcement program will be highly affected if violators can successfully challenge its authority to take required actions. The authorities that are extremely important to an effective program include, inter alia, the following:

- ***Authority to Regulate***

- Authority to issue regulations, permits, licenses, and guidance to implement the law.
- Authority to be flexible and adapt requirements to facility-specific circumstances.

- ***Authority to Monitor Compliance***

- Authority to inspect regulated facilities and access their records to check their compliance.
- Authority to require that the regulated facilities conduct self-monitoring, keep records of the results, report periodically to the environmental authorities and make the information available for inspection.

- ***Authority to Detect Falsification of Data***

- Authority to undertake monitoring activities to check the self-monitoring results.
- Authority to cross check applied practices through questioning facility employees

- ***Authority to Respond***

- Authority to adopt appropriate responses to non-compliance according to the nature of violation. Such authority should be backed by the authority to take legal action against non-complying facilities, for example:
- Authority to impose a range of fiscal penalties and other sanctions on violating facilities.
- Authority to impose criminal sanctions on violating facilities
- Authority to respond to violations that represent an imminent danger to health and/or environment including discontinuing polluting activities or facilities, requiring compensation or imposing clean-up.
- Authority to seek a court order to impose sanctions or penalties

7.1.2 Institutional Framework

Authorities are seldom granted to a single party. The laws and regulations generally establish the institutional framework for their enforcement by indicating the responsible entities and the roles and responsibilities of each one. The coordination between such entities is a major factor to ensure the rational use of authorities and to avoid inconsistency or loss of system credibility.

Some laws may give citizens and non-governmental organizations the right to report violators to responsible authorities or sue polluters and regulators for failing to fulfill their duties under the law. Such right should be directed towards achieving the highest possible return from the available resources.

7.1.3 Balance between Authorities and Facility Rights

In order to maintain an effective inspection and enforcement processes, the facilities rights should be taken into consideration in all activities, especially when regulatory authorities identify environmental objectives. It is important that all establishments be treated equally and fairly regarding enforcement actions. Apart from being one of the rights of the establishments, this specific issue is critical to the credibility of the regulatory authorities.

- ***Right to be Notified of the Violation***

In some laws and regulations, a notice of violation is issued before any formal enforcement action is pursued. This notice could be informal or formal according to the requirements of the laws. Such action provides the facility with an opportunity to rectify the violation within a specified time frame to avoid the implementation of enforcement action.

- ***Right to Select Method of Rectification***

The facility should have the right to select the method of violation rectification according to its available resources and conditions. It is important that the environmental inspectorate does not impose any technical recommendations concerning the corrective actions for violating establishments.

- ***Right to Issue Appeals***

The factory should have the right to issue appeals, to the system, related to inspection results and enforcement actions. The facility might require the verification of measurements by an independent laboratory.

- ***Right for Information confidentiality***

All information and documents collected during field inspection are confidential and should be handled accordingly.

7.1.4 Environmental Requirements

Environmental laws differ in approach used to address environmental requirements. In some laws, the environmental requirements are included in the form of emission limits or management practices that establishments should abide with. Other laws set the framework upon which the requirements are developed. Environmental requirements are either general, sector-specific, area-specific or facility specific.

- ***General Requirements***

These are requirements applied to all types of facilities including regulations for emission concentration, waste management practices, conditions specific to raw material and products, maintaining specific records, self-monitoring requirements, among others.

- ***Sector-specific Requirements***

These are requirements that only apply to specific sectors and are usually related to the technological processes used in the sector. Such requirements could be specified in environmental regulations or could be the result of voluntary agreements between the sector and the regulatory authorities. In the latter, the agreement usually involves the commitment of the sector to comply with certain emission levels which are in most cases less than those set by the laws.

- ***Area-specific Requirements***

These are requirements relevant to areas of different nature such as industrial estates, touristic development, protected areas or to geographical regions based on their carrying capacities or pollution levels. These national requirements usually address the criteria that should be satisfied in specific development areas including conditions related to location, landuse, types of facilities, management systems and other development conditions.

- ***Facility -specific Requirements***

It should be noted that each facility should abide by the general requirements as well as the sector-specific and area-specific requirements.

Facility-specific requirements are never included in a general regulation as they are only relevant to specific facilities. They are rather implemented as conditions to be granted licenses and permits given that the authority to customize facility-specific requirements is regulated. These requirements are set taking into consideration the activities undertaken in the facility and surrounding environment. They may be related to technological conditions, emissions concentrations, implementation of pollution control schemes or monitoring activities and may address one or more environmental medium. Such requirements are incorporated in environmental permits, in case these are stipulated by the regulatory framework of the country. They could also be in different forms such as in the approval of the environmental impact assessment study (EIA) prepared before the project establishment as necessary conditions to be granted the license. This gives the regulatory authority the right to revoke the license/permit in case the facility violated such requirements.

To ensure effective enforceability, all types of requirements should be implementable and feasible and should have the following characteristics:

- Clear regarding required level of compliance and expected enforcement actions in case of non-compliance
- Comprehensive regarding the needed actions and deadlines for compliance
- Precise regarding the identification of regulated facilities
- Flexible to be adapted to different regulatory circumstances

7.1.5 Compatibility

In order to establish an effective response strategy, all environmental laws should be compatible and should not contradict one another, unless one is intended to supersede

others. Environmental laws should reinforce and complement laws and policies in other sectors, such as:

- Heath; food safety, occupational health and safety, consumer products, pesticide use, etc.
- Natural resource management; water, energy, minerals, forests, etc.
- Land use planning; transportation, development, siting, etc.
- Industry and commerce.
- Agriculture.

7.2 Enhancing Enforceability

In order to enhance enforceability of environmental regulations, several principles should be adopted during all stages of the inspection process including laws formulation and implementation, permit development, inspection activities and non-compliance response.

7.2.1 Graduality in Implementation

The success of an enforcement action in achieving its objective depends to a great extent on the nature of violating facility, size of the establishment, financial status of the establishment and many other factors. The ability of the establishments to react to sudden pressure exerted by enforcement measures differs according to technical and financial constraints. It is essential that the implementation of enforcement programs be gradual to achieve a sustainable accumulated progress on the long run rather than enforcing all requisites in a short time, which could overwhelm most facilities.

7.2.2 Balancing Stringency and Feasibility

The implementability and feasibility of corrective actions has a great effect on the degree of compliance. It is thus essential to achieve a balance between setting strict and ambitious environmental requirements and the feasibility of implementation to ensure a high level of compliance. This balance has to be found in the pre-permit negotiation, or in the formulation of regulations, as the case may be. The inspectorate may play a role in both cases depending on the legal, policy and managerial framework.

7.2.3 Preferential Treatment for Committed Facilities

In dealing with violating facilities, committed or cooperative facilities that achieved progress regarding compliance should receive preferential treatment in comparison to other facilities. Such preferential treatment would encourage other facilities to rectify their violations. Moreover, differentiation should be make in dealing with industries that failed to achieve compliance for serious reasons and others which can reduce the pollution burden through adopting low cost procedures. In order not to project an image of double standards, this approach and the criteria governing it, should be made known to the regulated community, together with its rationale which is to encourage facilities to progress towards compliance. This approach is especially pertinent in the early phases of regulatory control, e.g. a new law, when non-compliance is the rule rather than an exception.

7.2.4 Improving the Climate for Compliance

Several factors contribute to creating a responsive climate for compliance. They include:

- Provide awareness and technical assistance to the facility
- Build public support

- Publicize success stories
- Provide economic incentives and creating financial arrangement
- Build environmental management capability within the facility
- Maintain a transparent enforcement system
- Show flexibility in implementing enforcement actions

7.3 Response to Violations

Non-compliance response could only be initiated after the violation is proved based on field inspection and monitoring results. The adoption of different response mechanisms is highly related to the stipulations of environmental laws and regulations and to the flexibility they provide to the inspectorate. However, such flexibility should be well controlled through the development of a clear enforcement policy to streamline the adoption of different responses.

In implementing the response actions, two main approaches are used:

- Direct implementation
- Negotiations

7.3.1 Direct Implementation

For such approach, the enforcement measures are directly implemented without allowing for any communication or discussion with the facility. In the following, the most common non-compliance responses are discussed.

- ***Notification***

In such cases, the facility is notified of the violation without implementing any enforcement actions and is directed to rectify it within a specified time period. This approach is effective when the actions needed for rectification are simple and do not require much time and that the violation does not represent an imminent danger to health or the environment. Moreover, it is best applied in case facilities have an outstanding compliance history such that informal notification is an incentive to comply. This type of response requires follow-up inspection after the specified period to ensure that the violation is rectified.

- ***Formal Administrative Actions***

Formal administrative responses are the most commonly used in enforcement. In such approach, the facility is officially notified of the violations and fines are collected, as specified by the law. The facility is requested to rectify the violation within a specified period of time. Follow-up inspection is conducted after such period and more stringent actions are taken in case the violation persists. The actions are usually related to imposing clean-up on the facility expenses, discontinuity of violating activities or facilities and requiring compensation. In cases of imminent danger to health or the environment, laws could necessitate the temporary closure of the violating facility until the violation is rectified. Most laws set higher penalties for repeated violations.

The rigid specification of the period for rectifying the violation by the law is not usually appropriate to all possible cases. Inspectors should have flexibility in indicating such periods according to the actions required for rectification. This is most applicable for violations whose rectification requires long periods of time. In such cases, the facility might be required to provide the inspectorate with an action plan including the time schedule for implementation.

Follow-up inspection could be periodically conducted to examine the progress of compliance activities.

- ***Formal Judicial Actions***

In such cases, a judicial record is prepared and forwarded to the judicial authorities to initial a lawsuit. Such records are prepared by inspectors with judicial powers who are summoned in court as witnesses. Civil or criminal judicial responses are taken according to the type of violation (felony, delinquency or contraventions).

The main problem with such approach is the lengthly judicial procedures, which could affect the credibility of the regulatory authority.

7.3.2 Compliance promotion

In this approach, the facility is given a chance to negotiate conditions of the enforcement actions with the aim of achieving compliance. Such negotiations are usually related to periods given for violation rectification. Negotiation provides an opportunity to reach a solution that satisfies all parties and ensures the commitment of facilities to compliance. However, what usually brings the facilities to negotiation is the implicit threat of implementing enforcement measures.

The negotiation approach creates a cooperative and transparent relation between the facilities and the regulatory authorities. Negotiations will enhance the image of regulatory authorities because facilities will appreciate that the concerns and difficulties they encounter in achieving compliance are being taken into consideration. Moreover, the resulting settlement will alleviate the inspection load on the regulatory authorities for such facilities since their inspection will only be limited to follow-up of the action plan progress.

Because the negotiation is not a direct implementation of laws, it should involve concerned parties including the affected community and/or representative non-governmental organizations.

The negotiation results should be included in an official document formalizing a binding agreement that should be respected. This document could have different names including settlement, administrative consent order or judicial consent decree depending on the traditions of each country, and the process through which it is formalized. The unofficial condoning practices in many countries should be avoided. The agreement document should include fixed obligations, time schedules and penalties for non-compliance to maintain a constant pressure for compliance.

8. Compliance Checking on Voluntary Agreements

Voluntary agreements are policy instruments complementary to regulatory instruments to address environmental problems. They represent a tendency towards cooperation between environmental authorities and establishments. Such agreements provide flexibility in reaching the environmental objectives, relative to the traditional command and control regime.

The agreement involves a commitment from single facilities or industry sector towards achieving set objectives. The main advantage of these agreements is that they derive from a cooperative approach based on mutual understanding and trust from both sides, which requires the respect of the responsibilities of each party as indicated in the agreement.

These agreements should be consistent with the legislative system, which should allow such agreements and set the criteria for it.

8.1 Voluntary Agreements

8.1.1 Types of Voluntary Agreements

In some cases, facilities show their commitment to environmental protection through the implementation of unilateral voluntary programs. These are environmental improvement programs created by the establishments as a self-regulating[4] initiative in response to pressures. These arrangements are not inspected by regulatory authorities and are not legally sanctionable in case of non-compliance. Such arrangement is not considered an environmental agreement.

There are three categories of voluntary agreements with different participation of the governmental environmental authorities.

- ***Public Voluntary Programs***

These are environmental programs set by the public authorities and industries are encouraged to voluntarily participate in them. In such agreements, industries will be committed to comply with set conditions related to environmental performance and criteria for monitoring and evaluation. In return, the industry will benefit from the incentives provided by the authority in the form of technical assistance, subsidies, or enhanced public image. Based on an agreement, the industry will be expected to comply will all conditions with no actual negotiations, but with due consultation with the concerned industry.

- ***Negotiated Environmental Agreements***

These are mutual agreements between the regulatory authorities and an establishment or a sector. This is the most commonly applied type of environmental agreements. The agreement is reached after a process of negotiations resulting in a commitment that is formally recognized by the environmental authorities and that is subject to sanctions in case of non-compliance with the agreement terms.

4 Self-regulating initiative: is the case where the facility sets voluntary specific conditions or programs that it should comply with.

- ***Private Environmental Agreements***

These are agreements in the form of contracts between an individual establishment or sector and a local or international organization, groups or NGOs. These agreements involve a minimal public authority involvement.

- ***Private Environmental Arrangements***

An example for such arrangements is the implementation of an ISO14001-based environmental management system. In such cases, the certifying body will be responsible for issuing the certificate and for periodic third party inspection. In all of these cases, the entity with which the facility has established the arrangement has the right to apply non-compliance responses based on the contract law.

8.1.2 Elements of a Voluntary Agreement

In all voluntary agreements, the contract and its conditions plays a key role in clarifying the rights and duties of each party. Factors that should be addressed in the contract includes:

- Scope of the agreement
- Clearly defined targets
- Nature of obligations
- Time schedule for achieving the targets
- Arrangements for periodic reliable reporting and monitoring
- Indicators of compliance with targets of the agreement
- Measuring for dealing with circumstanced that may affect the conditions of the agreement
- Arrangements for evaluating and monitoring compliance with the agreement including the approach adopted and the entity responsible for inspection
- Measures to be taken in case of non-compliance with the agreement terms
- Relation of the agreement with the current legislative system
- The period for which the agreement is valid
- Criteria for agreement termination

Agreements may address several objectives including:

- Complying with existing laws and regulations
- Supplement existing regulations by setting more ambitious environmental objectives
- Addressing subjects not covered by regulations
- Temporary measures that are taken in preparation for a new law

8.2 Involvement of the Inspectorate in Voluntary Agreements

8.2.1 In the Development of the Agreement

For both public voluntary programs and negotiated agreements, the inspectorate could be involved in the agreement development phase. This involvement is either related to the inspection of the facility to establish baseline conditions before the development of the agreement or in the formulation of the agreement itself. The first role is usually undertaken in both agreements where it is important to evaluate the environmental status of the facility before setting the conditions for the agreement. However, the second role is mainly applied in case of negotiated agreements since the development of a public voluntary programs are usually done on the national level, with due feedback from the inspectorate and other environmental authorities.

In private environmental agreements, the inspectorate should be informed of the agreements and provide clearance for its contents to ensure its compatibility with relevant laws and regulations.

8.2.2 In the Implementation of the Agreement

The private environmental agreements are not made with governmental authorities and thus are not inspected by the inspectorate. However, such agreements generate a considerable amount of information that could be useful for the inspectorate. Chapter 9 presents the approach towards the Environmental Management System as an example for these arrangements.

The inspectorate should have copies of all agreements and should examine them before formulating the inspection plan and non-compliance response related to such facilities. Non-compliance response should adhere to the terms of the agreement.

Public voluntary programs and negotiated agreements include specific objectives to attain in specific time periods and accordingly, inspection will be limited to checking the compliance of the establishment with the terms of the agreement. Accordingly, compliance checking is undertaken on two steps.

- ***Self-Reporting***

Self-reporting could be integrated in the conditions of the agreement. The facility will be required to submit reports to the inspectorate including the achievements accomplished in specific periods. The report could be coupled with self-monitoring results or calculated indicators as requested by the agreement. The inspectorate will analyze the report and could compare the achievements to the agreement.

- ***Field Inspection***

Field inspection could be undertaken to check the facility performance as compared to the agreement conditions and the reporting results. The frequency of the inspection will depend on the time schedule indicated in the agreement and the analysis of the reports.

9. Environmental Management Systems and Enforcement

Increasing concern about environmental issues has significantly affected global practices in recent years as organizations strive to comply with increasing governmental regulations on one hand and to meet consumer expectations on the other. Companies try to achieve and demonstrate sound environmental control and active management of their environmental performance through developing, implementing and maintaining a well-structured environmental management system (EMS) integrated with the overall management system in the establishment.

An EMS is a framework that helps a company achieve its environmental goals through consistent control of its operations. This is achieved through the design and implementation of an environmental framework that defines the management policy, designates an implementation phase and allows for identification and correction of deficiencies. The ultimate aim is the continual improvement of the environmental performance. The EMS provides a proactive approach, which identifies the root cause of problems and addresses them to prevent their recurrence.

The most commonly used framework for an EMS is the one developed by International Organization for Standardization (ISO) for the ISO 14001 standard. This framework is the official international standard for an EMS. The Eco-Management and Audit Scheme (EMAS), adopted by the European Union (EU), enables industries to voluntarily[5] implement environmental management systems in order to improve their environmental performance. While ISO 14001 apply to organizations, EMAS is restricted to site-specific industrial activities.

Box 9.1: Elements of an ISO 14001 EMS

- Develop the company's environmental policy as a framework for planning and action.
- Identify environmental aspects of the company's activities and indicate significant one
- Identify and ensure access to relevant laws and regulations and other requirements to which organization should adhere.
- Establish environmental objective and targets based on the policy and significant environmental impacts
- Formulate environmental plans and programs to achieve objectives and targets.
- Establish roles and responsibilities and provide resources.
- Ensure that the employees are trained and capable of carrying out their environmental responsibilities.
- Establish processes for internal and external communications regarding environmental issues.
- Maintain information on EMS and related documents.
- Establish an effective document control system
- Identify, plan and manage operations and activities in line with the environmental policy, objectives and targets.
- Identify potential emergencies and develop procedures to prevent and respond to them.
- Monitor key activities and track performance.
- Identify and correct cases of nonconformance and prevent their recurrences.

[5] In some countries such as Ireland, the implementation of EMS is one o the requirements of environmental permitting.

- Keep adequate records of EMS performance.
- Periodically conduct internal audits.
- Conduct periodic management review.

The implementation of EMS has provided establishments with many benefits such as:

- Improved corporate image among public, regulators and customers
- Reduction in incidents that result in liabilities
- Facilitating the attainment of permits and authorization
- Competitive marketing image
- Improved relations with insurance companies
- Achieved saving in costs of energy and material
- Reduced costs of waste management

9.1 Relation between EMS and Legal Environmental Requirements

There is a basic requirement in different EMS standards for future commitment to compliance with applicable laws and regulations. Beyond that, the company has considerable latitude in defining the objectives of its EMS. Accordingly, a priority is given to achieving compliance with legal requirements.

Monitoring, measuring and evaluation are key activities of an EMS ensuring that the performance is according to the specified targets and within the timeframe set in the programs. This is achieved through self-monitoring programs, related to emission measurements, performance indicators and internal audits, geared to investigate the compliance of the facility with relevant environmental legislation and regulations as well as other conditions set by the EMS. The results of these monitoring activities are analyzed to determine areas of success and identify the need for corrective actions and improvement.

Moreover, the EMS requires the establishment of external communication links with interested parties such as environmental groups, customers, local officials, regulatory agencies and emergency responders. The facility should respond to any inquiries related to its environmental performance and EMS operation and should publicize information related to its environmental performance.

According to the EMS requirements, the establishment should maintain a number of environmental records which includes, among others:

- Periodic results for self-monitoring program with due comparison to the requirements of relevant environmental legislations
- Internal audits reports and cases of non-conformances discovered
- Register of environmental aspects including emissions and wastes
- Record for all communication with environment authorities
- Emergency preparedness records
- Follow-up reports for environmental targets and programs and achievements

Checking of compliance with environmental laws and regulations is an activity that depends to a great extent on monitoring activities undertaken either by the inspectors or by the establishments. These monitoring requirements are often addressed either explicitly or implicitly.

Accordingly, the implementation of an EMS in any establishment represents an added value not only for the establishment but also to the regulatory authorities. Apart from the benefits already mentioned, the EMS puts the establishment in a better position when inspected by environmental regulators as the establishment becomes well prepared with its monitoring results, records and other information.

On the other hand, the environmental authorities are provided with a wealth of information from which the inspectorate can evaluate the environmental compliance of the establishment. The EMS normally provides more reliable data to verify a single unrepresentative sample that may be obtained during routine inspection.

Such information is especially valuable when the environmental laws do not explicitly require self-monitoring. However, in most cases, this added value is not fully recognized or appreciated by authorities when checking compliance. It should be noted that the EMS provides the inspectorate with information that could be used to evaluate the establishment compliance status, however, such information could not replace the role of the regulatory authority to assess compliance by means of field inspection, it rather supplements such role.

9.2 Inspection Policy Towards Facilities Implementing EMS

Due to limited resources, the inspectorates should set priorities regarding inspected facilities. Such priorities are based on different criteria including size, sector, a history of compliance or a commitment to achieving compliance.

Whether an establishment implements EMS could well fall under such criteria. Accordingly, the frequency of regulation inspection for such facilities could be reduced, provided that there is enough proof that such facilities are committed to environmental compliance. In doing so, the inspectorate will depend on two main elements.

- ***Self-monitoring Results***

The first routine inspection for these establishments is very important to investigate the operationalization and effectiveness of the EMS in achieving compliance and checking the truthfulness of self-monitoring results. Once this is established, the regulatory authority should ensure the reliability of the self-monitoring program. This could be done through:

- Checking the self-monitoring plan
- Checking quality control and quality assurance procedures
- Verifying the specified measurement methods

It is expected that such checking be conducted by technical staff, appointed by the inspectorate.

In the following visits, the inspectorate might depend more on the self-monitoring results and environmental registers of the establishment.

- ***Information Requested from the Facility***

Agreements could be made with the facilities to inform the inspectorate of monitoring results deviations or environmental accidents. These agreements are already required in a number of laws and regulations. Other information or documents related to the environmental performance of the facility could be provided to the inspectorate upon request. The agreement between the facility and the inspectorate will operationalize the communication link that should be established between both parities, as indicated by EMS standards. Information includes:

- Register of environmental aspects including emissions and wastes
- Record for all communication with environment authorities
- Emergency preparedness records

The internal audits reports and performance indicators include internal information concerning the EMS, which will not be of any value to the inspectors. All the environmental-related results will be included in the self-monitoring records.

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