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Principles of Environmental Compliance and Enforcement Handbook

Chapter 5: Designing Effective Requirements

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5. DESIGNING EFFECTIVE REQUIREMENTS

5.1 Introduction

Effective requirements are critical to the success of any compliance and enforcement program. Without adequate legal authorities, enforcement programs will generally be ineffective. Unclear, imprecise, ambiguous, inconsistent, or contradictory requirements may be difficult or impossible to enforce. Requirements that rely on expensive, unreliable, or unavailable technologies will make compliance difficult or impossible.

This chapter outlines some steps that can be taken to design effective requirements. These include explanations about some of the basic legal issues in drafting requirements, balancing the stringency and feasibility of requirements, designing effective general and specific requirements, and developing strategies for involving stakeholders in the drafting process.

5.2 Basic Legal Issues

5.2.1 Sufficient Legal Authority

An environmental law will be effective only if it provides sufficient legal authority to ensure compliance.[10] The credibility of a program will erode if non-compliant actors can successfully challenge the government's authority to take certain actions or if the government does not have the tools to ensure compliance.[11]

Some of the powers necessary to ensure program effectiveness are the abilities to:

- Issue regulations, permits, licenses, and guidance to implement the law.
- Monitor regulated actors and gain access to their records and equipment to determine if they are in compliance.
- Require the regulated community to monitor its own compliance, keep records of its compliance activities and status, report this information periodically to the enforcement program, and make the information available to the public.
- Take legal action against non-compliant actors, including: (1) imposing a range of monetary penalties and other sanctions on actors that violate the law; or (2) imposing criminal sanctions on actors who violate the law (*e.g.*, an individual or corporation that deliberately falsifies data).
- Correct situations that pose an imminent and substantial threat to public health or the environment.

5.2.2 Clear Standards

Clear, enforceable standards are needed for requirements to be effective. An environmental standard is a guideline, usually in the form of a law or regulation, that regulates the effect of human activity upon the environment. Standards may specify a desired state (the level of nitrogen in the air cannot exceed 0.053 parts per million), limit alterations (e.g. no more than 10% of natural forest may be damaged), or they may require the use of certain technologies or practices. (See Box 5-1).

BOX 5-1: TYPES OF STANDARDS

Ambient Standards

Ambient standards, or media-quality standards, are goals for the quality of the ambient environment (e.g. air, water). Ambient standards are usually written in units of concentration. In the US, ambient standards are used as environmental quality goals and to plan the level of emissions from individual sources that can be accommodated while still meeting the area-wide goals. Ambient standards may also be as triggers, e.g., when the standard is exceeded, monitoring or enforcement efforts are increased. Enforcement of ambient standards usually requires relating an ambient measurement to emissions or activities at a specific facility.

Performance Standards (Emissions and Effluents)

These standards are widely used for regulations, permits, and monitoring requirements. Performance standards limit the amount or rate of particular chemicals or discharges that a facility can release into the environment in a given period of time. Performance standards provide flexibility because they allow sources to choose which technologies they will use to meet the standards. Some requirements introduce additional flexibility by allowing a source with multiple emissions to vary its emissions from each stack as long as the total sum of the emissions does not exceed the permitted total. Compliance with emission standards is measured by sampling and monitoring.

Technology Standards

These standards require the regulated community to use a particular type of technology to control and/or monitor emissions. Technology standards are particularly appropriate when the equipment is known to perform well under the range of conditions generally experienced by sources in the community. It is relatively easy for inspectors to determine whether sources are in compliance with technology standards: the approved equipment must be in place and operating properly. It may be difficult, however, to ensure that the equipment is operating properly over a long period of time. Technology standards can inhibit technological innovation and pollution prevention if they are not continually readjusted.

Practice Standards

These standards prohibit certain work activities that have significant environmental impacts or require certain mitigating activities. For example, a standard might prohibit carrying hazardous liquids in uncovered buckets. Like technology standards, it is easy for program officials to inspect for compliance and take action against non-compliant sources, but difficult to ensure ongoing compliance.

Information Requirements

These legal provisions require a source of potential pollution (e.g., a pesticide manufacturer or facilities involved in generating, transporting, storing, treating, and disposing of hazardous waste) to develop and submit information to the government. Sources generating pollution may be required to monitor, report, and maintain records of levels of pollution generated and whether or not they exceed performance standards. Information requirements are often used when the potential pollution source is a product such as a new chemical or pesticide, rather than a waste. Manufacturers may be required to test and report on potential harmful effects of new products on the environment.

Product or Use Bans

A ban may prohibit a product outright (e.g., no manufacture, sale, or transport of a product), or a ban may prohibit particular uses or applications of a product.

5.2.3 Clear Roles and Responsibilities

Environmental laws should also create an institutional framework that specifies the roles and responsibilities of the various levels of government and agencies. Laws and regulations need to be clear about the process and procedures by which the government can take an enforcement action.

5.2.4 Fair and Equitable Rules

Government credibility is critical to establishing an effective compliance and enforcement program. Rules must protect those who have allegedly violated environmental laws from unfair government actions. The rights and responsibilities of those involved in an enforcement process must be clearly written and accessible to them.

A government's willingness and ability to impose sanctions related to bribery and the falsification of environmental data are also very important.

In addition, government inspection schemes must be rational and related to the laws' underlying environmental and public health purposes.

5.2.5 Coordinated with Existing Laws

When laws are developed and proposed, legislators, government agencies, and interest groups should work to understand how those laws will affect other environmental laws and laws in other related sectors. Other sectors with laws that overlap pollution control and natural resource protection may include:

- Health—food safety, occupational health and safety, drinking water, consumer products, pesticide use, etc.

- Land use planning - transportation, development, siting, etc.
- Industry and commerce.
- Agriculture.

Rational coordination of laws can be especially important in countries with many agencies sharing responsibility for environmental protection. Brazil, in a situation common to many countries, faces the challenge of coordinating over 69 environmental laws and 53 international environmental-related treaties across the national, state, and municipal levels.[12]

5.3 Balancing Stringency and Feasibility

Those designing environmental requirements should consider whether particular requirements are technologically, economically, and administratively feasible. If the government would like to ban a particular product or activity, then it will need to determine whether alternatives are desirable, and if so, whether they are feasible.

Social, economic, and political factors, as well as regional, national, and international trends may affect how a particular country determines how stringent to make a particular law or regulation.

Stringent requirements can lead to better and potentially quicker environmental protection and restoration. In some cases, however, overly stringent requirements imposed too early in the life of a program can cause the regulated community to disregard those requirements. Goals and targets that consistently overreach are likely to be modified, encouraging industry to wait for the goals to be revised before complying. Overly ambitious requirements, accompanied by a history of retreat, will undermine compliance with both the requirements at issue and the overall environmental management program.

A phased approach may address some of these issues. The first phase involves less stringent requirements that do not pose too great a burden for the regulated community. At a minimum, this phase should eliminate some of the competitive advantage for polluters. Sometime later, during a second phase, the program implements more stringent requirements. Additional phases may be implemented later in an effort to continue to tighten standards.

5.4 Effective General Requirements

General requirements are those that apply to a class or group of entities or people and/or a class of activities.

5.4.1 Basic Design Principles

General requirements are most frequently implemented in the form of (1) laws, (2) regulations, or (3) general permits or licenses that apply to a specific class of facilities (*e.g.* dry cleaners). General requirements may apply directly to a group of facilities or may serve as the basis for developing facility-specific requirements. Requirements should:

- Be clear and understandable.
- Precisely define the sources or activities that are subject to requirements.
- Precisely define the requirements and any exceptions or variances (such as when regulated entities may petition the government for an exemption from a general requirement).[13]
- Clearly address how compliance is to be determined by specifying test methods and procedures.
- Clearly state deadlines for compliance.
- Identify what types of compliance assistance will be offered to the regulated community (*e.g.*, training, technical assistance, etc.).
- Describe how compliance will be monitored.
- Establish enforcement responses for non-compliance.
- Be flexible enough to be constructively adapted through individual permits, licenses, or variances to different regulatory circumstances.
- Be written clearly enough to be the basis of criminal prosecution (which is the most serious enforcement action).
- Be based on technology (*e.g.*, control or monitoring equipment) and methodologies that are or soon will be available, reliable, and affordable.

Box 5-2 provides examples of basic questions that can be asked when legal requirements are being drafted into regulations, general permits, or licenses that will be effective.

BOX 5-2: CHECKLIST FOR DEVELOPING EFFECTIVE GENERAL REQUIREMENTS

Definitions

- Does the regulation, general permit, or general license clearly define the regulated community, the regulated activities, and the regulated substances?
- Are any exceptions to defined terms narrow enough to avoid having the exceptions undermine the defined terms?
- Are the definitions and exceptions precise enough so that compliance assurance personnel can identify instances of non-compliance?

- Are defined terms used consistently throughout the text of the regulation, general permit, or general license?
- Is the legal authority underlying the regulation, general permit, or general license clearly articulated?
- Are exceptions to the regulation, general permit, or general license defined precisely enough to make it clear which groups are exempted? If sources under a certain size are exempted, does the regulation identify how the size of a particular source is to be determined?
- Are requirements or other end results measurable? Are the units of compliance clear?
- Are more enforceable requirements available, *i.e.*, requirements that are easier to measure and less resource-intensive?
- Are exceptions clearly described? Is the calculation for exceptions clearly specified? If the regulation, general permit, or general license grants exceptions based on malfunctions or changes in local conditions, does it specify what emission levels may be excused, when, and who makes this determination?
- If changed circumstances may raise or change a requirement, does the regulation, general permit, or general license clearly specify these circumstances? Are the changes that must be made clearly defined?
- If the requirement is an emission limit or concentration value, does it explicitly state the time frame associated with the limit (*e.g.*, instantaneous, two-hour average, daily)?

Monitoring

- Does the regulation clearly state exactly what the regulated community is required to monitor? Do these requirements support the compliance goals of the environmental law? For example, if the compliance goal is to demonstrate that facilities are in compliance each day, does the regulation, general permit, or general license require daily self-monitoring and recordkeeping [and reporting]?
- What test methods are needed to determine whether a facility is in compliance? Are the methods clearly described? Are any allowable averaging times clearly specified?
- Does the regulation, general permit, or general license make falsifying self-monitoring data a separate and enforceable violation?
- Does the regulation, general permit, or general license authorize inspection procedures that will enable inspectors to gather data needed to determine compliance?
- Do the procedures cover entering a regulated facility, inspecting documents, and collecting samples?
- Will inspectors be readily able to determine which facilities are not in compliance?
- Will the requirements for inspection and self-monitoring help reduce enforcement costs and increase the effectiveness of inspections?

Self-monitoring

- Does the regulation, general permit, or general license provide a clear schedule for self-monitoring?
- Does the regulation, general permit, or general license state the methods to be used for self-monitoring?
- Does the regulation, general permit, or general license clearly state what data the regulated community is required to record and report?
- Will these data show whether or not a facility is in compliance? Will these data provide sufficient evidence to document a violation?

- Does the regulation, general permit, or general license provide a clear schedule and format for recordkeeping and reporting?
- Are the reporting requirements frequent enough to allow timely response to a violation?
- Is the regulated community required to retain information long enough for enforcement purposes?
- Does the regulation, general permit, or general license make failure to maintain or report records a separate and enforceable violation?
- Is the regulated community required to make records available to inspectors upon request?
- Are any exceptions to the recordkeeping and reporting requirements clearly defined/stated?
- Will the requirements for reports, records, and inspection/monitoring techniques help reduce enforcement costs and increase the effectiveness of inspections?

Demonstrating Compliance

- Does the regulation, general permit, or general license clearly describe what constitutes compliance and how compliance is determined? Is compliance determined by field inspections and desk reviews of reports submitted by the regulated community, or is the regulation, general permit, or general license self-enforcing?
- Does the regulation, general permit, or general license clearly state who (*i.e.*, the government or the facility) is responsible for proving compliance or non-compliance? Can the environmental management program independently determine compliance? Can the program require the facility to perform certain tests and determine compliance?
- Does the regulation, general permit, or general license define time limits by which a member of the regulated community must reach compliance? Do the time periods have specified beginning and end points? If compliance is defined by occurrence of an event, rather than by a date, is the event discrete enough for an inspector to determine whether the facility is in compliance?
- Is the evidentiary burden required to prove a violation clearly described? Can third party data be used as evidence?
- Does the regulation, general permit, or general license describe the extent to which an inspector can use professional judgment in determining whether a facility is in compliance?
- If different government levels are involved in enforcement programs, does the regulation, general permit, or general license clearly describe the responsibilities of each level of government?

5.4.2 Size of the Regulated Community

If possible, regulators should determine the size of the regulated community prior to implementing environmental laws; otherwise governments may find that their environmental requirements are unmanageable.

For example, a province in the Netherlands passed a law requiring companies to apply for an exemption if they wanted to use a processing installation to dispose of their wastes. After the law was passed, the government discovered that 100,000 companies would need an

exemption. Inspections alone would have required hiring an additional 200 to 300 inspectors. The provincial government decided to revise the regulation. Exemptions are no longer required. Companies must keep a record of their waste deliveries and periodically report information on the most hazardous wastes. Compliance assurance efforts now focus on the waste processors (about 1,000) rather than the waste producers.

BOX 5-3: THE IMPORTANCE SMALL AND MEDIUM SIZE BUSINESSES[14]

The economic and environmental significance of small and medium size businesses (SMEs) is significant. For example, in Canada, Mexico and the United States over 98 percent of the businesses are Small and Medium Size Enterprises (SMEs). Although most SMEs serve local markets, they increasingly operate as part of a global market place, purchasing products produced abroad, supplying multinational companies and selling directly to overseas buyers.

SMEs face widely differing environmental issues based on the economic sector, employee base and jurisdiction in which they operate. A study prepared by the Organisation for Economic Cooperation and Development (OECD) found that in the United States, SMEs are significant contributors to pollution in three branches of manufacturing: chemicals, primary metals, and building materials (e.g., stone, clay, glass). The largest impacts from SMEs were on biological oxygen demand in water and suspended particles in air, followed by release of toxic chemicals.

Because of their size, governments should consider these factors when developing initiatives for SMEs: (1) The power of the supply chain, business contracts, and industrial associations can be significant for many SME sectors; (2) A tailored outreach can be helpful. Official efforts narrowly tailored to the business sector, size, and location of the SME will be far more successful than generic outreach efforts; (3) The right partners are essential. When governments involve business associations that have SMEs as members, the likelihood of success is greater; (4) Regulatory compliance pressure can motivate the search for the least expensive solutions that are lawful.

5.4.3 Size of Regulated Entities

Regulators should also consider the size of the regulated entity and adjust outreach and enforcement strategies accordingly. Smaller entities are a major source of pollution and often may not have in-house expertise or the resources to comply with complicated requirements. Governments may need to provide greater compliance promotion activities and work with local governments and trade associations to help understand the capabilities of these types of businesses and the extent of environmental problems at their facilities. (See Box 5-3).

5.4.4 Providing for Individual Circumstances

Requirements that are very specific may leave little room for open interpretation. While such requirements may be easier to enforce, they might not allow the flexibility that will

encourage compliance. Environmental management programs often use facility-specific permits or licenses to provide the flexibility that individual circumstances often warrant.

5.5 Facility-Specific Requirements

Facility-specific requirements are most frequently implemented in the form of permits or licenses. They are often based on specific criteria established in laws, regulations, or guidance, but are customized to the specific conditions at the particular facility receiving the permit or license. These documents may cover only certain requirements (*e.g.*, those concerning a single environmental media) or may include comprehensive documents covering all requirements that the facility must meet.

5.6 Ensuring Effectiveness

Permits and licenses are intended to be practical documents that require or prohibit specific activities. To be enforceable, permits and licenses must generally be clear, precise, and unambiguous. Regulatory agencies can take several practical steps to help ensure that permits and licenses have these qualities:

- Train permit and license writers in the permit and license-writing processes.
- Use standard forms to ensure that each permit and license contains all essential information.
- Where appropriate, use "model" permits or licenses. A model permit/license contains requirements that are generally applicable to a specific type of facility. The model is then slightly modified by the permit or license writer to tailor a permit for a specific facility.
- Provide clear instructions to the permit or license writer on how to prepare the permit or license.

Box 5-4 provides a checklist that permit and license writers can use to ensure the enforceability of permits and licenses. Writers of facility-specific requirements will need to consider whether the permit conditions might conflict with those in any of the facility's existing permits or licenses. Conflicts and contradictions between different environmental permits and licenses can invite non-compliance. Multimedia permits or licenses that encompass all relevant environmental requirements in a single document can overcome this potential problem. Multimedia documents may also enable permit and license writers to prioritize requirements based on human-health or environmental risk, the facility's resources for compliance, and feasibility**.**

BOX 5-4: CHECKLIST FOR DEVELOPING ENFORCEABLE FACILITY SPECIFIC REQUIREMENTS

General

- Is the length of time that the permit will be valid clearly stated? Is a date specified to indicate when the permit must be reissued and when an application for a new permit should be filed?
- Does the permit contain a provision stating that the permit must be modified if ownership of the facility changes, or if the facility makes changes to its regulated processes?
- Do the permit conditions conflict with conditions in any other of the facility's permits?
- Is there a provision specifying that the permit can automatically be revoked if it is discovered that the applicant deliberately submitted false, misleading, or incomplete information during the application process?
- Does the permit state whether the owner or operator will be liable for non-compliance?

Requirements

- Are the requirements measurable? Are the units of compliance clear?
- Does the permit specify that a modification will be required if the requirements or criteria change?
- If the requirement is an emission limit, does the permit explicitly state the time frame associated with the limit (*e.g.*, instantaneous, 3-hour average, daily) and the location of where the measurement shall take place?

Monitoring

- Does the permit clearly state exactly what the facility is required to monitor? Do these requirements support the compliance goals of the environmental regulation?
- What test methods are needed to determine whether the facility is in compliance? Are the methods clearly described and available to the permittee? Are any allowable averaging times clearly specified?
- Does the permit make the act of falsifying self-monitoring data a separate and enforceable violation?
- Does the permit provide a clear schedule for self-monitoring?
- Does the permit authorize inspection procedures that will enable inspectors to gather data needed to determine compliance? Do these procedures cover entering a regulated facility, inspecting documents and collecting samples?
- Will inspectors be readily able to determine which facilities are not in compliance?
- Will the requirements for inspection and self-monitoring help reduce enforcement costs and increase the effectiveness of inspections?

Self-Monitoring

- Does the permit clearly state what data the facility is required to record and report?
- Will these data show whether or not a facility is in compliance? Will these data provide sufficient evidence to document a violation?
- Is the facility required to report non-compliance with permit requirements? If so, does the permit specify a deadline for reporting non-compliance, and the person to whom

non-compliance should be reported?

- Does the permit provide a clear schedule and format for record-keeping and reporting?
- Does the permit specify to whom the information should be reported?
- Are the reporting requirements frequent enough to allow timely response to a violation? Is the facility required to retain information long enough for enforcement purposes?
- Does the permit make failure to maintain or report records a separate and enforceable violation?
- Is the facility required to make records available upon request?
- Are any exceptions to the record-keeping and reporting requirements clearly spelled out?
- Will the requirements for reports, records, and inspection/monitoring techniques help reduce enforcement costs and increase the effectiveness of inspections?

Demonstrating Compliance

- Does the permit clearly describe what constitutes compliance and how compliance is determined?
- Does the permit clearly state who is responsible for proving compliance or non-compliance (as established by applicable law)?
- Does the permit define time limits by which the facility must reach compliance? Do the time periods have specified beginning and end points? If compliance is defined by occurrence of an event, rather than by a date, is the event discrete enough for an inspector to determine whether the facility is in compliance?

5.7 The Permitting and Licensing Processes

The process for writing permits and licenses varies from one country to another, but usually includes the following steps:

- The facility provides information about its operations and emissions to the government agency.
- A permit or license writer reviews the information and requests additional information if necessary.
- The permit or license writer must inform interested parties (*e.g.*, the local community) that a permit or license is being prepared.
- The permit or license writer must provide an opportunity for any concerned party to comment on whether a facility should receive a permit or license and what the requirements should be.
- If necessary, a negotiation process is used to resolve any disputes among the permit or license writer, facility, workers, local community, and other potentially affected parties.

- After sufficient information gathering, discussion, and negotiation, the permit or license writer decides whether to issue the permit or the license.
- There may be a sanction if the permit or license writer discovers that the applicant submits false, incomplete, or misleading information.

The permitting and licensing processes provide opportunities to ensure that facilities clearly understand what the requirements are and the importance, both from an environmental and legal perspective, of meeting them.

5.8 Involving Stakeholders

The process of drafting effective environmental requirements can be informed by input from various stakeholders, including environmental management program personnel, the regulated community, citizens and non-governmental organizations, other environmental programs, and government authorities. This process should be governed by administrative procedures that are transparent and based on the rule of law.

5.8.1 Compliance Assurance Officials

Special institutional channels and procedures should allow compliance assurance staff, including inspectors and prosecutors, to provide meaningful input in the drafting of general requirements. Enforcement and compliance officials often have unique and real world experience with different regulatory programs and can see the strengths and weaknesses for the enforceability of regulatory proposals.

One option is to create committees that include both policymakers and enforcement officials. These committees can include representatives of all government levels (national, regional, provincial, and local) that may be involved in the process of assuring compliance with the requirements. Committee members can be responsible for ensuring that the appropriate individuals within the environmental management program are involved in drafting and reviewing the requirements.

Comments on the proposed requirements should follow administrative procedures that allow for written comments and that establish a record of the decision-making process.

Lessons learned about what makes existing requirements effective or ineffective in a particular region or country might be recorded, studied, and communicated to those involved in developing new requirements. For example, selected requirements could be reviewed one year after coming into force in order to analyze their effectiveness and make any necessary

adjustments and to establish an expedited process that can be used to correct specific types of deficiencies by making limited revisions to general requirements.

5.8.2 The Regulated Community and Civil Society

Involving the regulated community and civil society in developing requirements helps build support, reduces resistance and conflict, and eases implementation. It can also make requirements more practical, and therefore more enforceable, and it publicizes the requirements at an early phase, thus "setting the stage" for compliance. Below are three basic ways to involve the regulated community and civil society in the process of drafting environmental requirements: informal consultations, formal comment, and field testing. (See Box 5-5).

BOX 5-5: INVOLVING THE REGULATED COMMUNITY AND CIVIL SOCIETY

Informal Consultations

Policymakers can consult with key representatives of the regulated community and civil society informally before developing general requirements. These consultations can be helpful in sorting out future problems early and eliminating resistance.

Formal Comment

U.S. legal systems require the federal government to publish draft regulations and solicit comments from the regulated community and the public. Widely distributed, low-cost government periodicals provide advance notice that new regulations are being developed and announce when they will be available. Any organization or individual can easily obtain and review the proposed regulations when they are issued. Written comments from the public are usually accepted for a limited period of time (30 to 90 days in the United States) after the proposed regulation has been issued. The environmental agency prepares and publishes detailed responses to the comments. Many of the comments directly concern the difficulty or unanticipated effects of compliance. These comments provide regulators with an opportunity to rethink their approach. The formal responses to comments reassure commenting parties that their comments were considered.[15]

Field Testing

In field testing, specific members of the regulated community volunteer to test general requirements to determine whether the requirements are clear and understandable, and to assess/evaluate the ease and cost of compliance. Policymakers can then make changes to the general requirements before they are finally implemented. Though field testing can lengthen the total time it takes to develop a general requirement, it can expose weaknesses that might otherwise render it unenforceable. Where field testing is used, policymakers will need to determine who will fund it—the enforcement program, the test facility itself, a trade association representing the regulated community, or a combination of these.

Involving the non-regulated community (*e.g.*, the general public and non-governmental organizations) can also be very helpful. Such involvement is an opportunity to solicit creative ideas from knowledgeable groups. Civil society has an interest in clear and effective environmental requirements. Laws, regulations, and permits that provide specific substantive requirements make it easier for members of civil society to participate in citizen based compliance promotion, monitoring, and enforcement. In addition, the involvement of civil society helps shield the program from isolation and builds broad-based popular support for the requirements and their implementation.

In China, for example, the State Environmental Protection Administration recently passed a regulation to allow greater public participation in Environmental Impact Assessments. These Assessments will be more widely distributed to the public, and citizens will be able to participate in the process through opinion surveys, consultations, seminars, debates, and hearings.[16]

5.9 Coordinating with Other Programs

It is important to coordinate the environmental requirements of different laws and regulations and to understand how they may interact when implemented. For instance, regulations requiring electronics firms to stop chemical solvents in tanks from leaking into the groundwater could be obeyed by releasing solvents into the air, creating an air quality problem. Other examples include flue-gas scrubbing to reduce harmful air emissions that could lead to discharges of contaminated water and treatment of contaminated wastewater that produces yet another waste product requiring responsible processing.

Several rulemaking practices can be used to avoid unintended effects. First, environmental laws can require policymakers drafting general requirements to specifically consider whether such effects are possible. Second, individuals who are knowledgeable about the different environmental areas can review the requirements. Third, studies of the regulated community can examine whether compliance with one law would result in shifting of pollution from one medium to another. If cross-media effects are discovered, the requirements can be modified to prevent or minimize these effects. Finally, requirements can be defined for all media at once.