

Governmental Strategies & Policies For Resource Efficient and Cleaner Production

The role of enabling policy framework is of paramount importance to any new concept to get institutionalized and incorporated into routine business.

A Resource Efficient and Cleaner Production policy framework does not refer to simply making a few provisions (tax rebates, permitting provisions, etc.) in the existing system. Nor does it mean enacting a brand new, stand alone Resource Efficient and Cleaner Production Act. It requires interweaving the concept of preventive strategies in all facets of the governmental policy framework to make it uniformly supportive and favorable to the Resource Efficient and Cleaner Production concept.

It requires a change in thinking in how policies are formulated and implemented. **In essence, it requires a paradigm shift - from the current reactive 'cure' approach to a proactive 'preventive' approach.** Pollution and environmental management in the preventive approach get internalised and integrated into the developmental process. Resource Efficient and Cleaner Production strategies would thereby be integrated in various policies such as:

-) Environmental policies
-) Industrial policies
-) Resource pricing policies
-) Trade policies
-) Fiscal policies
-) Educational policies
-) Technology development policies

There is a wide range of **available policy instruments** that governments may use to stimulate the Resource Efficient and Cleaner Production adoption. It is important that policy-makers select the right **mix of these instruments** given the circumstances within each country.

Resource Efficient and Cleaner Production Policy Instruments

A number of different typologies may be used to classify environmental policy instruments. One of the most commonly used distinctions divides instruments into three categories:

-) **Regulatory instruments** that mandate specific behaviour
-) **Market-based instruments** that act as incentives for particular activities
-) **Information-based instruments** that seek to change behaviour through the provision of information

It is possible to further categorise these policy instruments according to the **nature of the interaction between government and industry**, and the level of obligation of the policy instrument. Distinctions may be made between:

-) **Specified compliance:** where government imposes obligatory standards on the regulated party
-) **Negotiated compliance:** where the regulators and the regulated interact in setting the obligatory standards
-) **Co-regulation:** where there is a high level of interaction between the parties, but the agreed standards are not mandatory
-) **Self-regulation:** where industry acts unilaterally in setting standards that are not legally enforceable

These typologies are not mutually exclusive of each other and the division between them is not always distinct. In some instances a policy instrument may be characterised by more than one of the above categories. Furthermore, it is important to note that different policy instruments are sometimes best used in conjunction with others.

Examples of policy instruments for Resource Efficient and Cleaner Production

Cleaner Production Strategies and Programmes: National and local governments may establish formal Resource Efficient and Cleaner Production strategies or programmes to act as a framework for the coordinated implementation of subsequent, more specific policy instruments.

Product Bans: The imposition of a ban - or defined phase-out schedule - for a particular product or substance is an authoritarian means of promoting Resource Efficient and Cleaner Production. This may be implemented through application of the product-choice (or "substitution") principle.

Extended Producer Responsibility: EPR aims at making environmental improvements throughout the life cycle of a product by making the manufacturer responsible for various aspects of the product's life cycle. In particular, this could include the take-back, recycling and final disposal of the product.

Requiring Resource Efficient and Cleaner Production Audits: As part of their permitting requirements, firms may be mandated to undertake Resource Efficient and Cleaner Production audits of their plants and to implement findings.

Mandatory EMS & Reporting: In terms of integrated permit conditions, firms may be required to implement a structured environmental management system and to make public information on their environmental performance.

Encouraging Waste Minimization Clubs: An effective means of promoting Resource Efficient and Cleaner Production practices is by providing the right regulatory incentives, usually at local government level, for the establishment of waste minimization clubs.

Financial and Technical Incentives: Governments may stimulate Resource Efficient and

Cleaner Production measures by providing grants, loans and favourable tax regimes, and/or by supplying targeted technical assistance to relevant industrial enterprises.

Regulatory Instruments

Since the inception of environmental policy, the predominant strategy for pollution control has generally been through the use of regulatory instruments. Usually, a public authority sets standards, and then inspects, monitors and enforces compliance to these standards, punishing transgressions with formal legal sanction. These regulations may, for example, specify an environmental goal - such as the reduction of carbon dioxide emissions by a specified date - or they may mandate the use of a particular technology or process. Such an approach gives the regulator maximum authority to control where and how resources will be allocated to achieve environmental objectives, and it provides the regulator with a reasonable degree of predictability as to how much the pollution levels will be reduced.

There are certain specific situations where regulatory instruments may be seen as the most appropriate and effective means of achieving a desired environmental outcome, a pertinent example being the control of hazardous materials through specified restrictions or banning.

Specified and negotiated compliance

In the industrialized OECD countries, regulatory programmes are the foundation on which environmental quality has been built. These countries have relied mainly, though not exclusively, on what is known as **specified compliance**: precise and specific demands that have been imposed on the regulated communities, with little bargaining allowed and few exceptions made. This somewhat authoritarian style of government has undoubtedly been successful in improving environmental conditions. However, it has some significant drawbacks. The regulated community tends to become alienated, and united in its opposition to the rule-makers; and the approach has tended to encourage the use of end-of-pipe, media-specific technologies.

The **negotiated compliance** approach, by contrast, adopts a more co-operative approach between the regulators and the regulated in setting and enforcing standards. This "shared responsibility" between government and industry enhances the likelihood of a more open exchange of information between the parties, and allows greater flexibility regarding the means of meeting the standard. Moreover, a number of countries have started to develop regulations where attainment of certain targets (e.g. recycling targets) is required while concrete means of achieving such targets are left in the hands of industries (non-prescriptive regulations). This in turn may increase the economic efficiency of the regulation, and may be conducive to the adoption of innovative, preventative approaches. However, this more co-operative approach is not appropriate in all instances, and needs to be supported by appropriate procedures to avoid undue "regulatory capture" by industry.

With the growing appreciation of the limits of conventional policy instruments, many governments are encouraging the adoption of self-regulatory and co-regulatory policy instruments for promoting Resource Efficient and Cleaner Production.

Co-regulatory and self-regulatory instruments for Resource Efficient and Cleaner Production

Negotiated Agreements between regulatory agencies and private sector enterprises or sectoral organisations.

Reporting Requirements such as the Pollution Release and Transfer Registers in the USA, Canada, Australia and the UK; mandatory environmental reporting in Denmark; and the PROPER initiative in Indonesia.

Auditable Environmental Management Systems (EMS) such as ISO 14001; government has a potential role in promoting EMS, by for example linking EMS adoption with permit requirements, introducing related flexible penalty systems, and ensuring that future updates of EMS standards have an increased emphasis on Resource Efficient and Cleaner Production and enhanced environmental performance.

Public Voluntary Programmes (such as the US EPA's 33/50, WasteWi\$e, and Green Lights) in terms of which participating companies benefit through improved public recognition, access to governmental technical assistance, and cost savings.

Industry Codes of Practice, such as the International Chamber of Commerce's Business Charter for Sustainable Development, the chemical industry's Responsible Care Programme, and the Japanese business sector's Keidanren Global Environmental Charter. For these codes to be effective, mechanisms need to be in place to promote members' implementation of the code, to monitor and publicly report on adherence, and to have meaningful sanction in addition simply to peer pressure.

Market-Based Instruments

Broadly speaking, market-based instruments seek to address the market failure of 'environmental externalities' either by incorporating the external cost of a firm's polluting activities into the firm's private cost (for example through taxation), or by creating property rights and facilitating the establishment of a proxy market (for example by using tradable pollution permits).

There is a large body of empirical evidence to demonstrate that market-based instruments are inherently more economically efficient than regulatory standards in achieving a desired reduction in pollution. Reasons for this include the fact that they act as incentives for the development of more cost-effective pollution control and prevention technologies, they provide greater flexibility in the choice of technology or prevention strategy, thus being more cost-effective in achieving agreed levels of pollution, and they may provide government with a source of revenue which may be used to support environmental and/or social initiatives that may contribute to enhanced sustainable development. However there are often significant political constraints that act against the effective introduction of these market-based instruments.

Before introducing any new economic instruments, governments should identify and evaluate any economic incentives that may already be in operation, either explicitly or implicitly. These include for example the use of subsidies to make local industries more competitive. Many of

these policies lead to artificially low prices for resources, such as energy and water, as a result of which these resources may be overused, creating both pollution and shortages. Government assessments of such policies are needed before other economic instruments are applied.

Taxes charges and fees

Taxes, fees and charges may be used to promote Resource Efficient and Cleaner Production practices by raising the costs of unwanted outputs, or by providing incentives to promote more efficient use of natural resources. In some instances it may be appropriate for the revenues from these instruments to be used to support Resource Efficient and Cleaner Production activities and thus to further stimulate preventative approaches. A significant constraint against the more widespread adoption of market-based instruments, is that it is often not politically feasible to set taxes at a sufficiently high level to achieve desired environmental goals.

Government often faces resistance if taxation related to environment is taken merely as a means of increasing its revenues. It may be able to avoid some obstacles by ear-marking the corrected charges or shifting tax sources. Furthermore, the successful implementation of such instruments requires a system of monitoring, revenue collection, and enforcement, as well as measures to combat possible corruption.

Liability rules

Liability rules can exert a powerful direct economic incentive to move away from polluting technologies and unsafe products towards Resource Efficient and Cleaner Production. Several countries have found that enforcing strict liability - in terms of which firms are held responsible for all the environmental damage they cause, even if they have fulfilled their legal obligations and have exercised "due diligence" - often leads companies to try to minimise their risks and take preventive measures. The success of liability systems depends on the nature of the enforcement and legal system of the country.

Subsidies

Financial subsidies, in the form for example of low-interest loans, direct grants, or preferential tax treatment, can be targeted to specific industries to stimulate technological development. It is important that governments carefully examine the way that subsidies work to ensure that that they don't create perverse incentives for environmentally counter-productive behaviour.

Information-Based Strategies

In addition to creating an appropriate regulatory and financial framework for Resource Efficient and Cleaner Production, government may further stimulate the adoption of Resource Efficient and Cleaner Production practices through the use of informational measures. These may be used to provide the right incentive - for example through the public disclosure of a firm's environmental performance - as well as to build capacity within industry, for example through the publication and dissemination of relevant case studies.

Examples of information-based strategies that may be introduced by government include:

- J Promoting the adoption of targeted, high-profile demonstration projects, to demonstrate the techniques and cost-saving opportunities associated with Resource Efficient and Cleaner Production.
- J Encouraging educational institutions to incorporate preventative environmental management within their curricula, particularly within engineering and business courses.
- J Requiring public disclosure of information on environmental performance by, for example, establishing a pollutant release and transfer register, stimulating greater voluntary corporate reporting, and requiring the provision of information on specific materials.
- J Initiating and/or supporting measures that address consumption, such as eco-labelling schemes and environmental product declarations.
- J Promoting the adoption of effective training initiatives.
- J Issuing high profile awards for enterprises that have effectively implemented Resource Efficient and Cleaner Production.

The potential value of these different information-based strategies is to be provided within their implementation in real politics.