ENVIRONMENTAL LEGISLATION WITHIN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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1. INTRODUCTION

Sustainable development requires the development of suitable mechanisms in the private sector to ensure that environmental costs and benefits are taken into firms' and individuals ' decision-making process. The traditional way, which has been to impose regulatory requirements. Currently, environmental policy in many countries is moving towards flexible regulations and the use of economic instruments. Worldwide, the process of developing regulations is changing to incorporate qualitative research of industry's environmental decision making process, and the participation of all takeholders (i.e. firms, NGOs, the public), with emphasis on conflict resolution (regulatory negotiation).

Egyptian environmental legislation has not been effective in controlling environmental pollution. It's effectiveness in responding to emerging new environmental problems is even more questionable. Egyptian environmental legislation is theoretically based on the command-and-control regulatory approach. However, implicit in the command-and-control approach is offering incentives to industries to comply *"the carrot"* and at the same time penalizing offenders *"the stick".* Absent in the Egyptian approach is both the carrot (lack of incentives) as well as the stick (weak enforcement). Egypt's limited success with environmental regulatory enforcement signals the need for revisiting and rethinking existing regulations and the statutory framework. Accordingly, this Issue Paper calls upon researchers to revisit existing environmental legislation with the objective of developing a regulatory framework that involves flexible performance approaches, that adequately address shifting and innovative approaches to environmental protection goals, as well as pollution prevention invectives.

This section presents first, the state of environmental legislation in Egypt and why there is a need to revisit them. Second, the experiences of several recent developments in environmental policy-making both in advanced (USA, Australia's Northern Territory, Quebec) and developing countries (India and Indonesia) are presented. The review of current international environmental policy-making and implementation demonstrates the current shift toward more flexible and integrated environmental approaches that use cooperative approaches and economic incentives. in addition to traditional prescriptive measures (integrate both process and outcome). Finally, this section presents a qualitative assessment Egyptian environmental regulations, and the issues that warrant revisiting and further research.

2. STATE OF ENVIRONMENTAL LEGISLATION IN EGYPT

2.1 BACKGROUND

Though Egypt has a long history of environmental legislation beginning with Act. No. 13 of 1922 regarding the protection of birds and culminating in the passage of the

Environmental Protection Law in 1994[1], the major problem lies in weak regulatory compliance and enforcement. Given existing economic conditions, environmental protection is rendered too expensive. Egypt also does not lack environmental plans, but rather, lags in the use and application of these plans (Box I).

However, in view of the alarming results of a number of research studies on air and water pollution in the region, the Government is aware that it must take decisive steps to change the present developments. Lately, in contrast to past weak enforcement, the government is actively committed to the enforcement of Law 4 of 1994.

BOX 1: EGYPT'S ENVIRONMENTAL PLANS:

- Development of the National Environmental Strategy is in progress.
- Egypt's Five Year Plan (1992.1997) addresses some environmental concerns such as water, wastewater and energy sectors.
- National 1992Environmental Action Plan of Egypt.
- The plan suggests action with respect to land use, water use, air pollution, solid waste. Natural and cultural heritage and institutional strengthening.
- The fifteen-Year Plan for Environmental Protection (1994-2008) National Bio-diversity Plan (November 1992).
- Contingency Plan for Environmental Disasters in progress
- A number of governorate level environmental profiles and actions plans have been published.

2.2 EGYPT'S REGULATORY APPROACH

The development of environmental regulation in Egypt has followed the traditional regulatory approach which focuses on end-of-pipe controls implemented through command-and-control regulations. This regulatory paradigm in Egypt and elsewhere (based on incremental administrative theory) is the result of piece-meal and ad-hoc environmental policy. Environmental programs are reactive to emerging environmental problems and enforcement oriented (emphasis is on process rather than outcome).

The command-and-control approach has not been effective in Egypt for various political, economic and social factors. Egyptian environmental laws have not been enforced adequately largely due to the absence of viable alternatives to offenders and limited public environmental awareness on the part of industrialists and the public. Moreover. there are many doubts to whether particular industries will be able to meet established environmental regulations set by Law 4 of 1994 by the year 1998.

[1] The Egyptian government has introduced several environmental laws and regulations since the 1960s. Examples include Law 93 of 1962 which covers discharges to sewers, and Law 48 of 1982 which covers discharges to water courses. The new environmental law 4 of 1994 provides an umbrella cover to the more: specific laws (and introduces penalty clauses for discharging effluents/emissions and other hazardous materials). This new law gives an implementation period for the local industry to comply with the new legislation on the disposal of industrial emissions until February 1998.

Environmental legislation has evolved with little consideration of the existing technical, financial. Legal and administrative implications of the actions to be adopted. Little emphasis has been given to issues, such as environmental risks and costs, variations in environmental performance, and carrying capacity (existing pollution levels of ambient water and air quality). Little is known about the economic and social costs for environmental compliance in Egypt and the factors influencing firms' environmental practices (i.e. barriers and drivers to environmental performance).

3. RETHINKING ENVIRONMENTAL LEGISLATION - WORLDWIDE SHIFTS

While the targeted use of regulatory/enforcement has worked well in many countries (i.e., the USA), their use in the management of environmental problems in the 1990s and the 21st century is currently being debated worldwide. Many countries are currently considering major revisions of their environmental legislation, Attempts at regulatory reform have stemmed mainly from the many lessons learned in the last few decades, the success and failure in regulatory enforcement driven by the command-and-control approach, the emergence of new environmental concerns such as the costs and benefits from environmental regulations. Governments also recognize that environmental problems are becoming more difficult to manage, and hence environmental strategies are shifting away from pollution control toward pollution prevention and waste minimization, Present and future pollution problems will have to be addressed within an economic climate that demands cost-effective policies and business practices, a focus on sustainable growth and long term technological development.

The shift in the regulatory paradigm entails a change in the process of regulatory development. This is a difficult adjustment in corporate culture for both advanced and developing countries alike. Following are highlights of the experiences of several recent developments in environmental policy making both in advanced (USA, Australia's Northern Territory, Quebec-Canada) and developing countries (India and Indonesia). The following experiences show that the command-and-control approach to environmental legislation may no longer work for advanced and developing countries alike. There is a growing paradigm shift with the objective of replacing traditional approaches with participatory non-confrontation approaches that offer tech-economic (eco-efficiency) feasible alternatives based on an understanding of relative environmental risks and the associated costs and benefits.

3.1 INDONESIA'S PROPER PROGRAM

According to Shakeb Afsah (1997), Indonesia's environmental problems surmounted by the early 1990s due to extensive industrialization and a history of non-existent enforcement. This situation forced the government, with its limited resources, to experiment with approaches to environmental regulation other than the Western Style *"command-and-control"*, It adopted a semi- voluntary program (PROKASIH) for controlling industrial pollution with focus on water regulations. Facilities included in the program were obliged to negotiate and sign the pollution-reduction agreements. Facilities could determine the degree of compliance without facing the threat of public

disclosure. This program resulted in several important findings: a) surprisingly, several polluters leaped toward improved environmental performance: and b) pollution discharge varied tremendously across facilities with a small number of facilities discharging most of the organic load.

This skewed distribution (a few facilities responsible for most of the organic load) confirmed the wisdom of targeting regulatory effort. In order to understand why pollution discharge varied so much even though all facilities were facing the same weak regulatory system, the PROPER program was developed. The PROPER program also took into consideration two important parties that were previously excluded from the regulatory process, namely, the communities and the markets. In Addition, designers of the PROPER program found the traditional view of regulatory compliance as an "either/or" proposition not satisfactory[2]. Accordingly, the idea of subdividing the in-compliance group into three categories (blue. green and gold) , and the out-of-compliance category into two ratings (red and black) has emerged.

This color rating system was made public in order to inform the public and influence the facilities' reputation and thereby create reputational incentives for better environmental performance. Accordingly. criteria for defining facility environmental performance were developed and a total of IR7 facilities were categorized. Facilities with red or black ratings were not disclosed in public: they were visited and allowed six months to improve environmental performance.

The performance of PROPER, though based on a limited sample of facilities, showed that many red and black facilities have indeed improved their rating to avoid public loss of face. The PROPER Project also raised several new issues that are worth further investigations:

- The importance of facility size in determining environmental performance.
- The importance of facility data which was not readily available.
- The relative power of communities in inducing improved environmental performance.
- The importance of rethinking uniform industry standards. The PROPER Project did not distinguish between the environmental damages of a facility located on a river with downstream communities, and facilities on a river without downstream communities.

Clearly, the Indonesian experience demonstrates a departure from the traditional regulatory approach to a more voluntary/participatory and non-confrontational regulatory approach that recognizes the importance of reputational incentives and market pressure in improving environmental compliance.

3.2 INDIA'S MINAS

India has witnessed considerable development in pollution control activities at the national and regional level over the past three decades. The evolution of industrial effluent and emission standards in India has been a dynamic process that raised many

[2] This view was found limited because it punished and never rewarded and ignored the range in actual environmental performance that characterized Indonesian facilities (where some facilities violated only few of the criteria contained in environmental regulations).

debatable issues and questions such as - what is acceptable risk, who is to be protected, what control technology to choose, what are the costs and benefits, and who bears the risk and cost?

Industrial Effluent standards in India have evolved based on quality criteria of ambient waters. It means that industry-specific as well as location-specific effluent standards were developed. At the national level, it is possible to evolve industry-specific effluent standards. and not beyond that. These industry-specific standards are then examined at the local level, giving due regard to the water quality criteria of the ambient water where the polluter is planning to discharge the effluent. The State Pollution Control Boards are required to modify the effluent standards to make it location-specific. The industry-specific effluent standards, evolved at the national level, are termed as "Minimum National Standards (MINAS)". These standards are applied even if the industry could discharge untreated waste without altering the ambient water quality criteria. But, if the quality criteria of the ambient water at some reaches warrant stricter effluent quality, the State Board prescribes standards and thus the MINAS is altered to suit the location (Government of India 199?).

3.3 THE USA SHIFT FROM COMMAND-AND-CONTROL TOWARDS STATUTORY INTEGRATION

During the 1970s and 1980s, the USA has mainly focused on a regulatory fix to environmental problems using the command and control approach. This approach addressed what is in a final discharge rather than the source of the problem. The meat-ax regulatory approach of this period was very effective in managing environmental problems. However, as the cost-benefit of regulations began to be noticed, new questions were being asked such as: are we spending this money on the right things? and are we spending it in the most effective way? Moreover, it has become clear that the command-and control regulatory approach, may not be the approach for controlling emerging environmental problems.

Driven by the increasing cost of meeting regulations and the fact that it may not be possible to meet a regulation, particularly on a site specific basis, source reduction/ waste minimization/pollution prevention efforts are gaining importance. Raymound C. Loehr (I 99?) states that since the early 1990s greater focus is on the concept of risk as a mechanism to differentiate between major and lesser environmental issues. The concept of relative risk is becoming more important as a decision and policy tool in environmental management[3]. Following is a summary of major shifts/reforms in the USA's environmental regulations.

The shift toward statutory integration-The National Environmental Policy Institute has recently released a report entitled *"Integrating Environmental Policy: A Blueprint for 21st Century environmentalism".* This report promotes the concept of statutory integration (integrated approach to environmental management). According to the report "the future of environmental protection should involve flexible, performance-

[3] Relative risk helps indicate whether a site specific environmental standard or a national standard or regulation is better to protect human health and the environment. It can also identify the additional environmental value that will result from any increased treatment removal or remediation requirements.

based approaches because EPA's current single medium, command-and control approach does not adequately address pollution shifting, innovative approaches to protection goals, or pollution prevention incentives." The changes proposed in the report would give EPA the authority to implement lessons learned.

The first phase of reform involves allowing states to issue *multimedia, facility wide permits* that give companies the flexibility to implement alternative approach to meet emission requirement. Though multimedia, facility wide approach would be optional, it is expected that market competition will drive most facilities to adopt it. There is also a need to reward high performance states and companies. The command-and-control approach measured success on how many fines were imposed without examining if the fines lead to environmental improvement. The second phase of the proposed environmental management framework *will involve a gradual shift toward a system of ambient based pollution control standards.* This \\;11 call for EPA to revise existing Clean Water Act, Clean Air Act, and Resource Conservation and Recovery Act standards using consistent criteria for all media. The second phase will also involve repealing outdated technology-based standards.

The shift towards site specific considerations and regionalization – A recent report by Don Galya and David F. Michell (1997) shows how the EPA is considering a major revision of its Water Quality Standards. Major issues discussed and emphasized by EPA include:

- The *watershed approach* to wastewater permitting using a state-of-the science approach to site specific considerations.
- Independent applicability of numerical criteria, whole effluent toxicity testing and biocriteria. An integrated, weight-of-evidence approach which considers the quantity and quality of available data is viewed as the most scientifically defensible methods that will allow the greatest flexibility based on *site-specific* considerations.

Other issues discussed by the report include the need for numerical criteria for whole effluent toxicity (WET), nation wide Mixing Zones Policy, development of WQS for non-priority pollutants, compliance schedules for discharge permits. There is also growing recognition of the differential impact of development on different ecosystems. Several studies are attempting to delineate ecological zones based on environmental considerations to help set environmental regulations that are site/zone specific.

The shift towards industry-specific regulations - The Sustainable Industry Project (EPA 1994) is one of EPA's new industrial sector "eco-efficiency" initiatives focusing specifically on corporate decision-making issues that are crucial to long-term sustainable development policies for the industrial sector. This project seeks to complement traditional medium specific regulatory/enforcement programs and voluntary programs and technology transfer. This Project attempts to understand the economic basis upon which firms choose to pursue pollution prevention options and to identify and assess incentive approaches to promote cost-effective pollution prevention by industry sub-sector or individual firms. The objective of this project is the development of policies that promote "cleaner, cheaper, smarter" environmental

performance by industrial firms of all types and sizes[4]. The Project focuses on facilities from an industry wide, life cycle focus. The project introduces the concept of ceo-efficiency[5] that deals with the impact of enterprise size and type on environmental decision making.

The Sustainable Industry Project also introduces a new methodology for the development of industry specific standards. The methodology adopted introduces qualitative research methods that incorporate peer and expert panels, stakeholder networks, trade associations and other non-industry participants into the policy making process.
This is achieved by employing backward mapping[6] as an analytical tool to understand the factors that influence the behavior of different players in each industry before recommending any policy prescriptions. Factors influencing the firm's (or any economic activity)

Box2: Examples of Variables Influencing Any Economic Activity Environmental Decisions:

Technology variables Technological Innovation Best available technology Technology Transfer **Social variables:** employee recruitment employment Morale Media treatment Corporate Reputation Community relations Plant Siting **Market Variables** Growth markets Project image Customer loyalty Product certification Competitive advantage Industry standards	**Financial Variables** Liability Exposure Insurance Coverage Damage Compensation Credit Quality Capital Access Investor Relations **Regulatory Variables** Government Relations Raw Materials Costs Operating Costs Litigation Costs Disclosure/Reporting International Competitiveness

4 The Sustainable Industry Project (SIP) goal: *the primary goal of the SIP is to develop, test, and implement industry-specific policy recommendations that will remove barriers to innovation and promote strategic environmental protection in the selected industries. The recommended policies and programs should promote* a *culture change throughout the industrial sector, among firms of all/ types and sizes. in the/arm of long-term corporate commitment to achieve cleaner, cheaper, and smarter environmental performance. The Agency's sustainable industry policies and programs should be achieved with* a *reduced reliance by EPA on command and control regulations. The recommended policies and programs should be widely feasible and acceptable to all relevant stakeholders (e.g.. EPA, states, industry, and NGOs).*

5 Concept of eco-efficiency - becoming more efficient using less energy and material. producing less waste and pollution. and destroying less natural habitant per unit of economic growth in all sectors, including industry.

6 Backward-mapping begins with a description of the behaviors that the policy seeks to influence. The policy is developed by working backward from the most directly involved parties, and asking at each level of the system what would enforce a desired change in behavior.

environmental decisions include social, economic/financial, technology, regulatory, and market factors (see Box 2).

3.4 QUEBEC, CANADA

Based on the International Environment Reporter (1996), Quebec is shifting its environmental regulation focus to provide greater flexibility for regions and individual companies. Quebec has traditionally dealt with the environment on the basis of "wall-to-wall" regulations. The government is taking an "end-of-pipe" approach to regulating industry with the environment ministry setting standards for pollutants in effluents based on the absorption capacities of individual water ways. Moreover, there are serious concerns over harmonization. To harmonize federal and provincial environmental laws all through Quebec does not fit with the new approach towards regional flexibility. The debate over decentralization versus centralization of environmental regulation among policy makers is still in progress.

3.5 THE NORTHERN TERRITORY, AUSTRAUA

The Northern Territory Government has prepared a Draft Waste Management and Pollution Control Bill for the Northern Territory. The Bill draws on the Conservation Strategy, and follows, based on a key recommendation in the Waste Management and Pollution Control Strategy, a flexible regulatory philosophy. The regulatory philosophy behind the bill attempts to strike a balance between the targeted use of prescriptive mechanisms and mechanisms which encourage improvements in environmental performance through cooperative problem solving. To achieve effective environmental management this new legislation will focus on the following three aspects:

1) It will set benchmarks for environmental management in areas such as air quality, contaminated sties, waste management, noise, recycling and reuse of wastes. These may be:
   - Ambient environment goals and standards
   - Waste emission criteria
   - Waste reduction targets
   - Features or uses of the environment that need to be protected
   - Criteria or indicators for assessing environmental quality

2) It will provide control mechanisms to guard against pollution and inappropriate management of waste (approvals, licenses for facilities and activities, reporting requirements. and pollution abatement notices).
3) It will create management mechanisms to encourage best-practice environmental management through he use of audits, compliance and improvement.

Meanwhile, the draft bill is being reviewed and discussed by both the public and industry. A final version will then be introduced (taking into account comments made by industry and the public) to the Legislative Assembly; and when passed it will become an Act after receiving assent from the Administrator.

4 SUMMARY AND PROPOSAL FOR FUTURE RESEARCH

Exhibit 1 presents a summary table of the various country experiences noted above with regulatory reform. Indonesia's PROPER project demonstrates how Indonesia, a developing country with limited resources, has not opted for the western command-and-control approach to environmental management. India provides a most enlightening model for the evolution of industrial effluents and emissions based on industry and location specific criteria. Regulatory development in the USA. Australia's Northern Territory, and Quebec-Canada, demonstrate several attempts toward integrated environmental regulation that is industry-specific (type, size, location), multi-media oriented, and participatory.

As evident from Exhibit 1, advanced and developing countries are rethinking environmental regulations. Major shifts in environmental regulations include:

- The shift from the traditional command-and-control approach to a more integrated flexible approach based on relative risk assessment and voluntary environmental compliance agreements.
- The shift toward more industry-specific regulations based on best-available technology.
- The shift towards regionalization, eco-systems and site-specific regulations based on ambient air and water quality. The validity of uniform standards is being questioned.
- The shift from single medium to multi-media emission requirements.
- The incorporation of the community and industry in the decision-making process.
- The importance of developing environmental information systems.

Referring to Exhibit I, we observe that Egypt, relative to other countries, is staggering behind along almost all pressing environmental issues. The substance of Egyptian environmental regulations may be described in the following:

a) general and emission-limit based (concentrations of various pollutants) with no consideration to variable ambient carrying capacity. Egyptian regulations have evolved without consideration of the many factors that influence the firm's environmental decisions.
b) no sensitive to the wide variations among sectors, industries, and even various establishments within the same industrial classification.
c) not site-specific or reach specific (with few exceptions) and not linked to any land use planning regulations[7].
d) not participatory.
e) single-medium based.
f) based on inadequate environmental information data with no build in feed-back system .
g) has not integrated, as yet, the available know-how in regulatory development.

[7] In Holland, environmental impacts are recognized on 5 levels. Namely: global. Continental, fluvial, regional/eco-districts and local.

EXHIBIT 1: RETHINKING ENVIRONMENTAL REGULATIONS: SELECTED COUNTRIES AND EGYPT

Environmental Regulatory Issue	India	Indonesia	USA	Northern Territory Australia	Quebec, Canada	Egypt
Regulatory Approach	Command-and-control	Voluntary/participatory and non-confrontational	The traditional command-and-control approach is shifting toward statuary integration	Mix between command-and-control & cooperative approaches	Shifting wall-to-wall regulations to greater regional/company flexibility	Command-and-control
Uniform Standards	MINAS at the national level	Rethinking uniform standards	Federal/state/local regulations	Territorial	Rethinking uniform standards	Uniform standards
Industry-specific Standards	Focus on industry-specific	Focus on industry-specific	Shift to 4 digit SIC codes		Industry specific	General regulations
Location-specific Standards	Focus on site-specific, Minimum National Standards, State standards, ambient water and air quality	Reach-specific: distinguish between environmental damages of a facility located on a river with downstream communities & facilities on a river with no down-stream communities			Location specific: emphasis on the absorption capacity of individual water bodies	In general, not location specific with the exception of natural protectorates, the River Nile, surface water, and marine
Single medium/multi media	Single medium	Single medium	Shift to multi-media	Shift to multi-media	Shift to multi-media	Single medium
Best Available Technology			Shift to BAT	Shift to BAT	Shift to BAT	Not addressed
Facility Size		Shift to consider the impact of size on environmental performance	Recognition of the impact of size on environmental performance			Not size-specific
Participatory		Voluntary pollution reduction agreements				Environmental Abatement Plans, Compliance Plans
Public Pressure		The relative power of communities, the reputational pressure				Not included. However, starting to emerge

Market Pressure		Recognition of the relative impact of local versus global markets on env. performance Reputational pressure				Recognition of the Importance of international markets
Environmental Performance		In-compliance group divided into three groups and the out of compliance category into two ratings	Traditional grouping of facilities as in compliance or not in compliance	Encouraging voluntary and non-voluntary environmental compliance audits and monitoring		Black spots identified
Relative Risk Assessment	Regulation are based on RRA		Strong emphasis on RRA			
Establishment Data Base	Major effort to compile establishment environmental data	Major effort to compile establishment environmental data	Extensive establishment data through various governmental sources			Existing data inadequate

The whole world is approaching environmental management in terms of best available technology (BAT), pollution abatement, monitoring, and waste minimization. This new focus is driven by advancements in technology. Legislation, as all other disciplines, has become a technology (knowhow) that is utilizing technological applications in many fields (economics, engineering. social sciences. finance. etc.).

It is imperative that Egyptian environmental and regulatory institutions learn current regulatory knowhow to develop more integrated and flexible environmental legislation. This may be achieved by: i) improving the process of developing regulations by building on past experience, the many lessons learned, and best available regulatory know-how; and ii) improving regulatory implementation and environmental performance. This entails that clear and obtainable targets are established and environmental impacts adequately monitored (i.e. the number of establishments moving from one state of environmental compliance to another - black to red. from blue [0 green. ..etc .: improvement of ambient water and air quality; improvements in health : improvement in the quality of life).

Accordingly, research is necessary: i) to identify existing deficiencies in both process (regulatory substance)[8] and product (environmental impacts): and ii) to present objective and feasible recommendations that will ultimately lead to the formulation of one integrated *environmental strategy/framework* that encompasses all regulations. Unfortunately, there is no quantitative data to adequately measure environmental performance of '"-, various economic activities. How can we measure the state of regulatory performance in Egypt? In terms of regulatory effectiveness (impact). Egyptian environmental regulations have not achieved the desired improvement in environmental performance. Clearly, the development of sustainable development indicators is necessary to monitor environmental improvements.

How to measure (quantitatively or qualitatively) the deficiencies in existing Egyptian environmental regulation? International experience and know how may be utilized. For example, one simple method to monitor environmental improvements over time against established targets, is to classify firms as those in compliance and not in compliance. The color rating system (methodology) developed to measure environmental performance in Indonesia could be tailored to fit Egyptian industry. The US Sustainable Industry Project provides a good example of a bottom-top approach (backward mapping) to analyze firm' environmental behavior.

[8] By substance we refer to the overall policy framework. its process and scope: by impact we refer to environmental improvement as a result of regulatory compliance.

QUESTION 2. How the Financial Services Industry is dealing with Environmental Issues?

The answer to this question is extracted from the following four readings:

C. "Global Survey on Environmental Policies and Practices of the Financial Services Industry: The Private Sector, Ganzi and Tanner, 1996.

D. Study draft report entitled:
"Research on the Financial Impact of Environmental Events and Issues on the Property and casualty Insurance Industry, Ganzi and Neubert, 1996.

E. Environmental Bankers Association, a expression for the need of Banks and other related lending institutions to manage Environmental Risks and Opportunities.

F. ISO 14000 Environmental Standards and the Financial Services Industry.

CONCLUSIONS

- During the transition from an era dominated by environmental regulation towards future public-driven environmental compliance, the financial sector has a major role to play. During this transition, environmental compliance must be controlled by investment decisions made by the financial sector.

- The financial sector's incorporation of Environmental Impact Assessment in making financial decisions must be strengthened.

LIST OF READINGS

A. "Does it pay to be green? an empirical examination of the relationship between emission reduction and firm performance", Business Strategy and the Environment, Vol. 5, 1996.

B. "Does improving a firms environmental management system and environmental performance result in a higher stock price?, ICF Kaiser Intemational, Nov. 1996.

C. "Global Survey on Environmental Policies and Practices of the Financial Services Industry: The Private Sector', Ganzi and Tanner, 1996.

D. Study draft report entitled:
"Research on the Financial Impact of Environmental Events and Issues on the Property and casualty Insurance Industry, Ganzi and Neubert, 1996.

E. Environmental Bankers Association, a Media Release expressing the need for Banks and other related lending institutions to manage Environmental Risks and Opportunities.

F. ISO 14000 Environmental Standards and the Financial Services Industry.

Environmental Policy Instruments

The question is what policy makers "can do" once a problem has been identified?

Direct regulation is only one too! in the environmental policy maker's box!!!

Other tools include: setting standards, issuing permits, creating funds to cover the costs of cleaning up waste sites.

Classification of mostly used policy instruments in the industrialized countries:

1. Information: risk communication as a way to influence behaviors.
2. Direct Regulation: e.g. ambient standards, emission standards.
3. Market incentives: used to complement or as an alternative to direct regulation.

Overview of Policy Instruments

Class of Instrument	**Significant features**	Examples Of Use
Information and risk communication	Mostly a voluntary approach Good for consumer or life – style risks Less intrusive than other instruments May include information and technical assistance	Radon, household chemicals, community right - to – know
Direct regulation Ambient standards Emission standards Product Registration And bans	Direct and visible response to problems Appearance of equal treatment	NAAQS, Water Quality Standards Effluent guidelines and other technology-

	Set clear policy goals or standards Best used for industrial sources of pollution Are intrusive and often inflexible Most common instrument in U.S. policy May be effective but inefficient	based standards Pesticides registration, TSCA product bans
Class of Instrument	**Significant features**	Examples Of Use
Economic incentives Pollution fees Marketable permits (trading)	Provide a continuing incentive to reduce pollutants Offer more flexibility for sources	Carbon fees Emissions trading, lead credit training,

Deposit – Refund Elimination of market barriers and subsidies	Often complement direct regulation Usually more cost-effective than direct regulation Subject of recent interest among policy makers	acid rain allowances Deposits on lead – acid batteries Changing flood insurance or agricultural subsidy programs

Protection of Environment – Important Considerations

1. Determination of acceptable risk – Although it is very difficult to determine such acceptable levels, it can be reasonably assessed with research effort. However, ultimately, actual fixation of the threshold level of risk is subjective decision.

2. Determination of population/objects to be protected.

3. Choice of control technology – It requires both formulation of strategy and selection of appropriate control techniques.

4. Economic considerations – It strikes a balance between cost and benefits.

5. Legislation for setting standards – It considers existing national legal framework and identifies necessary legal strategies.

Standards for Pollution Control – the dimensions

1. Product Design, Marketing and Use
2. Manufacturing Process
3. Limits on Release into Air and Water
4. Best Practicable Means for Pollution Control
5. Medium Related Measures
6. Exposure Standards
7. Biological Standards

Risk Analysis and the Environment

Economic Analysis of Environment

Risk is part of the analytical basis for policy. Economics, specifically, the analysis of costs and benefits, is another part.

Resources that are allocated to solving environmental problems could go to three different social goals:

- Education
- Defense
- Health care

The Concepts of Costs, Benefits, and Discounting

Costs defined as:

Direct vs. Indirect

Capital vs. Operating

Average vs. Marginal

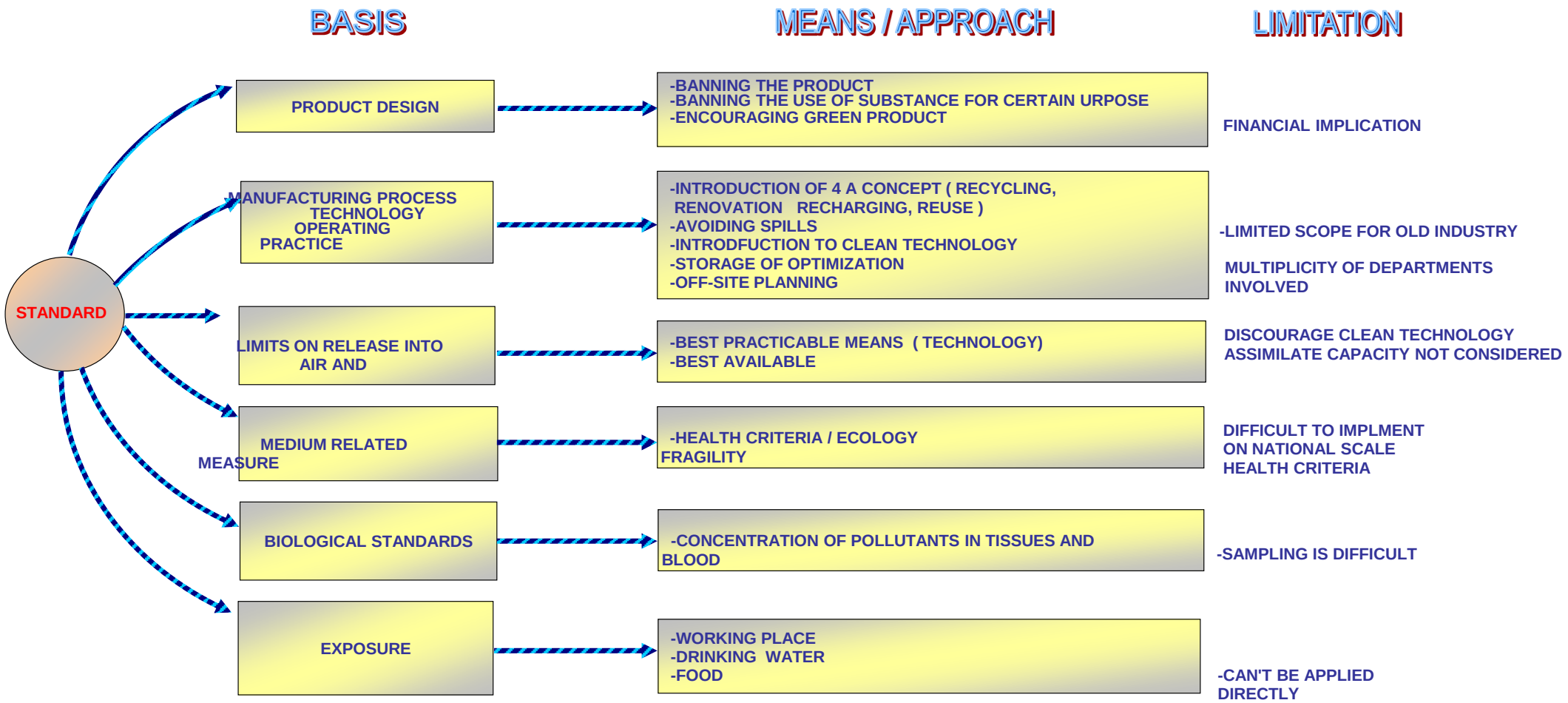
The most used method is direct costs because they are the easiest to account for and they are related clearly to decision making.

Benefits defined as:

Desirable or favorable effects with decision-making

Discounting defined as:

The effects of a decision with the accounting for time.



DIMENSIONS OF ENVIRONMENTAL STANDARDS