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Economic Instruments as an Environmental Policy Tool:
The Case of GCC Countries

Market-Based Instruments can play an important role in tackling environmental problems in the GCC countries. As a means of achieving environmental management objectives, non-economic regulatory measures have been adopted worldwide as well as in the Gulf region. Now, economic instruments (EIs) are being increasingly implemented in many countries, both developed and developing.

Policy tools such as Command-And-Control (CAC) and EIs are used in various fields of life; however, in the environment field in the GCC, where there is urgent need to use both tools, the dependence has been solely on CAC.

Experience has shown that specific environmental problems are usually addressed by employing a policy mix consisting of various CAC instruments, EIs and awareness programs. This policy mix is needed to address various environmental issues too.

This research paper explains the difference between CAC and EIs, their role in environmental policy, and lists some examples of EIs along with selected international experiences. The paper also discusses GCC legislations and Multilateral Environmental Agreements in relation to CAC and EIs. Finally, the paper describes the prerequisites for applying EIs.

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Mohamed A. Raouf

Economic Instruments as an Environmental Policy Tool

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Knowledge for All

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The Case of GCC Countries

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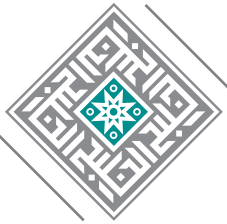

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By publishing this *Gulf Paper*, the Gulf Research Center (GRC) seeks to contribute to the enrichment of the reader's knowledge out of the Center's strong conviction that *knowledge is for all*.

”

Abdulaziz O. Sager
Chairman
Gulf Research Center

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The Gulf Research Center (GRC) is an independent research institute located in Dubai, United Arab Emirates (UAE). The GRC was founded in July 2000 by Mr. Abdulaziz Sager, a Saudi businessman, who realized, in a world of rapid political, social and economic change, the importance of pursuing politically neutral and academically sound research about the Gulf region and disseminating the knowledge obtained as widely as possible. The Center is a non-partisan think-tank, education service provider and consultancy specializing in the Gulf region. The GRC seeks to provide a better understanding of the challenges and prospects of the Gulf region.

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Gulf Papers

Gulf Papers are reviewed bilingual academic occasional papers that analyze, assess and build forecasts on the developments of different issues in the GCC countries at the domestic, intra-GCC, GCC-Arab, regional or international levels from political, social, economic, and cultural perspectives.

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List of Acronyms and Abbreviations

ACSAD	:	The Arab Center for the Studies of Arid Zones and Dry lands
ALECSO	:	The Arab League Educational, Cultural and Scientific Organization
ATO	:	Arab Town Organization
BD	:	Bahraini Dinar
CAC	:	Command-And-Control
CAMRE	:	The Council of Arab Ministries Responsible for the Environment
CBD	:	The United Nations Convention on Biological Diversity
CDM	:	Clean Development Mechanism
CEL	:	Central Environmental Laboratory
CER	:	Certified Emission Reduction
CFCs	:	Chlorofluorocarbons
CITES	:	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CS	:	Civil Society
EAD	:	Environment Agency-Abu Dhabi
ECAT	:	Environmental Center for Arab Towns
EEIs	:	Environmental Economic Instruments
EIA	:	Environmental Impact Assessment
EIs	:	Economic Instruments
EMS	:	Environment Management System
EPA	:	Environmental Protection Agency
EPF	:	Environmental Protection Fund
ERFs	:	Environmental Revolving Funds
EU	:	European Union
FEA	:	Federal Environmental Authority
GATT	:	General Agreement on Tariffs and Trade

GBC	:	Green Building Council
GCC	:	Gulf Cooperation Council
GDP	:	Gross Domestic Product
GHG	:	Greenhouse Gases
IDB	:	International Development Bank
ISECSO	:	Islamic Education, Science, and Culture Organization
ISO	:	International Organization for Standardization
KWD	:	Kuwaiti Dinar
KEIS	:	Kuwait Environmental Information System
KIEIN	:	Kuwait Integrated Environmental Information Network
KISR	:	Kuwaiti Institute for Scientific Research
KSA	:	Kingdom of Saudi Arabia
Kshs	:	Kenyan Shillings
LE	:	Egyptian Pound
LPG	:	Liquefied Petroleum Gas
MAP	:	Mediterranean Action Plan
MBIs	:	Market-Based Economic Instruments
MEAs	:	Multilateral Environmental Agreements
MEPA	:	The Meteorology and Environmental Protection Administration
MPA	:	Marine Protected Area
NCWCD	:	The Saudi National Commission for Wildlife Conservation and Development
NCWP	:	National Commission for Wildlife Protection
NEAPs	:	National Environmental Action Plans
NES	:	National Environmental Strategies
NGO	:	Non-Governmental Organization
OECD	:	Organization for Economic Cooperation and Development
PAP	:	Priority Action Plan
PERSGA	:	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
PME	:	Presidency of Meteorology and Environment
PPP	:	Polluter Pays Principle
QR	:	Qatari Riyal
QP	:	Qatar Petroleum

RITSEC	:	Regional Information Technology and Software Engineering Center
ROPME	:	Regional Organization for the Protection of the Marine Environment
ROWA	:	Region of West Asia (of UNEP)
SAR	:	Saudi Riyal
SCENR	:	Supreme Council for the Environment and Nature Reserve
SWM	:	Solid Waste Management
TDA	:	Tourism Development Authority
UAE	:	United Arab Emirates
UN	:	United Nations
UNEP	:	United Nations Environmental Program
UNESC-WA	:	United Nations Economic & Social Commission for Western Asia
UNFCCC	:	United Nations Framework Convention on Climate Change
UPP	:	User Pays Principle
WTO	:	World Trade Organization
WWF	:	World Wide Fund for Nature (Old name: World Wildlife Fund)

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Executive Summary

"Mischief has appeared on land and sea because of that the hands of men have earned. That (Allah) may give them a taste of some of their deeds: in order that they may turn back." *Holy Quran - Sûrat Ar-Rûm, Ayah 41*.

There is no doubt that the planet today is suffering from very negative environmental impacts as a result of the different development activities on land and, in the past 50 years, on sea as well. Seas suffer a lot as a result of offshore oil and gas exploration, production and transportation, as well as building of resorts and so on. It is amazing that the word "earn" in the above *Sûrat* means that man undertakes development activities for the welfare of humankind but this has both negative and positive outcomes.

It is not surprising to note that the Kyoto Protocol related to the United Nations Framework Convention on Climate Change (UNFCCC) has called for and is now trying to ensure that out of the 166 countries that have ratified the protocol, 40 industrialized countries should turn back to the level of emissions in 1990 and reduce their overall emissions of GHG gases by at least 5 per cent below 1990 levels in the commitment period from 2008 to 2012.

The UNFCCC and other Multilateral Environmental Agreements (MEAs) along with local environmental legislations play an instrumental role in environment protection and realizing sustainable development. However, as this paper tries to illustrate, legislations alone as a single environmental policy tool, cannot achieve the desired sustainable development goals. Thus, the use of Economic Instruments (EIs) has become mandatory.

There has been a significant increase in national commitments to environmental issues and sustainable development in the

Gulf Cooperation Council (GCC) countries. Environmental institutions have been given higher priority and status, and the level of policy commitment has increased. However, EIs have not yet been introduced in the GCC countries.

The purpose of this research is to study and illustrate the instrumental role of Market-Based Instruments (MBIs) or EIs in tackling different environmental problems. As a means of achieving environmental management objectives, non-economic regulatory measures have been adopted worldwide as well as in the Gulf region. Recently, EIs are being increasingly implemented in many countries, both developed and developing. The debate on the single approach to environmental policy implementation leads to the question whether one approach on its own merit will be able to achieve the environmental objectives sought by a country.

This research sets out to focus on two approaches adopted in environmental management: direct regulatory instruments, i.e, Command-And-Control (CAC) as opposed to the more recent Market-Based Instruments. The latter approach should be of some relevance to the GCC countries' environmental policy at present as these countries are proceeding with economic diversification, liberalization, and privatization.

The carrot and stick approach to environmental policy is not a new concept. In Arabic culture, this kind of policy was referred to as the Gold and Sword of Al-Moez, the King. In fact, some consider these tools – reward and punishment – are the only motivating factors for mankind. John Locke, the English philosopher says, "Good and evil, reward and punishment, are the only motives to a rational creature: These are the spur and reins whereby all mankind are set on work, and guided." In fact, these are two of the tools in diplomacy and politics, especially international relations. In addition, they are applied in almost all areas of human activity. For example in work places, reward and punishment are used for increasing the productivity and

performance of workers. Parents too often use these tools while bringing up their children. In fact, the idea may have originated from various religious beliefs,[1] which say that those who obey would be rewarded and those who disobey would be punished in this life or later.

The GCC was officially formed on May 25, 1981 and comprises Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Although primarily a political and economic organization, the GCC deals with important environmental issues too. Ever since its inception, the GCC has made strenuous efforts to consolidate and coordinate environmental policies and regulations of the member countries. This includes the signing of a Unified Economic Agreement in 1981 and the adoption of common regional and sector strategies and policies in the areas of development planning, agricultural policy, industrial development, cultural development, and the general rules and policies for environmental protection. The GCC, therefore, can be seen as a geographical as well as a politico-economic entity that has a direct bearing on the political and economic policies and strategies of the member countries and an indirect impact on the region's environment.

Besides many similarities in geographical, political and economic conditions, the environmental features of the region are also very alike. Therefore, environmental policies should be similar too. Economic development and sound environmental

1. Numerous examples can be cited. For instance, in the Holy Quran, it is said "Nothing is said to you (O Muhammad (PBUH)) except what was said to the Messengers before you. Verily, your Lord is the Possessor of Forgiveness, and (also) the Possessor of Painful Punishment"- Sûrat Fussilat, Ayah 43; and "So Allâh gave them the reward of this world, and the excellent reward of the Hereafter. And Allâh loves Al-Muhsinûn (the good-doers)" - Sûrat Âl-'Imrân, Ayah 148.

management are two sides of the same coin. Development without adequate environmental protection is meaningless and can be counter-productive. Thus, the use of the carrot and stick approach, while dealing with sustainable development issues, assumes an important role.

Generally speaking, the starting point in framing an environmental policy will be to extract a payment for polluting the environment. This can be done either indirectly, by introducing charges, or directly. Both these alternatives will, in fact, involve a certain form of pricing.

It is very evident that the GCC is relying heavily on Command-And-Control (CAC) as a sole environmental policy. In addition, the GCC countries still face the problem of enforcement of environmental legislations and multilateral environmental agreements. The use of EIs is very rare. Two cases in which the use of economic incentives is clear are: the support given to the agriculture sector, and the institution of various environmental awards.

The research is structured as follows: First, environmental policy definition as well as the objectives of the environmental policies of the GCC countries are presented. Examples of EIs, their classification, as well as merits and demerits of both CAC and EIs are described. The institutional and legal framework of the environmental policies of the GCC countries, selected international experiences in implementing EIs and, prerequisites for the implementation of EIs - with some focus on how to finance them - are also discussed.

Thus the research is not intended to evaluate the overall environmental policies of the GCC. However, it explores the heart of such policies by focusing on the use of two main policy tools, i.e. environmental legislations and Economic Instruments. The research examines EIs in relation to the main environmental law of each country.

The methods used in this research for collecting data include desk review of national and international publications and records, discussions on EIs at various regional meetings, symposia and seminars, and information gathered from consultants involved with EIs. A dedicated workshop on the subject held at the GRC on July 1, 2007, which was attended by a number of environmental experts from the UAE, also provided valuable input.

1) Environmental Policy

1.1) Current Environmental Status of the GCC Countries

The Arabian Gulf region is one of the world's most naturally endowed and economically prosperous regions. It also scores well on several social parameters. It is the world's richest in oil and natural gas reserves and the poorest in renewable water and arable land, and continues to rely excessively on natural resources as its development strategy. The countries of the Arabian Gulf are characterized by extreme arid climates, sparse natural vegetation, and fragile soil conditions. These countries are mainly desert lands with the exception of the coastal strips, lagoons, khors and mountain ranges.

The GCC countries represent a unique case of development, where oil and gas revenues have enabled an exceptional accelerated development process in all aspects of life. These countries have become a hub of intense geopolitical, military, economic, industrial, infrastructural, tourism and other anthropogenic activities.

There is no doubt that the main drive for the transformation of the region came from oil-related activities. The economies of the GCC countries are driven primarily by the oil and gas sector, which contributes between 25 percent and 56 percent of their Gross Domestic Product (GDP). However, the scale of oil and gas production and use in the GCC countries leads to severe environmental problems. The main concern relates to oil spills and other discharges on land and offshore from large tankers, oil refineries, distribution stations and the petrochemicals industry, with consequent impacts on natural resources including biodiversity loss and air pollution.

Industrial development is still dominated by public

enterprises, which benefit from a range of protective policies such as subsidies, credits, discrimination in governmental procurements and preference over competing imports. Large-scale manufacturing facilities are located mostly in congested cities to benefit from urban infrastructure.

The GCC countries have started to reduce their overwhelming dependence on fossil fuel by developing agriculture, industries, services and tourism. Typical industries include petrochemicals, fertilizers, aluminum, iron and steel, and cement, with some diversifications into the engineering and construction industries.

Consequently, as economies grow, traffic, waste, greenhouse gas emissions and ecosystem destruction also increase. The management and use of natural resources as well as chemical and hazardous wastes have not kept pace with economic development in the GCC countries.

Water and oil are being tapped at unsustainable levels. The Gulf countries face several urgent environmental issues that include water scarcity, land degradation, biodiversity, coastal environment degradation and air pollution. In fact, the region is also a large contributor to global emissions of carbon dioxide in per capita terms.

To get an overall idea about the current environmental status in the GCC countries, let us very briefly refer to *Living Planet Report 2006* issued by the World Wide Fund for Nature (WWF) and the Global Footprint Network. The report said that man is exploiting nature at an alarming rate and, based on current trends, will need two planets' worth of natural resources every year by 2050.

Further, according to the report, the United Arab Emirates (UAE) has the largest footprint in the world, i.e. people in the UAE are placing the most stress per capita on the planet. The Total Ecological Footprint for the UAE was 11.9 global hectare/person. It is worth mentioning that Kuwait and the

Kingdom of Saudi Arabia too have very large footprints – 7.6 and 4.6 global hectare/person respectively – compared to the world average footprint of 1.8 global hectare/person. The report covers 150 countries around the world. The above-mentioned countries are the only GCC countries that figure in the report.

The author believes that this report is just an indicator of the unsustainable patterns of development and lifestyle. However, criticism can be directed against the report as it is unfair to compare tropical countries with nations in arid zones because the climatic conditions and pressures on the environment are very different. In addition, the UAE has contributed to environmental projects in other parts of the world such as Pakistan, Morocco and Lebanon. Millions of dirhams go out of the UAE, with expatriates supporting their families back home and this is not taken into consideration in the report.

With increasing international economic liberalization as part of globalization, the GCC industries are faced with serious challenges as they try to compete with manufacturers from other countries. In the emerging economic scenario, these industries particularly need to enhance competitiveness in the areas of standards, quality, metrology, testing, certification, and accreditation. This increases the importance of international standardization and related issues, including ISO 14000 and 14001, as well as the need to apply such standards for admission to the world markets.

In relation to the Environmental Management Systems (EMS) and ISO 14000 series certifications, in general, it has been very limited in the GCC countries as compared to other parts of the world (Annex 1), especially developed economies. However, it is worth noting that the UAE is proving to be something of a pacesetter among the GCC countries.

Besides the long-lasting conventional threats, especially those from oil and gas industries and water scarcity, recent years have witnessed a growing environmental threat from Iranian

nuclear activities and continuing conflicts in Iraq, and rapidly-growing construction along the Gulf shores.

1.2) Environmental Policy: Scope and Definition

National environmental policies are being, or have been, developed in all countries. The Rio Conference accelerated the setting up and strengthening of environment ministries and authorities, the adoption of national strategies, financial resource mobilization and the creation of partnerships.

The principle of "common but differentiated responsibilities" implies the support of the international community for the elaboration of national environmental policies. The application of this principle pre-supposes that developed countries contribute to helping developing countries establish and follow their environmental policies in all their dimensions.

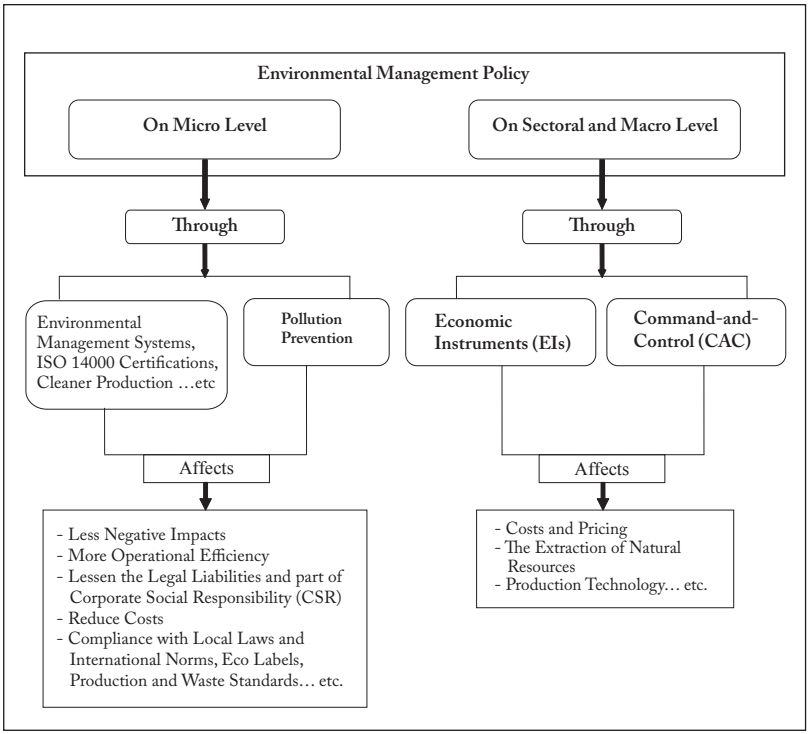
It is worth mentioning that the term 'environmental policy' is used on both macro level (nation-wide) and micro level (organization), as shown in Figure 1. On a micro level, the term means: "Statement by the organization of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets."[2]

The focus of this research is on the macro level, where the term 'environmental policy' means: "The official rules or regulations concerning the environment adopted, implemented, and enforced by some governmental agency." [3]

2. PEER Center, Global Environment & Technology Foundation, http://www.peercenter.net/glossary/ (accessed on March 25, 2007).

3. McGraw-Hill Online Learning Center, http://highered.mcgraw-hill.com/sites/ 0070294267/student_view0/glossary_e-l.html (accessed on March 25, 2007)

Figure 1: Environmental Management Policy Framework



Source: Alaa Sarhan, May 1998

Environmental policy has also been defined as a number of decisions that is taken by the central government in order to guide populations' attitude toward resources conservation, protect the environment and upgrade environmental services available for the society.

Environmental policy aims at correcting market and regulatory failures to improve environmental quality. Ideally, environmental policy should be designed to maximize the net benefits to society by achieving the optimal level of environmental quality. In practical terms, the determination of this optimal level is difficult because of both limitations in our

understanding of both the physical and biological relationships in the environment and the difficulties in evaluating costs and benefits in environmental terms. A more practical approach is to set environmental quality standards.

Once the environmental objectives and their associated standards have been agreed upon, the choice of the mix of policy instruments to achieve these objectives becomes important. The choice of instruments depends on a consideration of:[4]

- Cost-effectiveness
- Environmental effectiveness, i.e. attainment of the environmental objectives
- Administrative practicality, i.e. ease of monitoring and enforcement, streamlining information requirements and measuring administrative costs
- Dynamic incentives, i.e. innovation and long-term factors
- Political acceptability, i.e. costs and benefits in relation to the existing institutional framework

1.3) Environmental Policy Objectives

The immediate and the medium-term objectives of environmental policy are to address the most urgent problems, such as threats to human health caused by poor environmental quality, losses, damage or destruction of natural resources, depletion and degradation of environmental resources and the deterioration of biodiversity.

Environmental policy, initially, focuses on the following:

4. "The Effectiveness of Financial Instruments for Environmental Investments," Background Document for the Ministerial Conference in Sofia, October 1995, http://www.mos.gov.pl/mos/publikac/Raporty_opracowania/manual/glosry_1.html (accessed on March 25, 2007)

- A systematic approach which is carefully applied, weighing the environmental, economic and social implications of different alternatives. This approach to environmental policy also clearly defines what should be achieved, when and by whom, and at what cost.
- Departure from downstream cleaning technologies, the so-called end-of-the-pipe technology, and a move towards an environmental protection management system integrated in overall production processes and products.

In general, decision makers in any country face a number of problems that need solution. However, due to the complexity of some of these problems, the policies adopted may vary depending on the following factors:

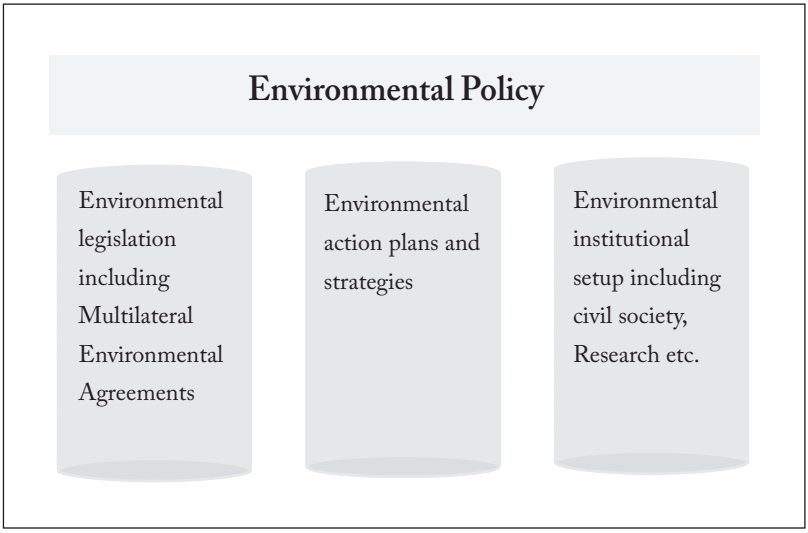
- The number of people affected by the problem.
- The interest of the decision maker in solving the specific problem or issue.
- The availability of resources to solve the problem.
- The ability of specific lobbying groups to reach and influence the decision maker.
- Finally, a developing country has to consider the pressure of the international community toward solving a specific problem or issues.

Like any other administrative process, the policy cycle could be as follows:

- Proposal and formulation of specific policies and placing it on the government agenda.
- Decision making regarding a specific policy.
- Evaluation of policies.

In any country, there are some pillars that any environmental policy depends upon (see Figure 2). The most important ones are environmental legislation including Multilateral Environmental Agreements, environmental action plans and strategies, and environmental institutional setup including civil society.

Figure 2: Environmental Policy Pillars



Environmental policies should gain the most attention from decision makers because they have many other dimensions – social, economic, and even political. Well drafted and executed policies can help attain the aspired sustainable development. Without appropriate environmental policies, the current trend in development could lead to 'destructive development' which is illustrated in the various environmental problems of today, including climate change. Environmental factors should be taken into consideration in drafting any kind of policy at the national level. Execution of environmental policies should be the responsibility of all institutions and individuals and not the environment authority alone. In all cases, while drafting

the policies is important, using different tools to achieve policy objectives is more crucial.

1.4) Environmental Policy Classification

To achieve environmental policy objectives, a variety of policy instruments including regulatory, planning, economic and voluntary instruments, would be required for an effective action plan. Specific instruments that are appropriate for a particular objective, environmentally cost-effective and compatible with the institutional framework should be used wherever appropriate.

As a means of achieving their environmental management objectives, governments have sought the adoption of policy measures or approaches. In fact, an instrument for pollution policy is any device that causes the polluter to comply with the wishes of a control authority, i.e., that causes him to reduce his pollution to the target level. On a simple theoretical level, these can be divided into non-economic regulatory or CAC policy and Market-Based Economic Instruments.

Some authors suggest that environmental regulatory instruments can be classified according to two criteria:[5]

(i) Whether they dictate how much to abate and what abatement technology to use or simply create financial incentives for firms to abate, and (ii) whether they require the regulator to monitor emissions. Regulatory instruments that dictate abatement decisions are known as CAC regulations. Examples include emissions standards and technology standards. Policies that create financial incentives for abatement by putting an explicit or implicit price on emissions but which do not dictate

5. Allen Blackman and Winston Harrington, "The Use of Economic Incentives in Developing Countries: Lessons from International Experience with Industrial Air Pollution," Resources for the Future Washington, D.C, 1999.

abatement decisions are referred to as EIs. The three chief examples of EIs are emissions fees, wherein firms pay a fee per unit of emissions; marketable permits, wherein firms are assigned "allowances" to emit a certain amount of pollution which they may trade with other firms if they wish; and environmental taxes, which are simply taxes on the inputs used by polluters or outputs produced by them. Policies that require the regulator to monitor emissions are called "direct" instruments and policies that do not are called "indirect" instruments. Emissions standards, emissions fees, and marketable permits are examples of direct instruments while environmental taxes and technology standards are examples of indirect instruments.

However, there is also a persuasive measure that is used alongside the other two approaches to offset environmental market failures. This approach seeks to change perceptions and priorities by internalizing environmental awareness and responsibility into individual decision-making. It addresses the moral aspects of environmental responsibility, including religion and social pressure. This approach can take the form of education, risk communication, provision of information and knowledge as well as training.

Table 1: Classification of Environmental Regulatory Instruments

	Direct Instruments	**Indirect Instruments**
Economic Incentives	* Emissions fees * Marketable permits	Environmental taxes
Command and Control	Emissions standards	Technology standards

Source: Blackman, Allen and Winston Harrington, 1999.

Such an approach complements both the regulatory and economic approaches in environmental policy. Despite acknowledging the significance of the persuasive measure, this paper is not devoting any further discussion to it for being an important subject, it requires a separate research work.

An environmental policy should tackle national and international issues with an overall integrated vision; the effective implementation of the international environment agreements should lean on robust national policies.

1.5) Policy Failure, Market Failure and Environmental Policy

The numerous policy instruments available complicate environmental policymaking. On a simple theoretical level, these can be divided into non-economic regulatory or CAC policies and Market-Based Instruments (MBIs). In the past, governments have relied heavily on direct regulations to achieve environmental management objectives. MBIs use the price mechanism to alter incentives, while CAC provides mandatory regulations on the quantity of environmental damage.

The main advantage of MBIs is that they are often 'win-win' policies. Thus, they are generally more efficient. By altering incentives through the price mechanism, they integrate environmental considerations into mainstream economic decision making. They also tend to have fiscal advantages for governments since they often involve a reduction in environmentally damaging subsidies and an increase in environmentally improving taxation.

In fact, there are two main causes why prices in an economy are not at the most economically efficient level. They are policy failure and market failure.

Policy failure: Also known as government or intervention failure, policy failure occurs when the government creates incentives for environmentally damaging activity by intervening through subsidies, price controls, physical output targets, exchange controls, and tariffs. Even when government intervention is justified, which is the most frequent case, this must be implemented in the least-cost manner.

Market failure: When freely functioning markets produce prices that do not reflect the true social costs or benefits of an action, they are designated to be in a state of market failure. This happens when, for example, the environmental costs of deforestation or the environmental benefits of afforestation are not reflected in the price of tropical timber. In economic terminology, the environmental damage or benefit is an external effect or externality. Raising prices or providing subsidies to include these environmental costs and benefits can be made an integral part of the price mechanism.

Economists consider pollution as a negative externality and, in most cases, the community bears these costs. If a petroleum refinery pollutes its surrounding areas by emitting CO_2, then each individual in the nearby areas bears such costs (see Figure 3), unlike when a similar refinery takes measures to reduce or eliminate such emissions. Later, the external costs are internalized and included in the costs of refinery and appear in its profit and loss accounts. In case the atmosphere is considered a free public good, then there is no incentive for internalizing such costs. EIs play an important role in internalizing external costs by translating the theory of external costs into policymaking through the Polluter Pays Principle (PPP) and User Pays Principle (UPP), which states that the firm responsible for the negative external effects should bear all related costs. These related costs are associated with avoidance, clean up or compensation, such that external costs are reflected in the firm's costs of production and these costs are added to the output costs and eventually customers pay for it.

EIs' aim is to institute full cost pricing by costing and charging full scarcity cost for resource depletion and full damage cost for environmental degradation (see Figure 4). Full cost pricing is given by the formula: MSC = MPC + MEC

where MSC stands for Marginal Social Costs, MPC denotes

Marginal Private Costs and MEC is Marginal Environmental (External) Costs.

It is worth mentioning that there exist some other factors like Marginal Environmental (External) Benefits (MEB) and these are deducted to reach the actual costs.

Figure 3: Pollution as Externality

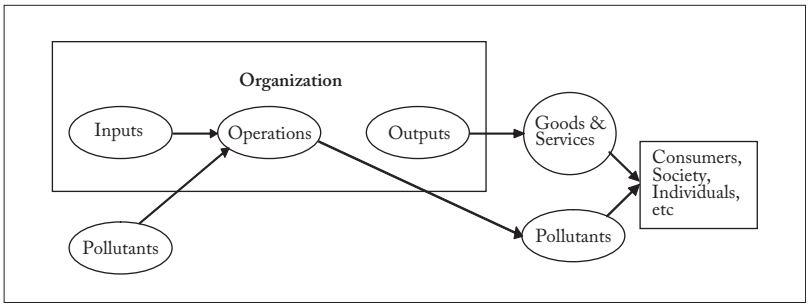
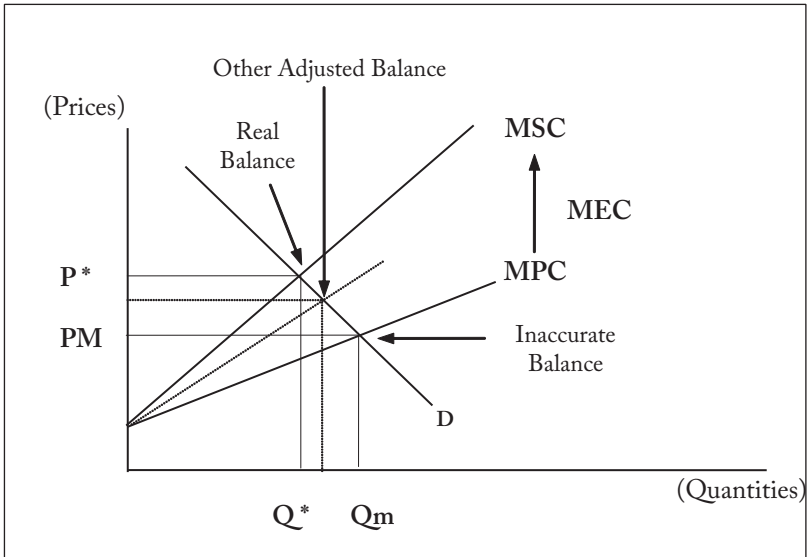


Figure 4: Marginal Social Cost



Source: Alaa Sarhan, May 1998.

1.6) Environmental Policies in the GCC Countries

Technology has transformed patterns of life and work, communications, and leisure activities across the world. The impacts of these changes in the natural environment are complex. The fast growing industrial economies of the GCC countries, for example, consume immense quantities of energy and raw materials, and produce high volumes of wastes (hazardous and non-hazardous) and polluting emissions (liquid or gaseous). The magnitude of this economic activity is causing environmental harm and disturbance to ecosystems on local, regional and global levels.

The GCC countries have begun to formulate and implement environmental policies over the past two decades. The initial approach was sectoral, consisting mainly of developing methods of managing individual environmental resources without giving due consideration to the environment as a whole. However, governments are now reformulating laws and regulations, and establishing cross-cutting approaches to deal with the real complexity of environmental issues. Environmental Impact Assessment (EIA) is receiving more attention and its use is spreading. Environmental considerations are slowly becoming part of the planning process.

Since the GCC countries have embarked on their economic liberalization and restructuring programs, it has become crucial that many economic parameters reflect their true values and market signals are captured correctly. Environmental Economics and especially EIs are used to internalize the external costs that exist in various sectors of the economy due to market failure and divergence of private costs/benefits from social costs/benefits. This is especially so in the field of industrial output where prices do not accurately reflect the costs of pollution and environmental degradation.

It is very apparent that the GCC is relying heavily on Command-And-Control (CAC) as a sole environmental policy.

The GCC has enacted several environmental legislations and ratified or acceded to almost all Multilateral Environmental Agreements (MEAs). Fines and penalties are present in the GCC environmental laws even though economic instruments are not yet integrated into environmental legislation and policies.

The main obstacles in formulating and implementing environmental policies in the GCC countries are:

- The possibility of political and administrative conflicts
- Limitations in financial and skilled human resources
- Inadequate planning of industrial and urban development, and conflicting interests in the use of water and land
- General lack of reliable, up-to-date information and data on the state of the environment. This relates to the lack of standardization of data formats and consistent environmental monitoring, data collection and reporting
- Little or no cooperation between different authorities whether public or private or civil society organizations

2) Command-And-Control (CAC) and Economic Instruments (EIs)

CAC is based primarily on legislative and mandatory regulations and implemented through directives from regulatory authorities (i.e., government).

CAC is a type of prescribed behavior because they "command" polluters to "control" specific activities. Thus, CAC leaves the polluter with no choice: he has to either comply with the regulations or face judicial penalties. Administrative regulations limit an individual's choice by prohibiting certain actions and imposing sanctions.

Non-economic regulatory measures or CAC have been the mainstay of environmental policies and resource protection in almost all nations, since they are preferred by government decision makers. Although the experience with the effectiveness of regulations varies among countries, the regulatory framework in any case should be complemented by market instruments (EIs).

2.1) CAC Examples

- **Engineering standards** that regulate the technology in use
- **Performance standards** that specify emission/output ratios during operation
- **Quantity quotas** on overall emission levels
- **Ambient standards** that define the environmental quality that must be met
- **Prohibitions/sanctions** that preclude certain activities (e.g., game hunting) or the use of certain inputs (e.g., certain types of hazardous pesticides).

2.2) Economic Instruments (EIs)

Economic Instruments (EIs) are sometimes referred to by other names such as Market-Based Instruments (MBIs) and Financial Incentives (FIs). The term MBIs focuses more on instruments that depend on market forces – for example, incentives like emissions trading. FIs focus more on the use of fiscal tools like charges. In all cases, EIs is a comprehensive term and includes the above mentioned terms.

Below are some definitions of EIs:

- EIs or MBIs are policy tools that affect the monetary costs or benefits of private actions, either through directly changing market prices (e.g., charges, subsidies) or introducing markets where previously there were none (e.g., cap and trade schemes).[6]
- EIs are any instrument that uses financial means to motivate polluters to reduce the health and environmental risks posed by their facilities, processes, or products.
- "Any instrument that aims to induce a change in behavior of economic agents by internalizing environmental or depletion cost through a change in the incentive structure that these agents face (rather than mandating a standard or a technology) qualifies as an economic instrument."[7]
- EIs can also be defined[8] as instruments that affect costs and

6. Covec Limited, "Economic Instruments for Waste Management," Parliamentary Commission for the Environment, Auckland, New Zealand, November 2005.

7. T. Panayotou, "Market–Based Instruments in Environmental Management – Experiences and Perspectives in Developing Countries," Proceedings of the June 1994 Berlin International Conference-DSE and GTZ, Berlin 1995.

8. Flores-Montalvo, "Economic Instruments in Environmental Manage-

benefits of alternative actions open to economic agents, influencing behavior in such a way that it is favorable to the environment. The purpose of EIs is to ensure that all economic agents incorporate all costs and benefits deriving from their actions in their decision making process. Quite simply, they are administrative mechanisms adopted by government agencies to influence the behavior of those who value the natural environment, make use of it, or cause adverse impacts as a side-effect of their activities.

2.3) Objectives of EIs

EIs are implemented in order to achieve one or more of the following:

- Force producers and consumers to take into account the implications of their actions on the environment
- Leave them the freedom to choose and adapt their activities
- Enable them to apply least-cost solutions
- Create a dynamic system that encourages the search for and application of better means of maintaining and improving environmental quality

In the wider context, using EIs for environmental protection is seen as a practical means of implementing the principles of sustainable development. The Brundtland Report[9] establishes that environmental policies must look beyond regulations

ment - The Case of Mexico" (Institute for Scientific Co-operation, Tübingen, Germany, 1995)

9. World Commission on Environment and Development, *Our Common Future – Brundtland Report* (London: Oxford University Press, 1987).

towards other types of instruments, including taxes and foreign trade incentives.

EIs rely more on decentralized decision making and market mechanisms. By creating markets for natural resources and environment, the EIs can signal the resource scarcities to users (and the costs of environmental damage), which create economic incentives for wiser management. In simple terms, governments can influence usage patterns by controlling the quantities/qualities of environmental or natural resource attributes that are traded, or by controlling their prices, either directly where there is a mandate to set prices or indirectly through charges, taxes, subsidies and other economic incentives. These management systems result in a more efficient use of natural resources and the environment, commonly referred to as the "efficiency gains" from using EIs.

Industrialized economies are currently more inclined to MBIs, which are more flexible and generally more efficient. The present trend is to implement these to complement existing measures but in some cases also to substitute traditional regulations.

The potential to reduce costs by applying EIs instead of regulations is an important consideration for polluters due to the fact that there is more flexibility for selection of optimal levels of pollution.

EIs provide continuing motivation to reduce pollution below the levels set by regulations. They also encourage new pollution control technology, production processes and new non-polluting products by providing incentives for research and development.

MBIs/EIs operate generally through establishing prices for environmental services via a market. MBIs operate on the principle of equating the marginal social cost of pricing polluting goods/services with the private costs of production.

It is important to point out, however, that EIs are seldom used in isolation. There are many cases where they are implemented in combination with other types of instruments,

especially regulation. In some cases, a mixture of two economic instruments may be used.

In fact, as the GCC countries become increasingly involved with economic reform programs, one expects that the implementation of a sound environmental policy, which relies on economic incentives, will be highly desirable and effective. Market liberalization and market reforms will in fact mean that it is possible to introduce the notion of the PPP, which has been ignored in the GCC countries so far. The utilization of EIs must be considered as an option to facilitate the implementation of environmental regulation by providing both economic incentives and disincentives to complement (and supplement) the existing direct regulatory instruments in the environmental regulations of the GCC countries.

EIs are also discussed in terms of their 'functional objectives'. According to United Nations Environment Program (UNEP), EIs have four major functional objectives:[10]

Establish, clarify or improve property rights

Property rights based EIs provide an incentive for owners of resources to invest in them and extract/harvest them sustainably. In other words, clear property rights add security and flexibility to the management of environmental and natural resources. It is worth noting that property rights need not be individualized, since even communal property rights can in some cases provide more secure tenure.

Ensure that resource users pay a fair price for what they consume

Environmental fees are charged to help clarify price signals and encourage efficient use of environmental and natural resources. Most of these fees first address the issue of recovering the cost of providing goods and services from the beneficiaries. The most efficient solution in an economic sense occurs when fees

10. Ibid.

are set to recover both the direct costs of goods and services plus the environmental costs associated with producing and using a particular product/service. However, political realities often eclipse this outcome.

Subsidize cleaner alternatives

Some EIs can be applied to change production or consumption behavior to one that is more environmentally superior. Well-targeted and focused interventions, mostly in the form of subsidies, may accelerate the development of these preferred alternatives.

Generate revenue

A number of EIs, for example, permit levies and taxes and have immediate revenue generating implications for the government. This revenue can be potentially earmarked to help enforce, improve, and expand environmental and natural resource management.

2.4) Classification of EIs

Though there are various classifications for EIs, one commonly employed for environmental purposes divides them into five categories:[11]

1. Charges/taxes such as emission, product (including tax differentiation), and user (sewage, solid waste) charges and/or taxes, as well as sanctions (non-compliance fees, performance bonds)
2. Deposit refund schemes
3. Market creation (tradable polluting permits, eco-labeling)

11. M.S. Andersen and R. Sprenger (eds.), *Market-Based Instruments for Environmental Management* (Edward Elgar: Cheltenham, England, 2000), 3-5.

4. Subsidies for environmental purposes (grants or transfer of payments, soft loans, tax allowances, charge relief);
5. Liability schemes (compensation, insurance)

One of the famous classifications of EIs, initiated by Inter American Development Bank, groups them into three main categories on revenue basis: Revenue-raising, revenue-providing and non-revenue instruments.[12]

2.4.1) Revenue-raising Instruments

These include the various kinds of user charges (levies or taxes) for the provision of collection, transportation and delivery services. These are directed at "internalizing" the externalities associated with the production, transportation and disposal of wastes. The revenue raised from such charges may then be earmarked for solving the specific problem for which the charge was levied. There are many examples of charges and taxes that fall under the category of revenue-raising economic instruments such as:

- Pollution charges, based on pollutant loading
- Waste generation charges, based on waste quantities and degree of waste hazard
- Product charges or fees to handle disposal of problem products such as batteries, tyres and refrigerators
- Eco-taxes, added to non-renewable energy production or fuels to influence energy demand and fuel choices
- Renewable resource taxes on virgin materials to influence demand for their use and motivate recycling of secondary materials.

12. Sandra Cointreau, Attorney Constance Hornig, "Regional Policy Dialogue, IIII meeting: The Application of Economic Instruments in Water and Solid Waste Management," Inter American Development Bank, Washington, D.C., February 2003.

2.4.2) Revenue-providing Instruments

These include subsidies of different kinds that seek to directly reward desired behavior (waste reduction, improved management or recycling) rather than penalize the behavior to be discouraged. Subsidies can be direct payments, reductions in taxes or other charges, preferential access to credit, or in-kind transfers like the provision of land or other resources. These instruments tend to reduce revenues available to the authorities. Examples of revenue-providing EIs are given below:

- Tax credits and tax relief, allowances on property taxes, customs duties, or sales taxes to motivate investment in waste management improvements
- Charge reduction based on proof of recycling or reuse in reducing wastes requiring collection or disposal
- Tax rebates for pollution savings or enhancing energy efficiency
- Environmental improvement funds, established to support pollution reduction, resource protection, energy efficiency
- Research grants to stimulate technology development
- Carbon sequestration funds to encourage purchase of lands that rejuvenate air quality, sometimes as a trade-off by polluters
- Long-term leases of land and development rights provided to private companies building waste treatment and disposal facilities, or to those finding remedy to and reclaiming old disposal sites

2.4.3) Non-revenue Instruments

These instruments, which include deposit-refund programs, combine the incentive effects of charges (when a good is purchased and the deposit is made) and subsidies (when the good is returned or otherwise handled properly and the deposit is refunded). Other incentive-creating policies can include

property rights-based instruments as well as legal/information-based instruments.

Under this sub-category are found liability laws and performance bonds; performance disclosure; and general public education.

Specific examples of non-revenue economic instruments include:

- Product life cycle assessment, which predicts overall environmental burden of products and can be used in certification programs
- Take-back systems, where manufacturers take back used products or packaging procurement preferences, i.e. evaluation criteria adding points for products with recycled content or reduced resource demand
- Eco-labelling, which notes product's recyclable content
- Product stewardship, which encourages product designs that reduce pollution, reduce wastes and encourage recycling
- Disclosure requirement, in which waste generators are required to disclose their pollution
- Blacklists of polluters i.e. published lists which enable consumers to consider whether to buy from polluting companies
- Liability insurance, or liability assurances by contractors and private operators
- Bonds and sureties, guarantees for performance by contractors and private operators.

2.5) Local, Regional and International EIs

The author would like to suggest a new classification for EIs (see Figure 5) depending on the geographical scope of application of each instrument. The classification is very clear in that any

EI, such as the ones mentioned in previous sections, can be adopted within a specific governorate or country boundary. Yet, we have a new instrument which does not know political borders and its applicability is on an international scale.

Of late, many MEAs have come into force and they are gaining more and more acceptance by nations around the globe. Nations now realize that global environmental problems must be dealt with by global collective efforts. The MEAs seem to be a successful tool in this regard as will be illustrated later in this paper. The MEAs offer several EIs on global level. Besides technical and information assistance to the individual countries, exchange of ideas and best practices, they also offer financial support, environmental grants and soft loans, assistance in putting in place clean development mechanism and help in emissions trading.

It is worth mentioning that there are revenue-raising, revenue-providing and non-revenue instruments on both international and regional levels. However, to keep the analysis simple, the author does not differentiate between regional or international EIs on that basis.

This paper will highlight only the Clean Development Mechanism (CDM) and emission trading of the Kyoto Protocol of UNFCCC. With the introduction of these tools, our traditional view of environmental resources and polluters has changed dramatically. Previously, the main obstacle facing environmental economics was that there was no market for environmental goods and services. But, these tools are paving the path for such markets to emerge and thus solving a lot of problems.

It must be noted here that international donors and soft lending agencies on a global level like Global Environment Facility (GEF), which is considered an EI or MBI, provide financial incentives for countries to generate global environmental benefits.

2.5.1) Environmental Prizes in the GCC

The GCC offers bi-annual prizes for best environmental activities in the region. The prizes were instituted in the year 1999. These prizes are usually handed over to the winners during meetings of the GCC environment ministers. This is a clear example of a regional EI.

Prize Categories are:[13]

- A prize for the best research in the field of environment
- A prize for the most successful environmental awareness campaign
- A prize for outstanding environment personality
- A prize for the best educational and research institution for its contribution to environment
- A prize for the best environmental practices for an industrial establishment, in each state, which complies with environmental standards and specifications

The Prizes aim at:

- Encouraging activities both at individual and collective levels, which contribute to the protection of environment and promotion of sustainable development
- Inspiring individuals and establishments to undertake research and to create models to achieve environmental goals
- Spreading awareness and knowledge on environmental issues among citizens
- Encouraging industrial houses to conform to environmental standards and specifications

13. GCC, "GCC Prize for the Best Environmental Activities," http://www.gcc-sg.org/AWARD.html (accessed June 13, 2007)

2.5.2) Clean Development Mechanism (CDM)

The UNFCCC is the first international legal instrument to address the issue of climate change caused by anthropogenic emissions of greenhouse gases (GHGs). The ultimate objective of this convention is to achieve stabilization of GHG concentrations in the atmosphere at a level that would "prevent dangerous anthropogenic interference with the climate system." Furthermore, the convention stipulates that this level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner. The convention calls for formulating policies and programs for the effective transfer of environmentally sound technologies, creation and maintenance of information centers, cooperation in scientific and technical research and more.

To mitigate climate change, most of the industrialized countries (the so-called "Annex I countries") under the Kyoto Protocol of December 1997 are committed to a quantified reduction of their GHG emissions. To comply with their Kyoto targets, these countries may reduce emissions either domestically or in other countries because the greenhouse effect is of global nature. Costs to reduce GHG emissions are often lower in developing (Non-Annex I) countries because the mitigation measures per ton of carbon dioxide reduced may vary substantially from country to country.

One of the mechanisms for international GHG abatement is CDM. In short, an Annex-I country (or firm) pays for GHG mitigation in a developing country through projects such as setting up of a wind power or other renewable energy plant, or promoting energy efficiency or afforestation projects, and then purchases the resulting measurable reduction of GHG emission in the host country (developing country). A CDM project must comply with the criteria set by the Kyoto Protocol and must be approved by the host and investor countries. The investing

country obtains certificate of emission reductions, which the investor can use as evidence of its compliance with the Kyoto Protocol norms.

The CDM gives a value to the reduction of GHG emissions in developing countries, including the GCC countries. Through this, additional funds are generated to promote clean technologies and sustainable development. This results in the following benefits for the stakeholders in the GCC countries as well as any other developing country:

- Private and public sectors benefit from the introduction of clean technology projects, as the resulting certified emission reductions will generate additional foreign exchange revenues for them
- Potential to increase foreign investments and sources of foreign currency
- Additional business opportunities for companies providing clean technologies in the GCC countries
- Renewal of important infrastructures such as power stations, transport systems, sewage treatment plants etc., which improves the reliability and quality of public services and sectoral programs
- Transfer of appropriate, environmentally clean, and reliable technology
- Costs reduction and improvement in technology, thereby strengthening the competitiveness of the GCC industries
- Improvement of air quality by emission reduction
- Contributes to capacity building
- CDM activities for land use, land use change, and forestry (LULUCF) can support the current afforestation efforts to limit desertification in the GCC countries
- Financing of clean technology projects by local banks is facilitated because the regular (hard currency) payment for

Certified Emission Reductions (CERs) may be used for the repayment of loans

- CDM investments create employment opportunities for local labor and contribute to their welfare

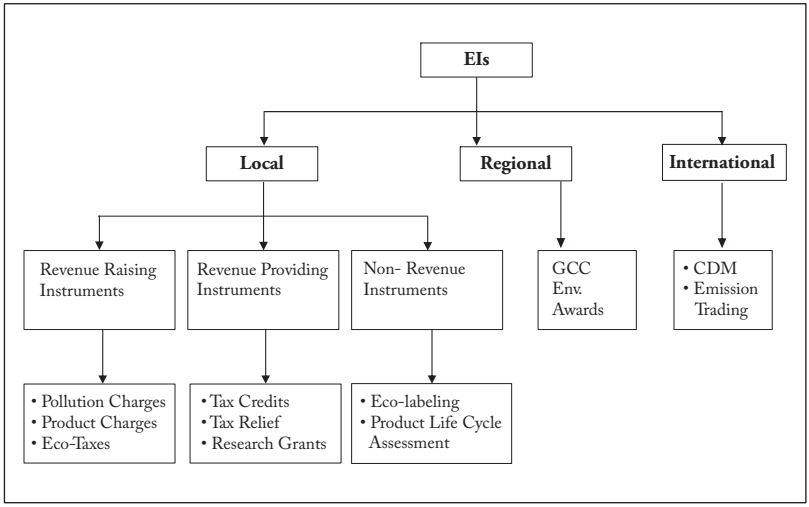
In Kyoto Protocol, Article 3 states that the Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period from 2008 to 2012.

2.5.3) Emissions Trading

In the Kyoto Protocol, Article 17 refers to allowance trading. According to this article, the conference of the Parties shall define the relevant principals, modalities, rules and guidelines, in particular for verifying, reporting and accounting for emissions trading. The Parties, i.e. Annex I, may participate in emissions trading for the purpose of fulfilling their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.

The concept of trading means that those countries that emit less than the given emission ceiling or without emission ceiling are allowed to sell the difference between their actual emissions and the defined ceiling. These emission permits can be bought by a second Annex I party whose emissions exceed its defined target for that period. The two parties can strike the deal through direct negotiations or through specialized brokers, using the international prices of the emissions reduction units. In this case, only the aggregate (net) emissions are monitored via national emissions inventories.

Figure 5: Classification of Economic Instruments



In a nutshell, the author would like to highlight that the success or failure of Kyoto Protocol apart – and despite the fact that the GCC countries and some other countries have not benefited from it yet and that most of the industrial countries will not be able to fulfill their commitments under the protocol as many new alternatives are emerging like the European Union initiatives in March 2007, which decided to cut the EU emission by 20 percent by the year 2020 – we now have an international EIs tool and, more importantly, we have established a market for environmental goods. This is a great achievement in itself.

2.6) Examples of EIs[14]

2.6.1) Charges

Used to discourage polluting activities or to provide financial

14. Alaa Sarhan, "Leaflet on Economic Instruments," MAP/PAP, Croatia, 2002.

assistance for pollution reduction, charges are a direct method of putting a price on the use of environment. The most important charges include effluent charges, user charges and product charges.

Pollution Charges and Taxes

Pollution charges are based on the quantity and quality of pollutants discharged. These could include any direct payment calculated on the basis of measurements, quantities or types of pollutants. This type of instrument is also called pollution fees, and includes:

- Emission charges/taxes
- Effluent charges
- Solid waste charges
- Wastewater charges

Advantages

- Low transaction and compliance costs for firms or individuals
- Technological innovation is promoted
- Long-term incentives are created
- Revenue raising for government is induced
- Flexibility for polluters
- Useful when damage per unit of pollution varies little with quantity of pollution

Difficulty/Disadvantages

- Setting the charges at the right level
- Monitoring data requirement
- May have large negative distributive effects
- Opposed by environmentalists and entrepreneurs
- Uncertain environmental impacts

Relevance
Discharges from point sources. i.e. any source of emission, effluents such as plants.

- When monitoring is viable at a reasonable cost
- When pollution abatement is feasible

2.6.2) Product Charges

These are fees charged on products that cause pollution during their production or consumption or disposal such as fertilizers, insecticides, batteries, and packing materials. The main purpose of applying charges on these products is to amend relative product prices and/or financing systems for collecting and treating wastes from these products.

Examples of levies on products, which are harmful to environment when made or disposed of, are:

- Leaded petrol tax
- Carbon tax
- Fertilizer tax
- Pesticide tax
- Water user charges

Advantages
- Reduces the use of products that are harmful to environment
- Technological innovation is promoted
- Long-term incentives are created
- Revenue raising for government is induced
- Flexibility for users
- Administratively simple
- Does not require monitoring data

Difficulties/ Disadvantages
Setting the charges at right levels

- Often weak link to pollution
- Uncertain environmental impacts
- Not applicable for products of high toxicity
- May have an effect on international trade, if considered barrier for free enterprise

Relevance
Where it is not feasible to monitor pollution from individual sources, especially for mobile sources:

- For products used in large quantities
- For easily recognizable products
- For products whose demand reflects price changes
- Effective when sources are numerous and damage per unit of pollution varies little with quantity of pollution

2.6.3) User Charges/Taxes

User charges or taxes are payments for the services rendered by local authorities such as municipal wastes collection, treatment and sewage services. In the case of natural resources, these are the charges collected for using certain natural resources, for example, specific areas for hunting/fishing, or charges for mining, or entry fees for visiting protected natural areas or national parks.

- **Non-compliance fees:** These are payments imposed on polluters who do not comply with environmental or natural resources management requirements and regulations. Such fees are usually relative to the damage caused or the profits earned as a result of non-compliance. In many cases, such fees are called fines.

- **Deposit-refund systems:** At the time of purchase of certain products (e.g. glass bottles) that are potential contaminants, an extra amount of money or deposit is charged. This is reimbursed if the product is returned for treatment or recycling.

Examples of products, which can cause pollution if discarded and on which refundable deposits are collected are:

- Lead-acid batteries
- Beverage containers
- Vehicle bodies

Advantages:
- Reduces the volume of wastes and/or the release of toxic substances into the environment
- Safe disposal, reuse and recycling are encouraged
- Flexibility for users
- Deters littering

Disadvantages:
Transaction costs may be high

- Significance of benefits (relative to changes in costs) is not always clear
- Markets for recycled products are not yet well–developed
- Existing distribution systems may not be appropriate for implementation of this mechanism
- Product must be reusable or recyclable.

Relevance:
- Most effective if applied to products which have an existing distribution system and where recycling and reuse are technically and economically feasible.

- When there are serious environmental problems related to waste disposal.

2.6.4) Market Creation

Markets can be created where agents might buy "rights" to actual or potential pollution or where they can sell their "pollution rights" or their residue products.

Tradable/Marketable Permits

Tradable or marketable permits stand for transferable rights to discharge a prescribed level of pollutants or use a certain amount of a resource. For example:

- Emissions
- Effluents
- Fisheries access

Advantages

- Allocation of resources to the highest value use
- Reduced information needs for regulators
- More certainty regarding pollution or resource use levels
- Cost of compliance can be reduced
- Technological innovation is promoted and stimulated
- Long-term incentives are created
- Revenue for government can be raised
- Flexibility for polluters

Disadvantages

- Need to set overall level and initial allocation of permits
- High transaction costs
- Initial objectives must be clearly defined
- Imperative to define geographic limits within which trading of permits is allowed

- Requires variation in marginal control costs

Relevance
- Where environmental impact is independent of pollution source, e.g. for air pollution within a defined area
- When environmental impact of certain emissions does not correlate with time of production
- When there are enough sources to establish a market
- When damage per unit of pollution varies with amount of pollution

2.6.5) Performance bonds

To guarantee compliance with environmental or natural resources requirements, polluters or users must pay a deposit in the form of a "bond." The bond is refunded when compliance is achieved.

A bond is the financial security lodged with government against environmental damage.

A bond guarantees performance of the terms of the written contract. Performance bonds frequently incorporate payment bond (labor and materials) and maintenance bond liabilities. for Examples**:** Construction

Advantages
- Minimizes the risks and potential costs of polluters defaulting on liability
- Encourages restoration and clean up wherever necessary

Disadvantages
Difficult to set a realistic level for the security

Relevance
Where environmental damage would not be rectified, it is necessary to minimize the risk.

Originally, a performance bond (or bond instrument) means financial assurance. These bonds are posted by various industries to guarantee closure, performance, completion, or reclamation of permitted sites or operations and compliance with licenses and permits. Industries that are required to post financial guarantee instruments include coal and hard rock mining, oil exploration and development, and aggregate mining. These industries need to meet environmental or commercial requirements. Instruments commonly used as bond or financial assurance include corporate surety bonds, letters of credit, government securities, Certificates of Deposit, cash in escrow, real property, and self-bonding or financial-test corporate guarantees. The terms "financial assurance," "bonds," and "performance bonds" are used synonymously to mean instruments that guarantee performance.

There are many types of bonds especially in developed countries like Bid Bond, Customs Bond, License and Permit Bond, Fidelity Bond, and Lost Instrument Bond.

2.6.6) Liability payments

Payments made under civil law to compensate for the damage caused by a polluting activity are called liability payments. They make polluters legally liable for environmental damage. Examples of liability payments include:

- Natural resource damage assessment
- Nuisance, trespass

Advantages

Potential polluters are forced to either adopt environment-friendly practices or pay potential damage (through higher premiums).

Disadvantages

- Choosing the level of premiums, etc. that will cover liability and risk

- Enforcement of liability
- Assessment and litigation costs can be high
- Burden of proof is large
- Few applications

Relevance
- Where environmental outcomes are linked to the availability of finance, insurance, etc.

2.6.7) Subsidies

All forms of financial assistance to polluters or users of natural resources, such as grants, soft loans, tax breaks, and accelerated depreciation, which may be used to encourage more environmentally aware behavior are included in subsidies.

In other words, subsidies are payments by government to those undertaking environment-friendly activities.

Subsidies can be offered to:

- Municipal wastewater plants
- Farmers to influence land use
- Polluting industries

Advantages
- Encourages action to overcome environmental problems
- Politically popular

Difficulties/ Disadvantages
- Externalities are not internalized by polluter
- May reward poor environmental performers
- High budgetary cost
- May stimulate too much of the activity
- Uncertain effects

- May pay those who would undertake action even without a subsidy

Relevance
Where other economic instruments do not work or are too expensive.

2.6.8) Information Disclosure[15]

The collection and public availability of information on environmental performance has proved to be a strong incentive for different polluting sources to reduce their emissions. The incentive derives from a number of factors. For example, when companies collect emission information, they learn about the nature and magnitude of their emissions. When such information is made easily accessible to the public, workers and local communities, they get a much better idea of the environmental risks they face. So, they become more prone to support or demand actions to reduce emissions. When a source's emissions are shown to decline over a period of time, the source often reaps the benefits of better relationships with its employees and with the local community. Finally, in some cases a proven, long-term record of environmental stewardship makes a company's products more desirable to consumers.

The disclosure of environmental performance information is much more common today than a decade ago. The rating of firms' environmental performance is gaining popularity; public reporting of the storage, release and disposal of toxic chemicals is required in nearly a dozen nations. Product labeling regarding recycling and other environmental attributes also is gaining acceptance worldwide.

15. National Center for Environmental Economics and US Environmental Protection Agency, "International Experiences with Economic Incentives for Protecting the Environment," EPA-236-R-04-001, November 2004, Washington, DC.

2.6.9) Voluntary Mechanisms

This is a relatively new tool in environmental policy. It has been growing very fast in the last two decades. Noteworthy examples[16] include the use of negotiated agreements between industry and government as in the Netherlands and Japan, eco-industrial parks in many nations, and waste exchanges.

There are a number of reasons why voluntary reductions in pollution are proving more and more popular with sources, and they are related to the incentives associated with information disclosure. When organizations voluntarily reduce pollution and their employees, neighboring communities, and customers learn about it, organizations gain several benefits. Voluntary actions taken by organizations often reduce employees' exposure to harmful pollutants, thus lessening their liability and improving their relationship with labor. Organizations enjoy better relations with neighboring communities, and a reputation for good environmental stewardship may attract more customers for their products. In some cases, sources also save money by taking these actions. Moreover, sources that join voluntary partnership programs can be eligible for various kinds of technical assistance from sponsoring government agencies.

Voluntary measures tend to be small in scale,[17] i.e. the level of burden that will be accepted voluntarily would be small. They also tend to be applied inconsistently across industry — there will be free-riders that do not act and those that act to different degrees, for example, reflecting different markets (and thus consumer interest in positive environmental image), different personal views and different expectations of government's likelihood of regulating. This means the cost burden is spread inefficiently.

16. Ibid.

17. Covec Limited, op.cit.

2.7) Advantages and Disadvantages of CAC and EIs[18]

According to UNEP, EIs have at least six benefits over CACs. For example, EIs:[19]

Provide flexibility in the overall cost of reducing emissions
EIs ensure that the overall economy-wide cost of meeting specific emission targets are reduced by allowing the market to determine how much pollution each specific firm could reduce. In this way, they encourage firms whose emission reduction is less costly to abate more rather than forcing every firm to meet a specific emissions level.

Act as incentives for the use of innovative abatement technologies
Since firms can trade in emissions, and because emission reductions have financial value, firms have a continued incentive to invest in abatement technology innovation since extra reductions can be sold.

Allocate environmental and natural resources to parties who value them most
Properly structured EIs ensure fair allocation of environmental and natural resources and encourage their sustainable utilization while at the same time raising revenues for the government in the form of resource rents.

Guarantee self-enforcement by aligning public and private interests
EIs create decentralized and self-enforcement systems for environmental policies by creating an incentive for agents with

18. Alaa Sarhan, "Leaflet on Economic Instruments," Mediterranean Action Plan/Priority Action Plan (MAP/PAP), Croatia, 2002.

19. NEP, "Selection, Design and Implementation of Economic Instruments in the Solid Waste Management Sector in Kenya: The Case of Plastic Bags," Kenya, UNEP, March 2005.

vested interests to ensure the proper use of environmental and natural resources. Thus, the burden of control is taken away from the state.

Increase transparency in resource use and allocation

Application of EIs in environmental and natural resource management is appealing in the sense of their openness as the costs and rights associated with many EIs are more visible through trading levels, prices, ownership patterns and fee receipts. This makes it easy to evaluate investment trade-offs and discourages practices such as lobbying for special privileges or exceptions.

Help in cost-recovery of publicly provided services

In the provision of publicly owned or delivered resources such as drinking water or oil, market pricing is applied in many markets. In others, their prices are set at levels that recover the full cost of providing them. The revenues can then be used not only to finance continued provision of these services but also in activities that encourage increased conservation.

Table 2: Advantages and Disadvantages of CAC and EIs

Advantages	
CAC	EIs
• It conceals the true cost of environmental protection and thus avoids any conflict or unrest that might arise by imposing new taxes. • It is more favored by the general public and special interest groups than the market-based instruments since the latter may result in potential loss of jobs and social benefits. • It provides a source of power and influence for the government.	• Are often win-win policies, thus, they are generally more cost-effective than traditional policy instruments. • By altering incentives through the price mechanism, they integrate environmental considerations into mainstream economic decision making. • Have fiscal advantages for governments since they often involve a reduction in environmentally damaging subsidies and an increase

• Decision makers and government officials are familiar with such an approach. • Even polluters, who believe that they have a greater influence on regulations and less chance of incurring additional compliance costs, generally prefer them. • Changes attitude in the long term especially with better enforcement of regulations	in environmentally improving taxation. Thus, they are compatible with current priorities and trends in regulatory and fiscal reform. • Are key to environmentally sustainable development. • Help internalize environmental costs. • Support the Polluter and User Pays Principle. • Raise revenues for environmental investments or general government expenditure. • May have positive effects on innovation and competitiveness. • Help businesses and consumers in taking long-term choices. • Are useful to mitigate "diffuse pollution." • Changes attitude in the short term (or overnight) and to some extent in the long term as well.
Disadvantages	
CAC	EIs
• It is technically and economically impossible to monitor hundreds of thousands of scattered, small-scale operations, which individually produce little pollution, but as an aggregate generate significant pollution load. • Political barriers, in many instances, hinder drastic sanctions, such as closing down a plant especially at times of high unemployment. • Fines and penalties are usually too low or insignificant to constitute a deterrent.	• The massive number of small polluters hinders measurements, and monitoring. • The unequal access to credit markets by big and small firms prevents small firms from responding rationally to PPP-based policies. • The administration of Market-Based Economic Instruments may be impeded by the presence of large number of pollution sources.

In developing countries, there are additional difficulties pertaining to the effective implementation of CAC as: • Monitoring and enforcement are mostly inadequate. • Even if monitoring is technically feasible, this is impeded by economic and cultural factors, such as limited budget, manpower and administrative constraints, centralization, etc. • In many cases, both fines and penalties are circumvented through bribes or by taking advantage of favoritism and social stature.	

3) Environmental Institutional Framework in the GCC

For many years, governments in the Gulf region appeared satisfied with merely laying the groundwork for environmental protection, for example, by establishing local environmental protection agencies but without giving them sufficient authority to deal with environmental issues. More recently, countries have moved to the next level, by empowering their environmental authorities to implement and expand the environmental protection measures already in place.

Since current policies will not lead to a sustainable future, at either the regional or the global level, effective institutional mechanisms are essential. Too many institutions are weak and plagued with limited mandates and power, and limited financial and human resources.

Many developing countries framed their environmental policies at a time when the international environmental policy was being put into place, in particular when the negotiation, adoption and implementation of the global multilateral environment agreements was taking place. A national environmental policy should make it possible to incorporate, at the same time, domestic environmental objectives with international or regional objectives.

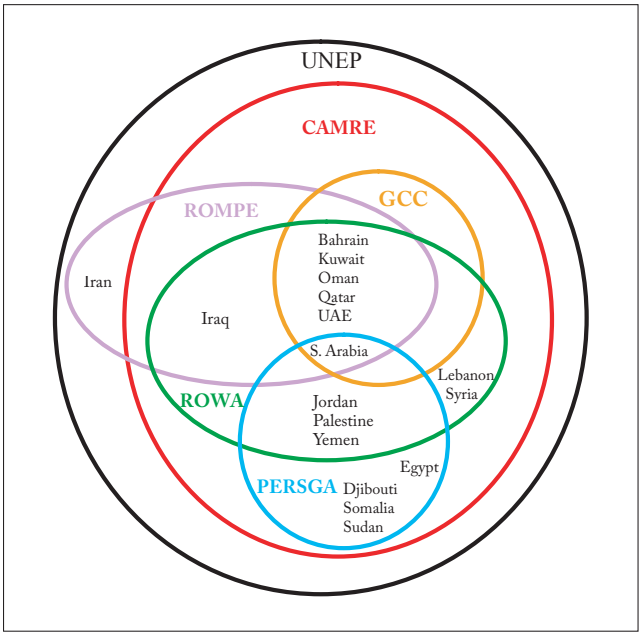
On environmental issues, the GCC countries operate internationally and regionally through a number of international and regional bodies that coordinate activities and set the framework for regional efforts.

UNEP has divided the world into seven regions, and the GCC countries are a sub-region within the Region of West Asia (ROWA).[20] The Council of Arab Ministries Responsible

20. The West Asia region constitutes 12 countries i.e. the Mashreq coun-

for the Environment (CAMRE) is the principal environmental ministerial forum in the Arab region. The GCC also coordinates environmental affairs between the six member countries. The Regional Organization for the Protection of the Marine Environment (ROPME) headquartered in Kuwait is the only organization which has representatives from Iraq and Iran, besides GCC countries. Its main mission is to coordinate all activities so as to facilitate the cooperative efforts of Kuwait's action plan for the ROMPE Sea (Arabian Gulf).

Figure 6: Regional and International Environmental Institutional Framework



Source: UNEP, 2003.

tries, Jordan, Lebanon, Syria, Palestine, Iraq and the GCC countries KSA, UAE, Bahrain, Oman, Qatar, and Kuwait in addition to Yemen.

Furthermore, operating from Jeddah on the Red Sea, the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) is an intergovernmental body dedicated to the conservation of the coastal and marine environments in the Red Sea and Gulf of Aden. The regional and international environmental framework for the GCC countries is illustrated in Figure 6.[21]

3.1) Environmental Institutions in the GCC

The six GCC countries have put in place environmental management and apex-level institutions for environmental affairs. At the state level, environment ministries, authorities and councils, which are still fairly new, are struggling to play a significant role in decision making processes to address priority environmental challenges, problems and threats facing the GCC countries and the region.[22] (See Table 3)

Table 3: Governmental Environmental Institutions in the GCC Countries

Countries	Policy Institution	Executive Agency
Bahrain	Environment and Wildlife Affairs	Public Commission for the Protection of Marine Resources, Environment and Wildlife
Kuwait	Environment Public Authority	Environment Public Authority
Oman	Council of Ministers	Ministry of Regional Municipalities, Environment and Water Resources

21. UNEP, "UNEP Strategy for West Asia 2004-2005," UNEP/ROWA, Bahrain, 2003.

22. Mohamed A Raouf, "State of the Environment in GCC Countries: Assessment of Year 2006 and Outlook for 2007," *Gulf Yearbook 2006-2007* (Gulf Research Center, Dubai, UAE), April 2007.

Qatar	Council of Ministers (Permanent Commission for Environmental Protection)	Supreme Council for the Environment and Natural Reserves
Saudi Arabia	Ministerial Committee on Environment	Presidency of Meteorology and Environment (PME), National Commission for Wildlife Conservation and Development
UAE	Council of Federation	Ministry of Environment and Water Resources/Federal Environment Agency, Emirates Environment Authority

Source: Compiled by author

Due to the relatively new environmental authorities and lack of institutional capacity, many GCC countries first join international agreements, then seek solutions to fulfill commitments. For instance, the UAE has formed a committee for biodiversity in order to keep up its commitments and establish a national integrated strategy for biodiversity conservation. Even though the UAE joined the Biodiversity Convention in 1999, it submitted a report only last year to the convention committee. The national committee comprises all concerned parties within the country and is responsible for preparing reports on the current status of biodiversity, environmental monitoring, drawing up an integrated strategy for biodiversity in the UAE and establishing an information center on biodiversity in the country. This is in addition to the preparation of training programs in the field of biodiversity. In addition, the committee prepares the annual report on biodiversity, which will be presented to the secretariat of the convention to fulfill one of its commitments to the convention.

3.2) Difficulties Facing Institutional Development

One may note that the GCC countries face obstacles, in varying

degrees depending on the cases, especially in the following areas:

a) Environment management by public institutions:

- Environment ministries or agencies are often modest structures that lack adequate human and financial resources. Also, the strategic capacities and means of implementation on the ground remain limited
- Systems and mechanisms are yet to be created or developed in the following fields: Environment monitoring, implementation of existing legislation, licenses management and boards of inspectors
- While many efforts have been made to set up legal frameworks and structures, less attention has been given to the needs related to implementation and follow-up. This has, in some cases, led to a gap between existing legislation and implementation
- The interministerial coordination in the environmental field still remains generally unsatisfactory

b) Often some local authorities have limited resources and capacities, especially in the areas of sanitation, and domestic and industrial waste management.

c) A large number of reports of international organizations related to the use of EIs have not yet been implemented. Developing countries, including the GCC countries, certainly need to be encouraged and supported in their efforts to introduce such instruments into their taxation system, their budgetary interventions and market mechanisms.

d) Many international environmental trends and standards have not yet been introduced in practice in the GCC countries like, environmental accounting, environmental statistics, eco-labels, and empowerment of civil society.

In short, until recently the institutional frameworks dealing with the environment in the GCC have been rather weak.

However, in the last 10 years, all of the GCC countries have been strengthening their capacity (both legal and human) in addressing environmental issues.

3.3) Civil Society[23]

Civil Society (CS) organizations – all non-profit organizations including non-governmental organizations, unions, research centers and institutes – represents a very important partner in protecting, monitoring and raising awareness about the environment.

Public awareness of pressing environmental issues, particularly water scarcity, desertification, and pollution of air and marine resources, has increased rapidly during the past decade, but in most countries, public participation is still in its early stages. The role of civil society, especially non-governmental organizations (NGOs), which now exist in most countries, is becoming more important.

Although, there are very few active environmental NGOs in the GCC countries, they play a very important role. Their activities are mainly centered on:

- Greening projects and tree planting
- Clean-up campaigns
- Environmental awareness, especially workshops and seminars, conferences and public lectures
- Environmental training programs

Many of the NGOs in the GCC region face problems like lack of funds and volunteers, especially young volunteers. These obstacles hinder their ability to carry out their mission effectively and achieve their environmental goals.

23. Mohamed A. Raouf, op.cit.

The main obstacles that face environmental NGOs in the GCC can be summarized as follows:

Lack of enabling environment
There is a lack of recognition and acknowledgment by officials about the instrumental role NGOs can and should play to enhance environmental quality of the region. In addition, laws should provide more power and support to NGOs.

Lack of institutional capacity
A lack of institutional capacity makes the implementation of activities less efficient and effective. This shortcoming has also led to the inability of NGOs to undertake large projects. Institutional capacity includes technical capacity that comprises trained human resources as well as technological resources. Moreover, NGOs lack qualified administrative and managerial staff required to manage various affairs and activities within the organizations.

Lack of financial resources
Generally, NGOs face problems in finding sustainable sources of funding. Due to this, they cannot carry out long-term campaigns. In addition, the inability of NGOs to secure additional funding for some of their projects has made some of the activities initiated by NGOs unsustainable.

In the UAE, civil society organizations have been present since the early 1970s. There are 121 NGOs in different fields and a few of them work in the field of environment. However, environmental NGOs have not been very effective in lobbying for their causes. Nevertheless, recently many new active NGOs have come up. For example:

- A number of architects and environmentalists in the UAE have formed the Emirates Green Building Council (Emirates GBC) to advance green building principles in the country. It is affiliated to the GBC of the United States.

It should be pointed out here that green building, green design and sustainable buildings is gaining interest in the region and one can see that many new buildings and cities follow the guidelines for green buildings.

- In 2005, the Arab Town Organization (ATO) established the Environmental Center for Arab Towns (ECAT). The ECAT is a scientific research institute, which deals with environmental issues concerning Arab cities' natural resources and sustainable development. Its permanent headquarters are located in Dubai, UAE. The center is affiliated with Dubai Municipality and the ATO, and started its official activities in 2006.

4) Environmental Law

Environmental law has been defined in several ways, such as:

- Environmental Law pertains to rules, decisions, and actions concerning environmental quality, natural resources, and ecological sustainability.
- Environmental Law is a body of law, which is a system of complex and interlocking statutes, common law, treaties, conventions, regulations and policies, which seek to protect the natural environment which may be affected, impacted or endangered by human activities. Some environmental laws regulate the quantity and nature of impacts of human activities; for example, those setting allowable levels of pollution. Other environmental laws are preventive in nature and seek to assess the possible impacts before the human activities can occur.
- Environmental Law, as a distinct system, arose in the 1960s in the major industrial economies. While many countries worldwide have since accumulated impressive sets of environmental laws, their implementation has often not been very impressive. Of late, environmental law is often seen as a critical means to promote sustainable development (or "sustainability"). Emerging environmental concepts and principles such as the 'Precautionary Principle', 'Public Participation', 'Environmental Justice', and the 'Polluter Pays Principle' have resulted in many environmental law reforms. There has been considerable experimentation in the search for more effective methods of environmental control beyond traditional "Command-And-Control" style of environmental regulation. Eco-taxes, tradeable emission allowances and

negotiated agreements are some of these innovations.[24]

- Environmental Law covers a wide spectrum of options from binding hard law, such as national legislations, amended practices and procedures, and standards. It also attempts to reconcile global considerations with local concerns that focus on very specific problems such as soil degradation, marine pollution and the depletion of non-renewable resources.[25]
- Environmental Law is the set of official rules, decisions, and actions concerning environmental quality, natural resources, and ecological sustainability.[26] It is a body of statutes intended to protect the environment, wildlife, land and beauty, prevent pollution or over-cutting of forests, save endangered species, conserve water, develop and follow general plans and prevent damaging practices. This law often gives individuals and groups the right to bring legal actions or seek court orders to enforce the protection or demand revisions of private and public activity, which may have detrimental effects on the environment.[27]

In a nutshell, environmental law is for the protection of the environment, enhancing its quality and preventing environmental damage and pollution.

There is no doubt that environmental legislation is

24. Wikipedia, The free encyclopedia, http://en.wikipedia.org/wiki/Environmental_law, accessed on March 25, 2007.

25. The Environmental Encyclopedia , Routledge, 4th edition (London, 2005).

26. McGraw-Hill Online Learning Center, glossary accessed on March 25, 2007 http://highered.mcgraw-hill.com/sites/0070294267/student_view0/glossary_e-l.html

27. http://www.legal-explanations.com/definitions/environmental-law.htm, accessed on March 25, 2007

the backbone of environmental policy. Through it one can understand the environmental objectives and priorities of a country. However, it is worth mentioning that legislation does not mean Command-And-Control alone. In fact both CAC and EIs require environmental legislation. The focus of the legislation on one and or two tools then clarifies the approach adopted by a country.

The sources of environmental law are as follows:

International law: This consists of international treaties, including conventions, agreements and protocols; customary international law; and general principles of law and norms of practice.

Domestic laws and regulations: This refers to specific and principal environmental laws enacted by each country. It should, however, be noted that generally applicable legislation could also apply to environmental matters. The respective "civil codes" in a number of countries may be an example of such legislation.

Rules and regulations of government departments: These are rules usually issued by government departments in accordance with powers and duties delegated to them under principal legislation.

In the GCC countries, rules and regulations pertaining to the petroleum industry play an important role. While the economy of the region is centered on this industry, it is also the main source of environmental legislation, as it is a highly polluting industry.

4.1) Environmental Legislation in the GCC Countries

Significant progress has been made in environmental governance since the Brundtland report. Countries have actively started to enact environmental regulations and develop environmental authorities, ministries of environment, and a variety of other

local and international environmental institutions.

MEAs cover many issues such as desertification, global climate change, stratospheric ozone depletion, trans-boundary air pollution, biological diversity, deforestation, oceans and living resources, and trade and the environment.

However, on a national level, legislation tends to cover matters that are more localized and specific such as the requirement for an environmental impact assessment (EIA) for projects and activities, licensing, rules to prevent land and air pollution, the handling of hazardous substances and chemicals, and liability and compensation in respect of environmental damage.

The following section explains significant legislation enacted by the GCC countries concerning environmental issues. It is only in the last few years that the GCC countries have enacted and begun implementing general environmental legislations. In some cases, these laws do not contain the detailed or specialized provisions found in similar laws in the Western countries, for example, in specific rules related to solid waste, hazardous chemicals, marine pollution, etc. In other cases, however, municipal regulations supplement general environmental laws.

Generally speaking, these laws provide for the institution of an authority for environmental affairs, which is empowered to draw up general environmental protection policy, prepare strategy and plans needed to preserve and develop environment, and follow up implementation in coordination with other competent government authorities.

In view of their common developmental and environmental problems, the GCC states adopted, at a meeting in Muscat in 1985, a strategic framework, "General Policies and Principles for Environment Protection." The aim of this framework is to protect the environment and maintain natural resources in a way that complies with the goals of comprehensive development and helps to realize the optimum benefit of available human and natural potentials of the member states. The GCC states seek to unify all

regulations, and legislations that deal with various environmental aspects because these can form the foundation to enact national legislations. Currently, the GCC secretariat is preparing a regional strategy for environment for the member countries.

Some environmental laws date to the 1930s. However, legislation dealing with a wide range of environmental issues, including desertification, scarcity of freshwater, pollution, management of hazardous and toxic wastes, and conservation of biodiversity, has been developed more recently; many national laws and decrees dealing with environmental protection have been adopted in the past two decades. Implementation of legislation and enforcement of standards varies. In the GCC countries, as in other developing regions, enforcement of legislative measures is far from satisfactory. This can be attributed to weak institutional capacity for environmental management, shortage of human and technical capabilities, adoption of imported standards, which are not always relevant or applicable, the sectoral nature of environmental laws, unimpressive record of government machinery in monitoring and enforcing regulations and standards, political and economic constraints, and lack of public and NGO participation. There is a need to review, rationalize, update and integrate laws, modify norms and standards, and enforce monitoring procedures to address the inadequacies revealed in the current legislation.

According to UNEP, environmental law in developing countries, in general, passed through two stages – prior to and after the Stockholm conference on environment and development in 1970 – which can be explained as follows:[28]

28. The Ramsar Convention on Wetlands, "International Environmental Governance: Multilateral Environmental Agreements (MEAs)," New York, April 16, 2000, at http://www.ramsar.org/key_unep_governance1.htm#exec, accessed on May 15, 2007.

1. Before the conference, the legislations focused on allocation and management of different resources. They did not focus on the adverse impact on environment as a result of utilization of such resources. For instance, there was no legislation that took care of protection of water resources from pollution while the land legislation focused only on utilization or farming of land.
2. The developing countries faced many environmental problems due to the non-rational use of renewable and non-renewable resources. After the conference, many countries began to shift towards sustainable use of their natural resources. For example, water legislation began to focus on the quality of water along with its usage, conservation and preservation. Also, after the conference, the legislation began to shift steadily towards integration and coordination of all components of the environment and their planning and management.

According to UNEP, the current environmental issues are included in:

- The major plans and constitutions of the countries
- Legislation on environmental norms and standards
- International environmental standards included in local laws

The important question is: How effective are the environmental legislations in the GCC countries?

It is worth mentioning here that there are various provisions pertaining to environment, within the general laws of the GCC countries (Islamic law is applied in Saudi Arabia while secular law is adopted elsewhere in the region) where a party causing environmental damage might be liable either under contract or tort for hurting the physical or financial interests of another party.

Until very recently, environmental legislations in the GCC countries did not deal with the environment issues comprehensively. There were a few legislations, but they took care only of certain issues. These issues were: air pollution, atmosphere and ozone layer protection, conservation of flora and fauna and their natural habitats. There was no legislation regarding the protection of soil or prevention of land degradation. In some cases, the environmental laws were either absent or superficial and as a result there were many environmental problems. There were many lacunae in environment legislations of the GCC countries as there was no uniform definition for environmental violation and, as a result, different agencies used different definitions. Legally speaking, unless there is a clear text law, there cannot be any crime or punishment.

Among the reasons for shortcomings in environmental management policies are:

- Inflexibility of environmental laws with respect to changing times
- Multiplicity of environmental laws that leads to too many arguments
- Too many environmental authorities leading to confusion, contradictory actions as well as ineffective efforts, supervision etc.
- Moderate punishments or nominal penalties which fail to act as deterrents
- Lack of timely updating of documents to include new issues.
- Environmental authorities are usually busy with other governmental routines, which take up most of their time and efforts
- Environmental institutes lack specialists both in faculty and management.
- Environmental authorities do not have the power to monitor

and supervise the work of other institutes in order to make sure that they comply with environmental laws.

The legal framework of the GCC countries with regard to environment is still incomplete. The existing environmental laws mainly deal with environmental management and outline the functions of the public authorities; however, there are several regulations regarding the conservation of natural resources. Besides, EIs are still missing.

The policy aim of most of the governments is to limit further degradation and achieve sustainable use of resources. The GCC countries have formulated National Environmental Action Plans (NEAPs), which include identification and prioritization of key issues, and have set targets and timetables for implementation. For example, Oman and Saudi Arabia have initiated coastal management programs. However, in most cases, NEAPs are mainly checklists of desirable actions, based on rather limited and/or unverified information. They are generally short on details of reliable cost estimates, time schedules, division of responsibilities for implementation, and identification of sources of funding.

The following section will examine the institutional and legal frameworks vis-à-vis GCC environmental issues from a national and international perspective.

At the regional level, several environmental laws and systems have been approved such as:

- The General System for Protecting the Environment (Muscat 1995)
- The Unified System for Projects Environmental Impact Assessment (Muscat 1995)
- The Unified System for Protection and Development of Wildlife (Kuwait 1997).
- The Unified System for Dealing with Radioactive Materials

(Kuwait 1997).

- The Unified System for Waste Management (Kuwait 1997).
- The Unified System for Hazardous Chemical Wastes Management (Muscat 2001).
- The Unified System for Biomedical Waste Management (Muscat 2001).
- The Unified System for Exploiting and Protecting Water Resources in the GCC Countries (1998).
- The Unified System for Forest and Grazing in the GCC Countries.
- Convention on the Conservation of Wildlife and Habitats in the Countries of the Gulf Cooperation Council (2001).

Most of the environmental regulations are in line with the latest trends in environmental protection and achieving sustainable development as well as protecting different resources. In addition, the GCC countries are active members of many international agencies and signatories of regional and international treaties.

There are several points to be considered in regard to GCC environmental legislations:

- There is always a chapter within the legislations that deals with compensating damage and/or penalties. While this is necessary, what is required in addition are articles on how to utilize tools such as EIs to encourage environment protection and prevent environmental damage.
- Though, in many cases, GCC countries joined many MEAs before enacting their own environmental legislations, they still have a lack of capacity, knowledge and experience which hinders their efforts at enacting national legislations. In addition they have not taken into consideration some of the economic instruments like carbon emissions and clean development mechanism.

- Needless to say, many new international environmental policy tools have not been taken into consideration such as ISO 14000 series certification, eco-labeling, environmental accounting, and natural resources economics. Many of these tools are classified as EIs in environmental literature.
- However, GCC environmental legislation covers the main environmental issues and problems concerning water, marine, air, soil, Environmental Impact Assessment studies, wastes management.

4.1.1) Bahrain

In Bahrain, the Public Commission for the Protection of Marine Resources, Environment and Wildlife is the body responsible for environmental matters and protected areas for nature conservation. Its main aim is to formulate policies and plans towards conserving the environment, achieving sustainable development, and protecting and restoring terrestrial and marine wildlife and habitats through effective management strategies.

Since its establishment in 1996, the National Commission for Wildlife Protection (NCWP) has given great attention and made considerable effort to promote the concept of sustainable development among various agencies as well as among the public.

The Law Concerning the Environment 1996 was issued by virtue of Law Decree No. 21 (1996). This is the first comprehensive environmental law in Bahrain. In the past, Bahrain had enacted other laws that contained some environmental protection rules, such as Law Decree No. 3 (1975) Concerning Public Health; Law Decree No. 5 (1981) Concerning Fishing; Law Decree No. 20 (1983) Concerning Agricultural Quarantine; Law Decree No. 21 (1983) Concerning Protection of Palm Trees and Law Decree No. 7 (1980) Establishing the Commission

for the Protection of the Environment.

Nothing is mentioned about using or adopting incentives or EIs in the Bahraini Law no. 21 for year 1996 Concerning the Environment.[29]

On the other hand, penalties range from BD1,000 to BD50,000. Besides, an establishment can be closed down for three months for violation of rules and for a repeat violation, the court can cancel the operating license. In addition, the polluter bears all litigation costs and compensation if any.

4.1.2) Kuwait

For many years, the Kuwaiti government has supported environmental protection measures and the damage caused by Iraq's invasion has only strengthened that resolve. Kuwaiti initiatives have been supported by domestic entities such as the Kuwaiti Institute for Scientific Research (KISR), and the Gulf Regional Organization for the Protection of the Marine Environment headquartered in Kuwait.

In 1992, a ministerial resolution required the preparation of an environmental impact statement as part of any public or private project that would affect natural resources or the health of the population. Under that resolution (patterned after US regulations), Kuwait's Environmental Protection Council had the right to demand any additional information needed to assess the proposed project's impact on the environment.

In 1995, Kuwait enacted Law No. 21 (1995), as amended by Law No. 16 (1996), creating a more powerful Public Institution for the Environment. That Institution, attached to the Council of Ministers, is responsible for protecting the country's environment by developing policies, establishing guidelines, executing and supervising work plans, supporting

29. For more details, see Annex 2.

environmental research, monitoring the environment, and examining international and regional agreements.

The national environmental authority in Kuwait is the EPA. The mandate of Kuwait's EPA includes formulation and implementation of national environmental policies, coordination of government environmental protection programs, research, the creation of public awareness and education.

Additional research into issues involving conservation is undertaken by the faculties at Kuwait University and by KISR. KISR is an important component in environmental and natural resource planning and management. For example, Kuwait Environmental Information System (KEIS) is a national program developed by KISR in cooperation with Regional Information Technology and Software Engineering Center (RITSEC) in Egypt. This system is a main part of a Kuwait Integrated Environmental Information Network (KIEIN). KIEIN's strategic objective is to contribute to Kuwait's sustainable development program through the establishment of a national environmental information system to support decision-makers and researchers alike.

Although Kuwait was one of the first countries in the Gulf to pass environmental legislation in 1964, the law had only focused on the marine environment. The 1964 law concerning the Prevention of Oil Pollution of Navigable Waters was amended in 1968, 1976, and in 1980, increasing the maximum fine stated in Article (4) and imposed on the polluter from KWD1,500 to KWD40,000. On the other hand, nothing is mentioned about using or adopting incentives or EIs at all in the Kuwaiti Law No. 16 for year 1996 concerning the Environment.[30]

30. See Annex 2 for details

4.1.3) Oman

The Sultanate of Oman is considered one of the leading countries in the region in environment conservation with the Ministry of Regional Municipalities, Environment and Water Resources established especially for this purpose. The Ministry and its Directorate of Nature Protectorates is the principal body responsible for environment protection and wildlife conservation.

In Oman, the various legislations to address environmental issues can be categorized into three as follows:

- Regional municipalities law no. 962000/
- Water Resources protection law no. 292000/
- A number of environmental legislations; the principal environmental legislation is Royal Decree No 114 of 2001, the Law on Conservation of the Environment and Preventing of Pollution. This supersedes earlier environmental legislation, but not earlier ministerial decisions which are not inconsistent with it. The laws which do not appear to have been superseded by that Law include the Petroleum and Minerals Law, Royal Decree No 4274/, Management of Solid Non-Hazardous Waste (1793/) and Management of Hazardous Waste (1893/). The areas covered are the marine environment, land and air pollution, the handling of hazardous substances and chemicals, and liability and compensation.

On the face of it, No 114 of 2001 prohibits the establishment of any source or premises of work without an environmental license issued by the appropriate body. The law also prohibits the discharge of pollutants other than in accordance with the regulations. Similarly, it is also forbidden to handle and discharge waste, hazardous or otherwise, into the land or marine environment without permission. There is a specific prohibition

on the discharge of hazardous material into "*wadis,*" sewerage systems, underground water systems, *falaj* channels and areas feeding them.

The Petroleum and Minerals Law (4274/) requires the prior approval of the Ministry of Oil and Gas for activities concerning the oil and mineral industries. Under that law, operators are strictly liable for waste and pollution resulting from their activities. The Management of Hazardous Waste Law (1893/) generally states that hazardous waste must be collected, safely stored and transported in a safe manner to a designated site. Disposal in any other way is an offence.

The concerned authorities are the Ministry of Regional Municipalities, the Environment and Water Resources, the Ministry of Oil and Gas and the Royal Oman Police. The licenses are obtained from the Ministry of Regional Municipalities, Environment and Water Resources and, in relation to the oil and gas industries, from the Ministry of Oil and Gas.

Nothing is mentioned about using or adopting incentives or EIs at all in the Omani law no. 114 of 2001, the Law on Conservation of the Environment and Preventing of Pollution.[31]

On the other hand, very detailed penalties are mentioned in the Omani environment law regarding different violations. The penalties for non-compliance are fines ranging from only RO10 for cutting trees to RO1,000,000 in the case of disposing of radioactive materials in the Omani territory, besides imprisonment.

4.1.4) Qatar

In Qatar, the Supreme Council for the Environment has overall responsibility for environmental matters. The one specific

31. See Annex 2 for details

legislation dealing with environmental matters is Law No 4 of 1981 which establishes the Supreme Council or the "Permanent Committee on the Protection of the Environment." The law imposes an obligation on all potentially polluting industries to conduct an EIA, which must then be approved by the Supreme Council. Other areas covered are land and air pollution, marine pollution, and handling of hazardous substances and chemicals. Recently Qatar enacted law no. 30 for year 2002 for the protection of environment. Though the law and its executive regulation state that there should be economic incentives to promote environmental protection, no action has been taken in this regard.

The Supreme Council for Environment and Natural Reserves (SCENR) assumes all environmental protection responsibilities. Its objectives are as follows: enhancement as well as protection of endangered wildlife and its natural habitat; formulation of environmental policies; monitoring and assessment of the current environment and wildlife-related protective procedures and practices; preparation of the necessary drafts of legislation, regulations and decisions on the protection of the environment and the operation of a national environmental database. The Council houses and oversees various centers and departments to implement its objectives. They include the General Control and Environment Maintenance Section, the Information and Educational Environmental Center, the National Center for Environmental Information, Wildlife Protection Department, the Administrative and Financial Affairs Department and departments for training, development and technical affairs. In addition to this, SCENR accommodates a Central Environmental Laboratory (CEL) whose function is to assist the former in environmental monitoring through the analysis of biological, chemical and physical samples.

Other relevant authorities are the Environment Department of the Ministry of Municipal Affairs and Agriculture and the

Environmental Affairs Department of the state oil company Qatar Petroleum (QP), which is responsible for the setting and monitoring of environmental standards. The ministry is usually the body responsible for issuing an environmental clearance or a "permit to discharge."

Oil and gas and associated downstream operations are conducted by QP in accordance with its environmental protection management standards. All parties involved in the hydrocarbon industry in Qatar or contracting with parties involved in hydrocarbons are subject to those standards promulgated by QP from time to time.

In accordance with its strategic objectives, QP has environmental standards relating to wastewater quality, air quality, waste management, spilt industrial material and others. Additionally, QP owns the industrial cities at Ras Laffan and Mesaieed, where most of the oil and gas and downstream industrial facilities, as well as other industries, are based.

The ports in Qatar require vessels to comply with the environmental regulations of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships 1973 as amended (MARPOL), such as those dealing with discharge of ballast and disposal of garbage.

Nothing is mentioned about using or adopting incentives or EIs in the Qatari law no. 30 for year 2002 for the protection of environment.[32]

On the other hand, the penalties for non-compliance with law no. 30 for year 2002 for the protection of environment ranges from QR1,000 to QR500,000, besides imprisonment in some cases.

32. See Annex 2 for details

4.1.5) Saudi Arabia

In the past, Saudi environmental protection has been somewhat limited. In many cases, environmental regulations were contained in the laws relating to other substantive areas. For example, Saudi labor laws include provisions designed to protect workers from environmental hazards. In recent years, Saudi government officials have given greater attention to expanding environmental protection.

The first comprehensive national environmental legislation in Saudi Arabia was enacted on December 24, 2001 and leaves most of the details to be covered by delegated legislation.

The main legislation includes the General Environment Regulation, Council of Ministers Resolution No 193, the Environmental Protection Standards (General Standards) Document No 14091982 01-, and the Local Regulations specific to Jubail and Yanbu. The regulations broadly cover issues relating to EIAs for projects that may have an impact on the environment, waste and hazardous substances, as well as air, water and noise pollution, and liability and compensation. The new Saudi law requires the use of best available technology.

The Presidency of Meteorology and Environment (PME) has been assigned the tasks of controlling pollution and protecting the environment. PME is responsible for ensuring that industrial plants comply with environmental regulations, many of which are based on European and US Environmental Protection Agency (EPA) standards. PME also is authorized to inform relevant government authorities if a particular plant is not complying with regulations. A business cannot receive industrial and commercial licenses from the Ministry of Industry and Electricity, the Ministry of Commerce, and the Royal Commission of Jubail and Yanbu (Industrial Cities), without agreeing to abide by environmental and pollution regulations.

The Saudi National Commission for Wildlife Conservation and Development (NCWCD), established in 1986, is the main body responsible for nature conservation and protected area management.

The Saudi law no. 30 for year 2002 for the protection of environment makes no mention about using or adopting EIs.[33] However, article 16 speaks about commitment and compliance with environmental measurements and regulations as one of the conditions for lending funds which is a form of EI.

On the other hand, when violations occurs, the polluter is obliged to remediate the damage and report about the procedures and steps followed to prevent a repeat of the violation, and if not the responsible authority takes all necessary action to force him to do so. The penalties for non-compliance are restoration of the environment to its state before the violation of the regulations, fines of up to SR500,000, imprisonment for up to five years and temporary or permanent closure of the facility taking into consideration that in all cases the priority is for Islamic regulations.

Apart from the new national legislation, the Royal Commission for the industrial cities of Jubail and Yanbu has issued detailed local environmental regulations applicable to contractors operating in those areas. The Royal Commission Environmental Regulations are wider in scope and more detailed than the PME regulations and set out procedures for environmental operating permits, hazardous material, waste management and such other matters.

4.1.6) United Arab Emirates

The UAE is a unique case in comparison with other GCC countries. It has a federal structure and is made up of seven

33. See Annex 2 for details

emirates. Besides the federal government, each emirate has a fair amount of freedom to manage different local issues.

Only Abu Dhabi, Sharjah and Ras al-Khaimah have specific authorities responsible for environmental issues. In other emirates, the subject of environment comes under the jurisdiction of municipalities. Still municipalities play an important role in all emirates including those that already have dedicated environment authorities.

At the federal level, the Federal Environment Authority (FEA) was established by federal Law no.7 in the year 1993 and later amended by federal Law no. 30 in the year 2001. The FEA's functions are: to draft laws, carry out studies, propose policy, conduct research, monitor the sea, land and air pollution, and protect against hazards that may harm human health, crops, wildlife, other natural resources and the atmosphere. The FEA is authorized to monitor both the public and private sectors, and has a licensing role over economic activities that might affect the environment.

In March 2006, the UAE established a new ministry for environment and water affairs, which replaced the previous ministry of agriculture but is also responsible for agriculture and fisheries. A very timely step, this shows the keenness of the UAE government to place environmental and water issues high on the agenda. This is important as water issues especially are very crucial for the country and the region in general, and the agricultural sector in particular, is affected by the availability of water.

Three laws are particularly important: Law no. 23 on the protection of the marine environment, Law no. 24 for the protection and development of environment, both enacted in 1999,[34] and the Law no. 11 of 2002 on wildlife trade.

34. UAE Government, "Environment Protection Law 24 for year 1999," Federal Environment Agency, UAE.

Federal Law no. 24 for the protection and development of environment was enacted in October 1999 and implemented in February 2001. The law envisages protecting environment, fighting pollution, developing natural resources and protecting biodiversity, humans and society.

As part of the executive regulation of the above laws, many environmental systems emerge such as:

- System for protecting the marine environment
- System for the management of hazardous materials and hazardous and biomedical wastes
- System for the environmental impact assessment of projects
- System for insecticides and fertilizers.

Other federal environmental laws in the UAE are:

- Federal Law No. 39 regarding the production and use of fertilizers (1992).
- Federal Law No. 41 regarding the control of insecticides (1992).
- Federal Law No. 19 for identifying the marine environment (1993).
- Federal law regarding the establishment of the Federal Environment Agency (1993).

The UAE appears to be the country with the most developed environmental laws and awareness on environmental matters, in comparison with other GCC countries. It also seems that every effort is being made by the governments of the UAE, both local and federal, to bring their environmental laws up to international standards. This is evident from the continuous enactment of new legislations.

At emirates-level, Abu Dhabi's Environmental Agency has published a set of rules and procedures concerning the provision of environmental permits to new and existing projects where an EIA may be required. Rules and procedures for issuing permits for the "handling" of hazardous substances have also been published.

The Environment Protection department in Dubai Municipality has published technical guidelines and codes of practice. A master listing contains almost 70 of these guidelines and five codes of practice, including matters such as hazardous waste disposal approval requirements.

Article 96 of the UAE federal Law no. 24 for the protection and development of environment speaks about a role for FEA in cooperation with the responsible authority in establishing a system of incentives for organizations and individuals who protect the environment. It is evident that this article has not been put into practice.[35]

On the other hand, penalties for non-compliance are mainly specified in the Federal Law and they include fines ranging from Dh1,000 to Dh10,000,000, imprisonment and even the death penalty (for radioactive dumping).

4.2) Recent Environmental Law Changes

A recent study in Saudi Arabia has shown that 60 percent of companies pollute the environment as a result of the absence of effective environmental regulations and environmental awareness and enforcement.[36]

This study by the Research and Consultation Institute at King

35. See Annex 2 for details

36. Gulf in the Media, Al-Riyadh newspaper, «60% of the companies in KSA pollute the environment,» March 2007.

Abdel Aziz University found that 60 percent of the companies, mostly in food industry, do not protect the environment as they do not perceive any threat to it from their activity. The study also found that the companies felt environment protection is the responsibility of the government and not theirs.

It is noticed that GCC countries are now moving to the next level by empowering their environmental agencies to implement and expand the environmental protection measures already in place.

In 2006 and early 2007, many environmental regulations and amendments were still focusing on fines and penalties rather than shifting toward MBIs. Some examples are given below:

Bahrain

Issued Law No. 20 for 2006, ordering the protection of the beaches, the coastline and routes to the sea. The law forbids any misuse or transfer of the ownership of public beaches, and routes to the coast overlooking towns and villages unless authorized by a decree. The law also bans granting of licenses for land reclamation along the coast except for public use. In such cases, the Cabinet will issue a decision securing alternative routes to coastal villages and towns. Violators shall be asked to correct the situation at their expense. They will face imprisonment or fines of up to BD5,000 under Article 4 of the law.

Qatar

Qatar enacted the executive bylaw regulations to implement law 5 for year 2006 which deals with trade in endangered species. The Qatar government will send a committee to the UAE to learn more about its experience in enacting executive regulations of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). As per this convention, each country should have its own local law to address this issue. The UAE joined this treaty before Qatar and therefore has the

experience in enacting laws and executive regulations.

UAE

The National Consultative Council called for special incentives for local farmers in Abu Dhabi's Eastern Region. The council in its recommendations called for studying the possibility of providing local animal farm owners with alternative sources of economical fodder and other animal feed.

Many environmental laws are enacted every year to cope with changing circumstances or the requirements of international agreements. For instance, in March 2006, the Ruler of Abu Dhabi issued Law No. 6 regulating the drilling of water wells. Also, in May 2006, a federal law revising articles 12 and 83 of the Federal Law Number 24 of 1999 on the protection and development of the environment was issued by the president. The law which came into effect from the date of its issuance reads as follows: "It is prohibited to hunt, kill or capture birds, wild or marine animals identified in the appendixes No. 1 for mammals, 2 for birds and 3 for reptiles. Under the law, it is forbidden to possess, transport, sell or roam with these animals – live or dead – without obtaining license from the competent authority…"

Furthermore, in September 2006, the Ruler of Abu Dhabi issued an Emiri Decree declaring a group of islands off the Western Region as a Marine Protected Area (MPA). The group of islands consisting of Upper Al Yasat, Lower Al Yasat, Esam and Karsha, covering a total area of 482 sq km, was declared a no-take zone, where the catching or removal of organisms is prohibited. The decree also stated that the Environment Agency Abu Dhabi (EAD) would be the managing authority for the MPA, with the responsibility of overseeing and implementing laws and regulations within the Area. In the absence of fishing pressure inside the protected area, fish will be able to grow to maturity and increase in abundance. The islands are surrounded

by coral reefs, which act as important marine sanctuaries to many species, including the already over-exploited hamour, sherri and farsh. The reefs have good coral growth and high coral cover with around eight coral species present.

Ras Al-Khaimah

In 2006, the emirate enacted a law for a fine of Dh250 to be imposed on any individual or establishment throwing garbage in public places.

Sharjah

In the first quarter of 2007, the Sharjah council, while discussing the activities of Environment and Protected Areas Authority-Sharjah, heard suggestions about introducing some economic incentives to encourage environmental protection and natural resources conservation, but the Chairman of the council turned them down claiming that it was not the right time to introduce such tools.

However, there are some economic incentives widely used in GCC countries to protect the environment. These include environment prizes and awards, some of them for contests organized by private and public organizations and NGOs in environment-related research, photography, articles, and projects etc. Some contests are coordinated at the regional level like the GCC Biannual Environmental Awards. Besides, there are subsidies for agricultural activities especially for providing irrigation water. Water used for irrigation, by far the largest category of water use, is either free or heavily subsidized.

In the second quarter of 2007, Dubai adopted an economic instrument to solve traffic congestion problems in the city. It implemented the Salik toll system, which can be classified as a revenue-raising EI. A selected number of toll points were established and from every car owner who passes those points an automatic amount is deducted from the tag sign displayed

on the front window of the car.

In general, there are certain prerequisites that need to be established before implementing any proposed EI. It is important to amend laws and regulations pertaining to taxes and customs duties. Setting up a database on the existing situation, including actual data on various environmental issues such as waste, air etc. as well as taking into consideration all administrative, economic, social and environmental aspects is important. In addition it is important to use a number of criteria to evaluate the performance of the EIs used (see section 7.1). In the Salik system mentioned above, it is important to provide alternative routes to the road where a toll has been imposed. It is not enough to solve the problem in some areas and transfer it to other parts of the town.

The main problem in virtually all countries is the lack of enforcement of rules. Enacting laws alone cannot solve environmental problems. On the contrary, the enforcement of laws, even if they are weak, makes environmental preservation and sustainable development in a country a success story.

5) Multilateral Environmental Agreements (MEAs)

MEAs are internationally negotiated agreements designed to protect the environment. The international community has agreed that there are global issues that need to be tackled collectively.

MEA becomes a part of national legislation once the country becomes a party to the convention and its parliament/legislative authority ratifies it.

If a country decides not to join a MEA and that its interests are not going to be affected drastically by joining, which is not usually the case, the political repercussions are far graver. A clear example is the US which has not ratified the United Nations Convention on Biological Diversity (CBD) and also not joined the Kyoto Protocol. This has been a major issue for the US on the political and domestic fronts.

Generally, the international community has a consensus on MEAs on problems relating to the Bio-Sphere or Man-Made Sphere environment, i.e. water, air, seas, radioactive materials etc., but this consensus does not extend to the Socio-Economic Sphere environment agreements especially relating to women and children or human rights. This means that the international community realizes the importance of conserving the environment and natural resources for the current and future generations. However, the author believes that the Socio-Economic Sphere environment is more important and conservation cannot be achieved unless there is also a consensus on socio-economic issues as well. Details of the different spheres are provided in annex no. 3.

Developing countries, including GCC countries, join MEAs mainly to follow the international community to preserve the environment and/or because of pressures from

international community. The new global legislation system and the new international order forces every country, every firm, and even every individual to be responsible in relation to the environment. It is acknowledged that any negative impact on the environment will affect the ability of the earth and its natural resources to serve the needs of the current and future generation. A close look at history shows that no civilization can flourish unless it achieves harmony with the environment.

MEAs play an instrumental role in realizing international environmental governance. Since the Stockholm Conference of 1972, there have been numerous international and regional agreements on environment. United Nations sources estimate that there are over 500 international treaties and other agreements related to the environment. Most MEAs are initiated, negotiated and enforced through the UNEP.

The core environmental conventions and related international agreements are divided into five groups:

1. Biodiversity-related conventions
2. Atmosphere conventions
3. Land conventions
4. Chemicals and hazardous wastes conventions, and
5. Regional seas conventions and related agreements

The common aspects that MEAs seek to address include:

1. Sustainable development issues
2. Sustainable use of natural resources and the environment
3. Protection of the environment and improving the quality of life.

5.1) Benefits of MEAs

MEAs have proven to be powerful tools for tackling

environmental problems. Unlike, other international agreements, especially in the field of family, empowerment of women and human rights – issues that fall under Socio-Economic Sphere of the environment – MEAs in the environment field, i.e. Natural and Man-made Sphere of the environment, almost certainly, are gaining general consensus, setting an excellent example of joint international cooperation. Their benefits to individual nations and people are beyond doubt.

MEAs provide countries with various mechanisms and tools – such as standards, CDM – from which they can benefit and maximize gains. Besides, they:

1. Strengthen the capacities of member states to meet their obligations or responsibilities under these agreements
2. Help in public education and awareness issues
3. Make transfer of know-how and technological innovations possible
4. Offer technical assistance
5. Strengthen scientific basis for decision-making
6. Build up international partnerships
7. Help formulate policies and local work plans to overcome different environmental problems
8. Establish executing mechanisms and authorities
9. Establish funds for monitoring, supervising and evaluating
10. Help execute local programs and projects to mitigate the environmental negative impacts
11. Promote environmental publications such as reports about the environmental status in the country; and help prepare environmental strategies and National Environmental Actions Plans (NEAPs)
12. Encourage revising/amending the environmental laws on country level to cope with MEA by issuing local laws, rules,

standards etc.

13. Promote establishment of a local environmental fund to support different activities for environmental protection.

MEAs benefits, on the international level, can be listed as follows:

- Unification of environmental standards according to the international standards agreed upon
- Encourage the establishment of environmental monitoring centers locally and regionally, and cooperation between them on data and know-how sharing
- Help develop an information network among countries
- Facilitate joint research and studies especially on regional environmental issues and problems such as desertification, water, and climate change etc.
- Lead to meetings and conferences to discuss common issues, network and coordinate efforts

5.2) Limitations of MEAs

Accession to international agreements makes the implementation of a number of actions, measures and legal requirements within the signatory countries necessary. Implementation of such requirements is sometimes very difficult and requires infrastructure and capacities (human and financial) that are not always present at a given time in the GCC. However, committing a country to obligations within the framework of a multilateral agreement is the first step towards building the institutional framework and capacity needed to address environmental issues. In general, the limitations of major MEAs can be summarized as follows:

- Inadequate attention to the harmonization of national reporting among MEAs

- Inadequate implementation and coordination at the national level
- Inadequate compliance and enforcement
- Lack of environmental and performance indicators for measuring the effectiveness of an MEA.
- Inadequate funding for selected MEAs.

Specific issues not being addressed effectively by MEAs include: Impact of population, poverty and urbanization on coastal resources; impact of climate change on migratory water birds; commercial fishing from an environmental perspective; the impact of high seas fisheries on marine species such as mammals and birdlife; lack of sites on the World Heritage list nominated for their marine values; coastal zone management and information; river ecosystems; the role of poverty and corruption in relation to environmental management practices; the failure to identify and make available alternatives to bad environmental practices; the failure to quantify and publicize the economic benefits from good environmental practices; economic instruments and incentives; practical indicators for measuring performance of MEAs.

5.3) Multilateral Trade and Environmental Agreements

Globalization and the opening of markets also have an impact on the environment. Imports and exports will need to be more of environment-friendly products. World Trade Organization (WTO) membership and the amendment of laws to comply with WTO requirements may have an impact on the countries. Even though there is no WTO agreement related to environmental policy, environmental protection measures must be consistent with the principles of free and fair trade enshrined

in the General Agreement on Tariffs and Trade (GATT).

Trade-environment policy: Most trade-environment policy issues can be fitted into one of four categories: Competitiveness questions and appropriate policy response; questions of market access and market opportunity, which include environmentally related product standards, eco-labelling, and green trade; the use of trade measures to secure international environmental objectives; and the effects of trade and trade liberalization on environmental and natural resources. The first three categories are concerned with the effects of environmental regulations on the international trade system. The fourth examines how trade and trade policy affect environmental objectives.

GCC countries are members of the WTO and party to many international environmental agreements. As per the internationally recognized system for product certification, manufacturers are expected to comply with international environmental product standards set by the International Organization for Standardization (ISO) with 140 member countries. In particular, ISO14000 is an environmental management certification system that provides comprehensive environmental investigation of products.

5.4) GCC Status in Relation to MEAs

GCC countries have ratified or acceded to some 64 international and regional environmental conventions and agreements (UNEP 1997). The joining status of countries which are parties to the main global MEAs is shown in annex 4.

While ratification is at a fairly high level, compliance has been limited, mainly due to lack of funding. Awareness campaigns have not targeted decision-makers, stakeholders or the national figures that are the key to successful public participation. In addition, few pressure groups have been formed to influence business sectors.

5.4.1) Major International MEAs

At the international level, GCC countries are active participants in international conventions dealing with protection of natural resources, and have signed, acceded or ratified several multilateral agreements. Table 4 shows the latest status of accession to and ratification of some selected major MEAs.[37] The latest accession was by Bahrain to the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 2006. Also, Qatar acceded to the Cartagena protocol in March 2007. Environmental legislations are regularly modified to meet the requirements of these agreements.

Table 4: Status of Accession to the Major Multilateral Agreements Dealing with the Environment in the GCC **

Country	CITES	CBD	Cartagena	UNFCCC	Kyoto Protocol	Ozone	CCD	POPs	CMS	Basel	Heritage	UNCLOS
Bahrain	-	R 1996	-	R 1994	A 2006	A 1990	A 1997	S 2002	-	R 1992	R 1991	R 1985
Kuwait	R 2002	R 2002	-	A 1994	A 2005	A 1992	R 1997	S 2001	-	R 1993	R 2002	R 1986
Oman	-	R 1995	A 2003	R 1995	A 2005	A 1999	A 1996	R 2005	-	A 1995	A 1981	R 1989
Qatar	A 2001	R 1996	A 2007	A 1996	A 2005	A 1996	A 1999	A 2004	-	A 1995	A 1984	R 2002
Saudi Arabia	A 1996	A 2001	-	A 1994	A 2005	A 1993	A 1997	S 2002	A 1991	R 1990	A 1978	R 1996
UAE	A 1990	R 2000	-	A 1995	A 2005	A 1989	A 1998	R 2002	-	R 1992	A 2001	S 1993

** For full name and brief description of each MEA shown in the above table, see Annex 6.

Source: Compiled by author

37. Also see Annex 5.

While some countries are in the process of formulating by-laws relating to specific conventions, most rely on existing legal instruments for dealing with all major environmental issues. Economic instruments to improve the implementation of MEAs are still not well developed. Instruments such as incentives, taxes and charges, pricing strategies and other indirect measures are, however, starting to be applied to some MEAs.

The Montreal Protocol has received the most attention. Laws and decrees have been issued in several countries, including Bahrain and Kuwait, to regulate the import, export and use of ozone-depleting substances and encourage the use of alternatives. Saudi Arabia is developing comprehensive by-laws on the implementation of the convention. Responsibility for implementation, follow-up and reporting lies mainly with existing national environmental bodies. However, special commissions or ozone units have been established within existing institutions, including ozone units in Bahrain, Kuwait, and Saudi Arabia.

As regards CBD implementation, there are pilot projects in several countries. Committees have been set up in all GCC countries to conduct national studies and formulate strategies and action plans. Most countries have prepared national studies on biodiversity and a number of protected sites have been declared. Each year witnesses a new declaration of marine or land protected area in the region.

Responsibility for formulating strategies and implementing action plans to combat desertification lies mainly with agriculture ministries. Countries have formulated or are preparing national plans of action to combat desertification. The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), United Nations Economic and Social Commission for West Asia (UNESCWA) and UNEP/ROWA assist in preparation of studies and national plans for desertification.

CAMRE has a committee for combating desertification

and increasing green areas in the Arab region. The committee has prepared a study on the state of desertification in the region with the help of ACSAD and UNEP.

With the exception of the Montreal Protocol, the monitoring of compliance with MEAs is not well developed. Lack of resources is a major obstacle and capacity building is badly needed. As for the UNFCCC, the contribution of GCC countries to climate change is minimal compared to other regions but increases in efficiency in power generation and industry, and a switch to natural gas (already effected in some countries), can reduce greenhouse gas emissions.

Public awareness of MEAs varies. The mass media have played a major role in enhancing public awareness by drawing attention to the seriousness of the environmental issues involved. Television and radio programs on land degradation and desertification, loss of biodiversity and marine pollution are broadcast regularly in all countries. In general, media plays a positive role though more can be done in this regard.

Overall, most countries have concentrated their efforts on developing institutions or expanding the mandates of existing institutions to implement MEAs. The focus is on priority studies, the preparation of strategies and the development of action plans and programs, with little progress in implementation at the field level. Public awareness is growing and positive attitudes towards most MEAs are developing rapidly.

One important fact worth noting about the MEAs is that they provide a model for national policies and legislation on how to utilize policy tools such as CAC and EIs. For example, the Kyoto Protocol provides for different EIs like CDM, joint implementation and carbon emissions trading. National policies can replicate the same approach.

5.5.2) Major Regional MEAs

In 1978, Kuwait recognized the importance of the regional

approach in protection of the marine environment by inviting the eight Arabian Gulf countries for a conference. This regional conference was under the auspices of UNEP as part of its Regional Seas program. An action plan was adopted with a legal component for the area. The outcome of the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution was the establishment of the Regional Organization for the Protection of the Marine Environment (ROPME) in Kuwait in 1979 and the development of the coastal areas in Kuwait.

ROPME was to serve as the Secretariat of the Kuwait Regional Sea Convention under the supervision of UNEP. It has a network in all the eight member countries. A Marine Emergency Mutual Aid Centre was established in Bahrain in 1982 to assist ROPME in matters related to information, capacity building, reporting and cooperation with other organizations. A major survey on critical marine habitats, initiated by ROPME and carried out by the member states, identified all sensitive marine habitats in the region.

Besides international agreements, the region has its own regional agreements, mostly relating to the common management or protection of natural resources such as water and regional marine bodies. Examples of regional MEAs are:

- Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution, Kuwait 1978
- Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment, Jeddah 1982
- Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources, Kuwait 1990

GCC countries have made substantial joint efforts at the regional level to protect natural resources and the environment.

Three regional institutions relate specially to the Gulf region – ROPME, PERSGA and GCC. The transboundary nature of environmental problems means that they also cover countries outside the region. Some like the Arab League Educational, Cultural and Scientific Organization (ALECSO), ACSAD and Islamic Education, Science, and Culture Organization (ISECSO) do not deal specifically with environmental issues but address them insofar as they relate to their areas of concern (agriculture, industry, education arid zones and drylands and science). The organization that is more sharply focused on environmental issues is CAMRE which is concerned mainly with policy issues at the national and regional levels.

The level of response and compliance to regional MEAs is generally higher than for global MEAs. For example, national action plans have been developed by all eight signatories (GCC countries, Iraq and Iran) to the Kuwait Regional Convention (ROPME) and its protocols.

6) Selected International Experiences in Implementing EIs

A variety of economic and market-based instruments in use in different countries is explained below. They vary from country to country according to the environmental, economic, social and political conditions. They range from simple taxes, duties and tariffs to complicated emissions trading systems and even other types of EIs like voluntary programs, certifications and labeling and financial sources.

However, it is noticed that most of the countries worldwide are not active in managing incentives aimed at environmental best practices. They are typically interested in investment promotion while sustainability issues take the back seat. Yet, the use of EIs has been expanding significantly in the last two decades.

6.1) Croatia

6.1.1) Charge for Water Protection

In line with the Polluter Pays Principle, a charge for water protection has been collected in the Republic of Croatia since 1986 and it is used for the following purposes:

- Preparation of water protection plans and organization of their implementation
- Monitoring and establishment of water quality and undertaking of water protection measures
- Construction of water engineering structures for water protection (collectors, wastewater treatment plants, and other related projects).

The charge is collected from legal and physical persons

discharging wastewater, or other substances that pollute water or impair its quality and fitness for use, into the public sewage system or a natural recipient. The revenue from the charge goes to the Croatian Water Company.

The amount of the charge is calculated using mathematical formulas on the basis of:

- Quantity of discharged wastewater in cubic meters, and
- Degree of impact on the deterioration of water quality and fitness for use (quantity of discharged hazardous substances, intensity of the impact on water quality modification, etc.)

However, as this tariff is determined by the Croatian government, and given the current difficulties of the Croatian economy, the tariff is set significantly below the cost of wastewater treatment. Under the Law on Water Management Funding, the charge cannot be lower than the cost of wastewater treatment, except for the charge collected from users who treat wastewater in their own equipment. In the Environmental Protection Strategy and the National Environmental Action Plan of Croatia, a gradual increase of this charge is envisaged.

6.2) Egypt

6.2.1) User Charges for Municipal Solid Waste Management

Waste generators such as households pay a monthly charge to garbage collectors (or Zabbaleens) and private contractors. There is a price differential in the charge applicable to households, and other types of economic units. Private contractors collect, sort and dispose solid wastes from households, service sector and industry, particularly in areas where wastes include valuable recyclable materials. However, such waste collection does not

cover all solid waste generated especially in the Greater Cairo area due to shortage of equipment and personnel. In some cases, only 60 percent of the daily quantity of solid waste is lifted while the rest stays overnight.

The user charge for solid waste management is paid directly to the private contractors and is charged per unit of housing, whether residential or business. The fixed monthly fee is not related to the quantity of the waste generated. Unfortunately, there is no exact record or data pertaining to the number of subscribers to such a service or the proceeds resulting from such a charge for reasons such as:

1. The fee/charge is paid on a voluntary basis. Only those who wish to use the service are obliged to pay
2. If residential units or offices are unoccupied for any reason, the tenants or the owners are not obliged to pay the fee to the garbage contractors
3. All monthly payments made are not recorded in any official way. In fact, the private contractor does not issue any receipts or official document of any sort to prove any kind of contractual agreement or financial transaction taking place between the two parties

The system is also inefficient as there is no close monitoring by authorities and so often the wastes are not removed. The garbage thus abandoned in public places is frequented by stray cats. The traditional zabbal or garbage collector sometimes collects only the waste that has economic value like paper and cartons.

As regards construction waste, the picture is somewhat different. For getting a construction permit, a variable charge is levied as a kind of performance bond for construction/demolition of waste. In theory, this charge is reimbursable once construction activities are over and the site is clear of any waste. However, in practice, probably no reimbursements were ever made regardless

of the state of rehabilitation of the construction sites. There is therefore no interest or incentive for building contractors to remove the waste coupled with no effective enforcement on the part of the municipality/local administration, all of which is reflected at many construction sites today. Removal of construction waste is complicated and expensive as there are some restrictions on the movement of trucks on the streets of Cairo and there is a charge levied on the disposal of waste in landfills (dump sites). As a result, construction wastes are dumped in unused land plots in the midst of residential areas or simply at nearby construction sites.

There is, however, another charge levied on all housing units by the municipality which is also related to street cleansing and waste management services in general. This cleansing charge is set at 2.5 percent of the value of property tax determined for each housing unit. This charge is mandatory in comparison to the aforementioned user charge for solid waste management, which is paid to the contractor for services rendered.

The governorate of Alexandria has embarked at present on a pioneering approach in the imposition of a mandatory user charge for Solid Waste Management (SWM). For many years, Alexandria – which has a great deal of similarity to Cairo – has experienced many problems in managing municipal solid waste. The present governor is keen to adopt a state-of-the-art approach to solid waste management, by contracting international firms with the necessary expertise and equipment needed to implement the project. The objective was also to learn from the experience of other cities in the handling of solid waste and in design and construction of sanitary landfills. Large international firms would also have the financial means and capacity to bring know-how and technology and operate projects efficiently which may not be the case with local firms.

In an unprecedented step, Alexandria has levied a monthly surcharge on electricity bills regardless of actual occupancy. The

latter is of particular importance to a summer resort city like Alexandria where many housing units are only occupied during the summer season. However, in this case, tenants or owners will have to pay such a surcharge irrespective of occupancy or services rendered.

Cairo and Alexandria, the two biggest cities in Egypt, have thus embarked on a pioneering approach in the imposition of a mandatory user charge for solid waste management and also a power use surcharge.

6.2.2) User Charge on Cement

Public concern about the cement industry in Egypt and its negative impacts on human health and the environment reached its peak by the end of the 1980s and the beginning of the 1990s. The government took some important steps in this regard. First and foremost, the cement companies which were then owned 100 percent by the government were to install hardware (or mitigation measures) like bag filters and electrostatic precipitators. Secondly, a charge of L.E.5 per ton to be borne by the consumer was imposed and the proceeds of such a charge earmarked for environmental protection projects. The annual revenue from this currently amounts to approximately L.E.135 million. The Minister of Public Enterprise whose responsibility then included the cement companies introduced the charge in July 1995 by virtue of a ministerial decree. The proceeds of the cement charge are divided into two parts:

1. Sixty percent of the charge (i.e., L.E. 3) is deposited in the Cement Fund which covers the expenses of upgrading cement filters as well as carring out their maintenance.
2. The remaining amount (i.e., L.E. 2) is set aside for the cement companies to finance projects to improve the indoor environment as well as the surrounding environment.

6.2.3) Visiting Fees for Access to Natural Protectorates

User charges or visiting fees for access to natural protectorates are earmarked for the Environmental Protection Fund (EPF) to finance environmental activities and maintenance of the protectorates. However, the natural protectorates have not received any funding from the EPF to date as the protectorates have not yet developed clear strategies or worked out a budget for their implementation.

6.2.4) User Fees for the Exploitation of Mines and Quarries

The governorates collect user fees for the exploitation of mines and quarries and then the proceeds are transferred to the Ministry of Finance accounts. The governorates do not keep aside any amounts for activities related to the maintenance of the mines or for any similar activities. To compensate for that, the governorates levy a surcharge on each truckload coming out of the quarry areas. The proceeds from the truck-related charge go to a special fund set up by the individual governorate to be disbursed according to preset executive regulations. It is believed that this special fund disburses certain undisclosed amounts of money for special purposes such as bonuses and incentives for staff of the mines management department in the governorates.

6.2.5) Deposit-Refund Schemes on Certain Containers

Deposit-refund schemes are applicable to certain containers that are reused on recovery. This is the case with certain beverage bottles and Liquefied Petroleum Gas (LPG) containers. Such schemes are apparently quite efficient and can achieve their targets with a high degree of success. Moreover, a post-audit

can be conducted on this instrument with a fair amount of ease.

6.2.6) Air Ticket Charge

A 12.5 percent value charge is levied on international air tickets. The proceeds are channelled to the Environment and Tourism Fund whose Secretary General is the Minister of State for Environmental Affairs. At present, the fund provides financial assistance to a number of government projects in the areas of environment and tourism.

6.2.7) EIs for Tourism Development[38]

A number of selected EIs are adopted by Tourism Development Authority (TDA) of Egypt for the promotion of best environmental practices along the Red Sea:

- Extended land payments schedule for good environmental design
- Promotion of environmental certification and awards of excellence for resorts and destinations
- Use of environmental criteria in competitive land award process
- Contractual sanctions for environmental damage during construction
- TDA criteria and standards for solid waste management
- Preferential financing for environmentally 'clean' technology
- Customs duty exemption for 'clean' technology

38. Mohamed A Raouf and Manuel Knight, "Economic Instruments to Promote Environmental Best Practices for Tourism Development in the Red Sea Region," Tourism Development Authority, Cairo, Egypt, May 2003.

6.3) Barbados

6.3.1) Duty and Tariff Relief for Importation of Environmental Equipment for Hotels

Barbados is a Caribbean island and a travel destination with substantial hotel capacity along its shoreline. Hotels constitute a major revenue earning business on this island.

Equipment based on environmental technologies qualifies for the Duty and Tariff Relief incentive. This incentive applies to both new hotel construction projects as well as renovation programs. .

6.3.2) Rainwater Storage Facilities Rebate

To encourage rainwater usage in homes and businesses, a rebate of one Barbadian dollar per gallon of installed tank capacity is given. Commercial buildings exceeding 1,000 square feet are required to install such facilities.

6.3.3) Regulation and Tax Incentives for Water Conservation

New building codes require installation of water saving taps and showers. In addition, granting income tax offsets for the amount of such water saving devices will encourage retrofitting of existing buildings. Regular showerheads and taps are to be phased out within a defined time frame.

6.3.4) Deposit-Refund System

Because of a deposit-refund system, manufacturers enjoyed a 95 percent return rate for reusable bottles when glass bottles were the dominant drink containers.

6.3.5) Tipping Fee

A tipping fee of 40 Barbadian dollars per ton was proposed for bulky wastes besides new charges. These new charges are

intended to cover rising costs of management of landfills.

6.4) Chile

6.4.1) Recycling Incentives

In Chile, there is significant economic activity in the recovery of paper, cardboard, plastic and glass. Specialized recycling firms obtain recycled materials from separators that collect at the curbside level before municipal collection. Also, industrial plants sell their wastes directly.

6.4.2) Tradable Permits for Emissions

During the 1990s, Chile introduced a system of tradable permits for 10 emissions from industrial sources in the Santiago area. Since 1994, any new emissions source requires compensation from an existing source.

6.5) Kenya

6.5.1) User Charges[39]

A commonly used instrument in Kenya, user charges require the waste generator to pay for the collection, transportation and disposal of the waste. It is a system used by both the City Council and private waste collectors. Table 5 illustrates some of the tariffs charged by Nairobi City Council for refuse collection. Two issues are worth noting from the table. First, the charges are not based on the quantity of waste. Second, the levels of rates of tariffs enforced are way below the approved ones. All households that pay for water services also pay Kenyan Shilling (Kshs) 40 a month for dustbin hire (waste storage facility and also its collection),

39. UNEP, op.cit.

whether or not they actually get the bin or the service.

The main advantage of the user charge is that collection of revenue is relatively easy and cost-effective for the council since the charges are added to the water bills. For private waste collectors, the collection is made easy by the consumers' willingness to pay.

Table 5: SWM Tariffs in Kenya

Charges	Volume	Approved Tariff	Enforced Tariff	Typical Use
Dustbin				
Hire	70 liters	Kshs 40/month	Kshs 20/month	
Refuse removal		Kshs 420/month	Kshs 15/month	
Standard Container				Commercial
Hire	1 M^3	Kshs 1,680/month	Kshs 200/month	centre, small
Refuse Removal		Kshs 2,240/month	Kshs 200/month	industries
Bulk Container				Factories,
Hire (max 4 load)	9-11 M^3	Kshs 5,600/month	Kshs 600/month	markets, hos-
Excess load		Kshs 2,800/load	Kshs 500/month	pitals
Tipping Charges				
Pickup		Kshs 140/load	Kshs 30/load	
Lorry		Kshs 280/load	Kshs 30/load	

Source: UNEP, 2005.

6.6) France

6.6.1) Effluent Charges

France's six river basin authorities have been levying effluent charges since 1968. Each river basin has a committee and an agency, with the committee functioning like a parliament and the agency as an executive body. Each river basin board sets its own charge rates annually, subject to approval by the basin committee. Levies in 2005, for instance, totalled about 1.1 billion Euros annually.

The original basis for France's effluent charge was weight

of suspended matter and weight of organic matter, since these two pollutants were relatively easy to detect and control. Charge parameters were later expanded to include salinity (1973), toxicity (1974), nitrogen and phosphorus (1982), and halogenated hydrocarbons, toxics, and other metals (1992). Discharges are estimated based on the emissions class and activity level of the discharger or, in the case of municipalities, on the basis of population and daily discharge per inhabitant. The basin authorities and dischargers may request actual measurement, the costs of which are borne by whoever makes the request.

The charge applies to all municipalities with more than 400 inhabitants and to all non-municipal facilities discharging at least 200 population equivalents a year. For facilities connected to a public sewage system, the charge applies only if discharges exceed 6,000 m3 per year.

It is not clear to what extent the charges have discouraged pollution since they are designed primarily as revenue-raising instruments. Charge levels are based not on perceived environmental costs of discharges but rather on the revenue needs of the river basin authority. The effluent charges, as well as fees for extracting ground and surface water, generate revenues that are used mainly to finance water pollution control investments by farmers, industry, and municipalities. Some of the assistance takes the form of low-interest loans, but most of it is grants that usually cover 30 percent-50 percent of the total cost of a given investment.

6.7) Japan

6.7.1) Air Emission Fees

Japan has levied sulfur emissions charges to generate revenues to compensate victims of pollution-related diseases. Since SO_2 was

believed to cause the greatest harm, it was chosen for the tax. Both stationary and mobile sources are subject to the charge, the latter in the form of differential taxation dependent on vehicle weight. Since mobile sources are thought to generate about 20 percent of NO_2 and SO_2 emissions, the tax ratio between stationary and mobile sources is 4:1. For stationary sources, tax rates vary from $0.625 to $56.25 per cubic meter, depending on whether the source is located in a designated area. Since many diseases date to the 1980s, there is also a levy of $0.82 per cubic meter based on SO_2 emissions between 1982 and 1986. Ambient SO_2 concentration levels have fallen significantly in Japan, but it is unclear to what extent this decrease is due to the tax.

6.8) Germany

6.8.1) Green Dot System

Germany is a leader in promoting recycling. Its Green Dot or Duales system is now operating in several countries such as Austria, France and Spain where the Green Dot on packaging indicates that the manufacturer has paid a fee to Duales, which is responsible for recycling. A new German package recycling law went into effect on January 1, 2003. Single use containers incur a fee of 0.25 euros (or 0.50 euros for containers 1.5 liter or larger). Beer cans are included but liquor, wine, fruit juice, milk, and non-carbonated beverage containers are exempt. Consumers must return the empty containers to the point of purchase along with a receipt or other proof of purchase. After that date, retailers and beverage suppliers must have a system for accepting returns. According to a recent press release from the German Environment Ministry, sales of non-refillable cans and bottles have dropped by 60 percent since the start of 2003.

6.9) United States

6.9.1) Trading of Air Emission Rights

At least three different forms of emissions trading exist: emission cap and allowance trading programs (e.g., the US Acid Rain Program), emissions averaging or rate-based trading (e.g., fuel efficiency standards for vehicles), and credit trading programs such as emission offsets. The general principle of emissions trading systems is that sources may satisfy their obligations by one of two means. First, they may limit their releases of pollution to no more than the permitted amount. Second, they may release more (or less) than the permitted amount and exchange credits representing any deficiency (or surplus) either internally or externally. Sources with marginal costs of pollution control that are about average are likely to meet their obligations without trading. Sources with relatively high marginal control costs are likely buyers of pollution reduction credits and sources with relatively low marginal costs of control are likely sellers of excess credits. The broad objective of emissions trading is to lower the total costs of achieving a given environmental goal.

6.9.2) Product Charges

Levied in numerous industrialized countries, product charges are imposed either on a product or some characteristic of that product. Although some of these charges may discourage consumption, many of them are advance disposal fees intended to finance the proper disposal of the products after their use. Products on which charges have been imposed include automotive air conditioners (Canada), batteries (Canada, Denmark, Portugal, and Sweden), beverage containers (Belgium, Finland, Norway, and Sweden), building materials (Denmark), chlorofluorocarbons (CFCs) (Australia and Denmark), dry cleaning solvents (Denmark), fertilizers (Austria, Finland, Norway, and Sweden), light bulbs

(Denmark and Korea), lubricating oil (Finland, France, Italy, Norway, and Spain), packaging (Belgium and Germany), pesticides (Belgium, Denmark, Norway, and Sweden), plastic and paper bags (Italy, Iceland, and Denmark), sulfur in oil (Finland, Norway, and Sweden), and tires (Taiwan and Canada). In 1993, South Korea imposed advance disposal fees on several products that are difficult to treat or recycle, but the rates are rather low.

7) Prerequisites for the Implementation of EIs

In order to successfully introduce economic instruments in a country's environmental policy, a number of legal, administrative and socio-economic conditions must be evaluated. The basic conditions of each individual economic instrument must be carefully evaluated when proposing economic instruments to be introduced in the GCC region. The following table clarifies these prerequisites:

Table 6: Prerequisites Necessary for Implementation of EIs

Condition	Key Characteristics
Knowledge	Awareness of how: • Economic activity affects the environment • Changes in the environment affect the economy • To formulate and implement incentive programs • To respond to regulations
Legal structure	• Ensure that the EIs are clear and enforceable • Provide legal authority to use economic instruments
Competitive markets	• Reasonable number of buyers and sellers • Prices responsive to changing conditions of resource scarcity
Administrative capacity	• To design and initiate economic incentive programs • To monitor and enforce compliance with programs • To enforce compliance
Political feasibility	• Capacity to overcome resistance to economic incentive programs • Responsiveness to stakeholders

Source: Danida (1995) & OECD (1989)[40]

40. OECD, *Economic Instruments for Environmental Management in Developing Countries* (Paris, 1991); Danida, "Economic Instruments: Study in Egypt Environment Policy – Identification of Project Proposal," (Danish

For any country, including GCC countries, to implement the EIs listed in this research paper, there is a need for financing through various sustainable sources. However, as most countries face tremendous pressure to achieve development, and fight unemployment and poverty, it is very difficult to tax people and projects more. There is a need for additional revenues for environmental protection outside the state budget, possibly in the form of gradually introduced environmental instruments. So, one of the very important prerequisites for the implementation of EIs is how to finance them as is explained below.

7.1) Evaluating the Performance of EIs

There are a number of criteria employed to evaluate the performance of EIs in environmental policy, including:

1. **Environmental Effectiveness:** The choice of an effective instrument is crucial. Each instrument is suitable for application in a particular situation pertaining to a specific environmental problem. Thus, the more suitable the instrument is for application in a specific situation, the more effective it becomes.
2. **Economic Efficiency:** The application of an instrument to attain a desired environmental objective has to be done at the lowest possible costs to both the parties involved and the economy at large. For example, compliance costs imposed on polluters have to be reasonable. In addition, the administrative costs of implementation are to be kept at an absolute minimum, though without compromising efficiency.
3. **Equity**: The use of EIs entails the distribution of economic

Ministry of Foreign Affairs, April 1995).

and environmental costs and benefits among various segments of the population. This is especially relevant in developing countries where wide income variations often exist. Thus, cost burdens associated with the use of these instruments have to be studied extensively by policy-makers in developing countries so as to ensure that it does not fall disproportionately on the less-fortunate members of society.

4. **Flexibility**: The degree of success of an economic instrument depends to a great extent on its inherent flexibility to adjust to the changing economic, political, cultural, and environmental conditions.
5. **Acceptability**: For an economic instrument to achieve its environmental goals, it has to gain a certain degree of acceptability from both the regulated parties as well as from the general public. Therefore, prior to the imposition of an instrument, policy-makers need to consider the instrument's ability to be acceptable to the various parties concerned.
6. **Cost and Complexity**: The introduction of an economic instrument entails some administrative costs, which have to be assessed carefully prior to implementation. In addition, the degree of complexity of the instrument and the mechanism for its implementation needs to be compatible with the prevailing administrative capacities of the relevant environmental agency. This is to ensure that no additional administrative costs or efforts are imposed on the agency. In fact, this is relevant for many developing countries where the administrative capacity of environmental agencies may not be adequate to handle certain types of instruments.

7.2) Financing EIs

There is a pressing need to avoid an additional financial burden on the government in financing environmental projects. So a number of new financial and economic instruments (non-

conventional financial and economic tools) may be used to raise revenues needed to finance such projects. These tools are discussed below:[41]

7.2.1) Affinity Merchandise

Governorates and municipalities in GCC countries can sell various items and dedicate the revenues to environmental programs. In many cases, revenues can be earmarked to site-specific environmental projects. Items sold could range from the more traditional car license plates and special postage stamps, to government publications and maps.

7.2.2) Contributions of Land

Direct contributions of environmentally-sensitive land from individuals and businesses to the government can reduce the need for outright governmental expense. However, in some cases, the government can sell land to raise revenue for environmental projects. This is an option that can be considered by GCC governments. The choice of such plots needs to be carefully evaluated.

7.2.3) Ecotourism

Ecotourism, a phenomenon that is growing very fast in the GCC region, can be defined as purposeful travel to natural areas to understand the culture and natural history of the environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make the conservation of natural resources beneficial to local people. Recreational revenues from tourists and other visitors are used to fund conservation activities in natural areas.

In GCC countries, there are many natural protectorates.

41. Alaa, Sarhan, "Financing the NEAP of Egypt," EEAA, October 2002.

Proper selection of natural protectorates or even other natural sites, and careful design of "travel and learn" packages to suit the needs of various segments of the population such as schoolchildren and college students, is a necessary prerequisite to maximize economic benefit. Similar programs can be designed for tourists who would like to focus on nature and conservation.

7.2.4) Emissions Trading

Emissions trading programs allow sources of air pollutants to trade pollutants in some fashion, either geographically, over time, or among other sources. Many emissions trading programs incorporate a "bubble" structure. A "bubble" program treats multiple emission sources as if they were included within an imaginary bubble, allowing existing sources to adjust emissions levels within the bubble as long as an aggregate limit on emissions is not exceeded. "Offset" programs allow new sources to obtain emissions credits from existing sources to offset new emissions. "Banking" programs allow sources to store emission reduction credits for future use or sale, while "netting" programs allow sources undergoing modification to avoid new source review if plant-wide emissions are reduced.

These kinds of tools are known in many developed economies. However, due to the present state of monitoring, enforcement and institutional capacity in the GCC countries, it is somehow impractical to recommend their implementation at the present time. For the present, nonetheless, GCC can build national capacity in this field in terms of institutions and technical cadres while monitoring the situation in the international context. In addition, there are also opportunities for the GCC region in terms of CDM projects.

7.2.5) Environmental Revolving Funds

Environmental Revolving Funds (ERFs) are government-run lending institutions generally modeled after the wastewater

and drinking water revolving funds established under the Clean Water Act and the Safe Drinking Water Act in the US.

7.2.6) Green Credit Card

A private company or a nonprofit environmental organization works with a bank or other financial institution to issue a major credit card on a local, regional, or even national basis. The card is structured to benefit an existing or new fund in an organization dedicated to watershed protection, habitat management, species protection, or other environmental goals. For each "green card" issued by the sponsors, a fixed amount per card and a small percentage of the spending would be donated to the fund in the card user's name. The fund would then be drawn upon by the host environmental organization to finance individual environmental projects and activities.

In the GCC, the use of credit cards has been gaining a lot of momentum in recent years. Nonetheless, a massive, well designed and implemented awareness campaign needs to be initiated to ensure that potential cardholders are aware and convinced of the environmental goals sought. With an enhanced level of environmental awareness, this toll can be quite effective in raising revenues to finance individual environmental projects.

7.2.7) Individual and Corporate Donations

Generally, donations for environmental causes can be made to non-profit foundations or trusts, or company-sponsored organizations or trusts, or company-sponsored foundations. Frequently, private sector corporations and/or foundations match individual donations.

Many banks and private sector firms in GCC countries make annual donations especially towards the end of the fiscal year. Quite recently, some banks have started making donations for specific environmental projects. However, awareness campaigns are needed to entice more institutions to foster environmental

projects or donate for specific environmental purposes. Legislatures need to provide income tax exceptions or rebates for donations to finance environmental projects.

7.2.8) Non-Profit Organizations

Non-profit foundations, trusts and research centers are defined as NGOs that spend resources in pursuit of specific public goals. NGOs in the field of the environment can be formed for many purposes, including promoting awareness, tree planting, solid waste management, environmental compliance, monitoring, research, education, and other activities.

8) Conclusion

The GCC region will continue to face substantial environmental problems on many levels. The environment used to have low priority on the policy agenda which has focused, in the last few years, on economic development and investment policies. Peace and security issues play an important role in shaping environmental policy in the region. The author believes that in the near future there are two possible policy scenarios: Economy first or Security first. Whether the environment is top on the policymakers' list or not, effects will be felt on the environment.

The GCC countries face numerous environmental challenges and have to reconcile the many conflicting priorities, from economic diversification, water supply and food security to environmental protection and conservation. Most of the GCC countries have a big advantage in that they have significant funding available, and therefore have several development choices. It is now for the decision-makers of the GCC countries to decide what priority they should give to environment conservation.

GCC countries have made advances towards enhanced environmental governance since the Brundtland committee report was issued. National Environmental Strategies (NES) and NEAPs have been prepared. However, the Brundtland Commission's vision has not been achieved. The main cause has been governmental reluctance to implement the integrated environmental, economic, and social decision-making the report called for. Governments still routinely conceive and implement economic development programs on sectoral basis without considering their environmental and social causes, contexts and implications. In addition, the command and control approach, through legislation, is still the main tool in environmental policy in almost all GCC countries.

Undoubtedly there is an increasing interest in environmental protection in all GCC countries as reflected in the issuance of environmental laws and setting up of bodies for environmental affairs. But, as the quest for new solutions to prevent environmental degradation intensifies, the existing regulatory solutions get outdated and need to be modified.

Ideally, a scenario where environment and natural resources get maximum attention in every decision at all levels, is desirable. Experience has showed that specific environmental problems are usually addressed by employing a "policy mix" consisting of various command and control instruments, economic instruments and awareness programs. This policy mix needs to address different environmental issues, assign a more active role for civil society organizations in environmental decision-making, implement environmental policies, and give an important role to the private sector. In fact, public-private partnerships in environmental issues are key to overcoming environmental problems. More attention needs to be paid to international environmental management standards such as the eco-labeling and ISO 14000 series, as well as environmental accounting, and environmental statistics.

Though environmental considerations are gaining more importance at all levels, particularly in recent years in the GCC, one can see that there has been no major shift in environmental policies and priorities. CACs and EIs are used in various fields of life; however, in environment, where there is even more need to use both tools, the dependence has been solely on CACs, i.e. fines and penalties.

EIs may not be a magic tool to solve all environmental problems, but they have proved to be an effective and a powerful complement to regulations. Despite the implementation of EIs, regulations still play an important role in ensuring that the basis for market transactions is properly defined.

EIs offer several options to suit specific needs and underlying

economic conditions of GCC countries. The application of EIs, however, requires special financial resources, amending of laws and customs tariffs to act as incentives, and developing institutional capacity.

Some environmental problems, however, cannot be dealt with on an economic basis. These include dangerous environmental problems resulting from nuclear activities and hazardous wastes. Such problems have long lasting and serious negative impacts and thus need an urgent response.

The assessment of implementation, compliance and effectiveness of policy initiatives is complicated and plagued by gaps in data, conceptual difficulties and methodological problems.

In short, GCC countries still face the problem of compliance with and enforcement of environmental laws and multilateral environmental agreements. It is very evident that the GCC is relying heavily on CAC as a sole environmental policy. Economic incentives are only present in support of the agriculture sector or in the form of environmental awards and contests.

International experience showed that implementation of EIs is gaining more and more attention from nations across the world. Not only developed countries, but also several developing nations, have adopted many EIs.

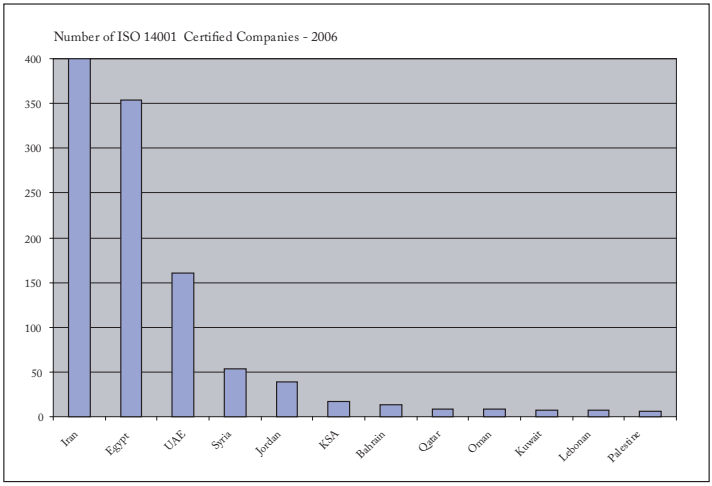
Efficiency and cost-effectiveness, however, are by no means the only possible criteria by which environmental policies can or should be judged. While formulating public policies to provide real improvements over existing environmental regulations, attention should be paid to overall effectiveness, clarity, equity, information requirements, monitoring and enforcement capability and costs, and political feasibility.

Annexes

Annex 1: ISO Certified Companies in GCC, Selected Middle East Countries and Developed Countries

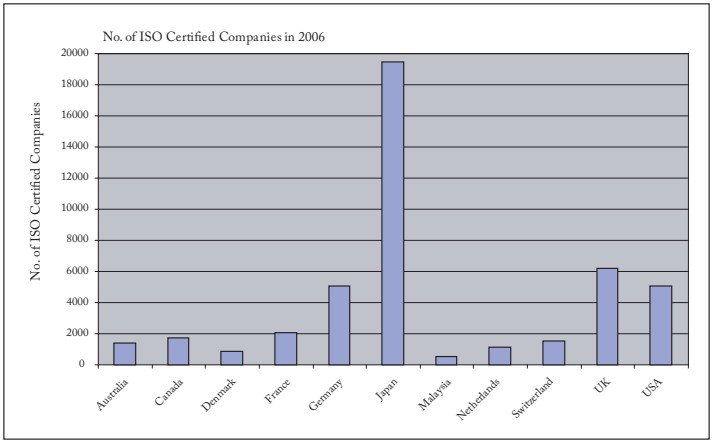
Total Number of ISO 14001 Certified Companies in the Gulf Region and Some Selected Arab Countries over the Past Decade

Country/ Year	Iran	Egypt	UAE	Syria	Jordan	KSA	Bahrain	Qatar	Oman	Kuwait	Lebanon	Palestine
1995												
1996		1	1									
1997	2	7	4			1			1			
1998	8	13	9		2	1		1	1		1	
1999	12	35	36	2	8	3	2	1	1		4	
2000	12	78	48	3	16	6	2	1	2		5	1
2001	34	100	49	5	10	6	2	1	3	3	5	1
2002	54	101	92	8	14	5	2	1	6	3	5	1
2006	400	354	161	53	39	17	13	9	8	7	7	6



Total Number of ISO 14001 Certified Companies in Some Selected Developed Countries in the Past Decade

Country	Australia	Canada	Denmark	France	Germany	Japan	Malaysia	Netherlands	Switzerland	UK	USA
1995	1		21	3	35	4		74		61	1
1996	53	7	96	23	166	198	7	119	18	322	34
1997	137	27	270	52	352	713	36	263	170	644	79
1998	352	104	314	295	651	1542	86	341	360	921	291
1999	708	276	430	462	962	3015	117	403	543	1492	636
2000	1049	475	580	710	1260	5556	174	784	690	2534	1042
2001	1370	801	620	1092	3380	8123	367	942	762	2722	1645
2002	1485	1064	711	1467	3700	10620	367	1073	1052	2917	2620
2006	1406	1706	837	2089	5094	19477	566	1111	1562	6223	5100



Source: Compiled from the following sources by the author:

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Annex 2: Main Environmental Laws in the GCC Countries

Country	Environmental Laws
Bahrain	The Law Concerning the Environment (21/1996):
	This law consists of 33 articles which is not organized in chapters.
Kuwait	Law No. 21/1995 concerning the establishment of the Environment Public Authority; amended by law No. 16/1996 and Decision No. 210/2001 Pertaining to the Executive By-Law of the Law of Environment Public Authority.
	The By-Law consists of 89 articles in 10 chapters as follows: Chapter 1: Development And Environment Chapter 2: The work environment and the Indoor environment Chapter 3: Chemical Resources Management Chapter 4: Management of Household, Hazardous, Healthcare and Sludge Wastes Chapter 5: Protection of Marine and costal Environment Chapter 6: Protection of Earth Crust From Pollution Chapter 7: Protection of the Ambient Air from Pollution Chapter 8: Biodiversity Diversification Chapter 9: General Provisions (including penalties) Chapter 10: Appendixes
Oman	The Law on Conservation of The Environment and Prevention of Pollution (114/2001)
	The law no. 114 of 2001, the Law on Conservation of the Environment and Preventing of Pollution consists of 43 articles in three chapters in addition to two appendixes. Chapter 1: Definitions and General Provisions Chapter 2: Basic Rules and Principles to ensure safety of the Omani environment Chapter 3: Penalties
Qatar	Protection of environment (30/2002)
	Law no. 30 for year 2002 for the protection of environment consists of 75 articles in six chapters as follows: Preface chapter: Article one for Definitions Chapter 1: Protection of Environment against Pollution Chapter 2: Protection of Atmosphere against Pollution Chapter 3: Protection of Water Environment against Pollution Chapter 4: Legal and Administrative Procedures Chapter 5: Penalties

Country	Environmental Laws
Saudi Arabia	General Environment Regulation, Council of Ministers Resolution (193/2001), royal decree (M/34)
	The General Environment Regulation, Prime minister decision no. 193 for year 1422 Hegri (2001), consists of 22 articles in four chapters Chapter 1: Definitions and Objectives Chapter 2: Tasks and Liabilities Chapter 3: Violations and Penalties Chapter 4: General Provisions
United Arab Emirates	UAE federal Law no. 24 for the protection and development of environment
	UAE federal Law no. 24 for year 1999 for the protection and development of environment consists of 101 articles as follows: One article for definitions and one article for objectives and fundamental principles then followed by nine chapters: Chapter 1: Development And Environment Chapter 2: Water Environment Protection Chapter 3: Soil Protection Chapter 4: Protection of Air from Pollution Chapter 5: Handling of Hazardous Waste, Material and Medical Wastes Chapter 6: Protected Areas Chapter 7: Responsibilities and Compensation of Environmental Damage Chapter 8: Penalties Chapter 9: Final Provisions

Source: Compiled by author

Annex 3: Environment Spheres

The author agrees with Dr. Abdel Fatah Al-Kasas's classification (Sustainable Development, 1990, see References) of our environment into three spheres as follows:

Natural Environment or Bio-Sphere	The sphere where elements like water, air, soil, atmosphere exist. These elements are dynamic and without them no life could exist. In many cases, human interference and unsustainable patterns of development have a negative impact on this natural balance.
Man-Made Environment or Man-Made Sphere	This sphere consists of all that human beings have constructed within the bio-sphere like roads, factories, buildings, irrigation networks, space ships… etc. It shows the result of continuous human efforts to develop and prosper the earth. This sphere consists of man-modified systems like agriculture systems and man-made systems like roads and factories etc.
Social Environment or Socio-Economic Sphere	Consists of structures created by man, institutions that monitor man-made regulations and systems to manage relations between man and environment spheres. Examples are political systems, economic legislations, and managerial systems. This sphere aims at best utilizing the other two spheres to serve human needs and promote human welfare.

The author believes that the first two spheres have gained the most attention from scientists, researchers, and decision-makers. To achieve sustainable development, the focus has been on issues like new clean technologies and the 4Rs i.e. Reuse-Recycle–Reduce–Recover. No doubt technology is key for the manmade sphere. However, many elements in the bio-sphere like wind and rains are still outside man's control. Still the Socio-Economic Sphere is responsible for setting the rules for harnessing the two other spheres to achieve sustainable development and human welfare.

Annex 4: GCC Joining Status vis-à-vis International Environmental Agreements

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
http://whc.unesco.org/	Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972	Ratification on 28.05.1991	Ratification 06.06.2002	Accession on 06.10.1981	Accession on 12.09.1984	Acccession on 07.08.1978	Accession on 11.05.2001
	United Nations Convention on the Law of the Sea, 1982	Ratification on 30.05.1985	Ratification on 02.05.1986	Ratification on 17.08.1989	Ratification on 09.12.2002	Ratification on 24.04.1996	Signed 1983
	Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, 1978	Signed on 24.04.1978	Signed on 24.04.1979	Signed on 24.04.1980	Signed on 24.04.1981	Signed on 24.04.1982	Signed on 24.04.1983
	Convention on Limitation of Liability for Maritime Claims, 1976						Accession on 19.11.1997
	Convention on the High Seas, 1958						
	Convention on the Continental Shelf, 1958						
	Convention on the International Regulations for Preventing Collisions at Sea, 1972	Accession on 21.10.85	Acceptance 04.06.1979	Accession on 25.04.1985	Accession on 31.01.1980	Accession on 03.07.1978	Accession on 15.12.1983
	Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971						
	International Convention on Salvage, 1989			Accession on 14.10.1991		Accession on 16.12.1991	Accession on 04.10.1993

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
	MARPOL 1973/1978 (Not entered into force)						
http://www.biodiv.org/	Convention on Biological Diversity, 1990	Ratification on 30.08.1996	Ratification on 02.08.2002	Ratification on 08.02.1995	Ratification on 21.08.1996	Accession on 03.10.2001	Ratification on 10.02.2000
http://www.biodiv.org/	Cartagena Protocol on Biosafety to the Convention on Biological Diversity			Accession on 11.04.2003	Accession on 14.3.2007		
https://www.ippc.int	International Plant Protection Convention, 1952	Adherence on 29.03.1971		Adherence on 23.01.1989		Adherence on 07.08.2000	Adherence on 02.04.2001
http://www.cites.org	Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973		Ratification on 08.12.2002		Accession on 05.08.2001	Accession on 12.03.1996	Accession on 08.02.1990
http://www.cms.int/	Convention on the Conservation of Migratory Species of Wild Animals, 1979					Accession on 1.03.1991	
http://www.iwcoffice.org/index.htm	International Convention for the Regulation of Whaling, 1946			Accession on 15.07.1980			
http://www.ramsar.org/	Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971 (Ramsar Convention)	Accession on 27.10.1997					
http://www.ramsar.org/	The Paris Protocol to the Ramsar Convention on Wetlands, 1982						
http://www.unep.ch/ozone/index.asp	Convention for the Protection of the Ozone Layer, 1985 (Vienna Convention)	Accession on 27.04.1990	Accession on 23.11.1992	Accession on 30.06.1999	Accession on 22 Jan 1996	Accession on 01.03.1993	Accession on 22.12.1989

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
http://www.unep.ch/ozone/index.asp	The Montreal Protocol on Substances that Deplete the Ozone Layer, 1987	Accession on 27.04.1990	Accession on 23.11.1992	Accession on 30.06.1999	Accession on 22.01.1996	Accession on 01.03.1993	Accession on 22.12.1989
http://www.unep.ch/ozone/index.asp	London Amendments to the Montreal Protocol, 1990	Acceptance on 23.12.1992	Accession on 22.07.1994	Accession on 05.08.1999	Accession on 22.01.1996	Accession on 01.03.1993	Accession on 16.02.2005
http://www.unep.ch/ozone/index.asp	Copenhagen Amendments to the Montreal Protocol, 1992	Ratification on 13.03.2001	Accession on 22.07.1994	Accession on 05.08.1999	Accession on 22.01.1996	Accession on 01.03.1993	Accession on 16.02.2005
http://www.unep.ch/ozone/index.asp	Montreal Amendments to the Montreal Protocol, 1997	Ratification on 13.03.2001	Accession on 13.06.2003	Ratification on 19.01.2005			Accession on 16.02.2005
http://www.unep.ch/ozone/index.asp	Beijing Amendments to the Montreal Protocol, 1999			Ratification on 19.01.2005			Accession on 16.02.2005
http://unfccc.int/		Ratification on 28.12.1994	Accession on 28.12.1994	Ratification on 08.02.95	Accession on 18.04.1996	Accession on 28.12.1994	Accession on 29.12.1995
http://unfccc.int/	Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997	Accession on 31.01.2006	Accession on 11.03.2005	Accession on 19.01.2005	Accession on 11.01.2005	Accession on 31.01.2005	Accession on 26.01.2005
http://www.basel.int	Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989 (Basel Convention)	Ratification on 15.10.1992	Ratification on 11.10.1993	Accession on 08.02.1995	Accession on 09.08.1995	Ratification on 07.03.1990	Ratification on 17.11.1992
http://www.basel.int	Basel Protocol on Liability and Compensation, 1999						
http://www.londonconvention.org/	Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1972 (London Convention)			Signed			Signed 1974

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
http://www.londonconvention.org/	Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1996						
http://www.pic.int/	The Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998		Signature on 11.09.1998	Accession on 31.01.2000	Accession on 10.12.2004	Accession on 07.09.2000	Accession on 10.09.2002
http://www.pops.int/	Stockholm Convention on Persistent Organic Pollutants, 2001	Signature on 22.05.2002	Signature on 23.05.2001	Ratification on 19.01.2005	Accession on 10.12.2004	Signature on 14.03.2002	Ratification on 11.07.2002
www.imo.org	International Convention on Civil Liability for Oil Pollution Damage, 1969	Accession on 03.05.1996	Accession on 02.04.1981	Accession on 24.01.1985	Accession on 02.06.1988	Accession on 15.04.1993	Accession on 15.12.1983
www.imo.org	International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990						
www.imo.org	International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969		Accession on 02.04.1981	Accession on 24.01.1985	Accession on 02.06.1988		Accession on 15.12.1983

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND), 1971 (Cessation of the convention 24.05.2002)	Denunciation on 15.05.1998	Accession on 02.04.1981	Denunciation on 15.05.1998	Denunciation on 20.11.2002		Denunciation on 24.05.2003
	Protocol concerning Marine Pollution Resulting from Exploration and Exploitation of the Continental Shelf, 1989						
http://www.unccd.int	International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, 1994	Accession on 14.07.1997	Ratification on 27.06.1997	Accession on 23.07.1996	Accession on 15.09.1999	Accession on 25.06.1997	Accession on 21.10.1998
	Convention on the Prevention of Military or any other Hostile Use of Environmental Modification Techniques, 1976		Accession on 02.01.1980				
http://www.opcw.org/	Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction, 1993	Ratification on 28.04.1997	Ratification on 29.05.1997	Ratification on 08.02.1995	Ratification on 03.09.1997	Ratification on 09.08.1996	Ratification on 28.11.2000

Website	Treaty	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
http://www.opbw.org/	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 1972	Accession on 28.10.1988	Ratification on 18.07.72	Accession on 31.03.1992	Ratification on 17.04.1975	Ratification on 24.05.1972	Signature on 28.09.1972
	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil thereof, 1971				Accession on 11.12.1974	Ratification on 06.23.1972	
http://www.ctbto.org	Comprehensive Nuclear-Test Ban Treaty, 1996	Ratification on 12.04.2004	Ratification on 06.05.2003	Ratification on 13.06.2003	Ratification on 03.03.1997		Ratification on 18.09.2000
	Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, 1986		Accession on 13.05.2003		Accession on 04.11.2005	Accession on 03.11.1989	Accession on 02.10.1987
http://www.unece.org/env/pp/	Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhuus Convention), 1998						

Source: Compiled by author from the respective websites

Annex 5: Differences between Signature, Ratification and Accession

Signature	Ratification	Accession
When a state signs a treaty, this usually means that it will proceed to ratify, accept or approve the treaty. The signature does not yet legally bind the state, but obliges it to refrain from acts that would defeat the object and purpose of the treaty.	By the act of ratification, a state agrees to be legally bound by a treaty. A treaty can only be ratified by a state that has previously signed the treaty. The ratification process includes the approval and implementation of the treaty on domestic level.	Accession has the same legal effect and conditions as ratification but is a procedure chosen by a state that has not previously signed a treaty. Accession normally takes place after the treaty has already entered into force. In other words, states which have not signed a treaty during the time when it is open for signature can only accede to it. Therefore the term "accession".

Annex 6: Top 12 International Agreements and Protocols

Convention/ Protocol	Description
CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora	One of the earliest international environmental treaties adopted by the World Conservation Union (IUCN) is the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The convention seeks to ensure that international trade does not threaten the survival of any species of wild animal or plant by using an import/export permit system to regulate trade in species which are listed by CITES in one of three Appendices. Appendix I includes species which are now threatened with extinction and which may not be traded for primarily commercial purposes; "trade" for scientific, captive breeding, and other limited uses is permitted under strict conditions. Species in Appendix II are not currently threatened, but may become so if their trade is not controlled. Appendix III contains species which individual countries have listed because they are under special management regimes in that country and require the co-operation of other Parties in the control of trade. The Convention applies to both live and dead specimens, as well as their parts and derivatives. CITES is legally binding on countries that have joined the Convention, and provides a framework to be respected by each Party, which has to adopt its own domestic legislation to make sure that CITES is implemented at the national level. Currently, CITES lists over 30,000 species of animals and plants and it is worth mentioning that not one species protected by CITES has become extinct as a result of trade since the Convention entered into force in 1975. More information is available at http://www.cites.org.
CBD: The United Nations Convention on Biological Diversity	CBD is one of the key agreements adopted at the 1992 Earth Summit in Rio de Janeiro. The Convention establishes three main goals: the conservation of biodiversity, sustainable use of the components of biodiversity, and sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way. The convention is legally binding; countries that join it are obliged to implement its provisions, such as reporting on what has been

Convention/ Protocol	Description
	done to implement the accord and the effectiveness of these activities. The national reports, particularly when seen together, are one of the key tools for tracking progress in meeting the Convention's objectives. More information is available on-line at http:// www.biodiv.org/doc/publications/guide.asp.
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	On January 29, 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. It establishes an advanced informed agreement (AIA) procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory. The Protocol contains reference to a precautionary approach and reaffirms the precaution language in Principle 15 of the Rio Declaration on Environment and Development. The Protocol also establishes a biosafety clearing-house to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol. More information is available on-line at http://www.biodiv.org.
UNFCCC: The United Nations Framework Convention on Climate Change (UNFCCC)	UNFCCC is the centerpiece of global efforts to combat global warming. Adopted in 1992 at the Rio Earth Summit, its ultimate objective is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (human-made) interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner." More information is available at http:// www.unfccc.int/resource/docs/convkp/conveng.pdf.
Kyoto Protocol	The Kyoto Protocol was established in 1997 by the third session of the Conference of Parties (COP-3) to the UNFCCC. With ratification, developed countries

Convention/ Protocol	Description
	commit themselves to reducing their collective emissions of six greenhouse gases by at least 5 percent by 2008 to 2012. Compared to emissions levels that would be expected by 2010 without emissions-control measures, the Protocol target represents a 30 percent cut. Both developed and developing countries agree to limit emissions and promote adaptation to future climate change impacts; submit information on their national climate change program and inventories; promote technology transfer; cooperate on scientific and public research; and promote public awareness and education. The rules for entry into force of the Kyoto Protocol require 55 Parties to the Convention to ratify the Protocol, including Annex I Parties accounting for 55 percent of that group's carbon dioxide emissions in 1990. More information is available in *A Guide to the Climate Change Convention Process,* at http://www.unfccc.int/resource/process/ guideprocessp. pdf.
Ozone: Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer	The Vienna Convention for the Protection of the Ozone Layer creates a general obligation for nations to take appropriate measures to protect the ozone layer, and a process by which regulations could be created by the governments of countries to establish control measures. The convention is determined to protect the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete it, to ultimately eliminate them, taking into account technical and economic considerations. The Convention also establishes a mechanism for international cooperation in research, monitoring, and exchange of data on the state of the stratospheric ozone layer and on emissions and concentrations of CFCs and other relevant chemicals. Most importantly, the Vienna Convention establishes the framework for a future protocol - the Montreal Protocol on Substances that Deplete the Ozone Layer. One of the most successful environment protection agreements, the Montreal Protocol sets out a mandatory timetable to phase out ozone depleting substances. This timetable has been under constant revision, with phase out dates accelerated in accordance with scientific understanding and technological advances.

Convention/ Protocol	Description
	http://sedac.ciesin.org/entri/texts/montreal.protocol.ozone.1987.html
CCD: United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa	CCD is an international Convention dedicated to addressing the problems of land degradation in the world's drylands, caused primarily by human activities and climatic variations. Over 250 million people are directly affected by desertification and an additional one billion people in over 100 countries are at risk. Since the Convention entered into force in 1996, countries affected by desertification are implementing the Convention by developing and carrying out national, sub-regional, and regional action programs. The Convention states that these programs must adopt a democratic, bottom-up approach emphasizing popular participation and the creation of an enabling environment designed to allow local people to help themselves reverse land degradation. More information is available at http://www.unccd.int/main.php.
POPs: Stockholm Convention on Persistent Organic Pollutants	The Stockholm Convention on Persistent Organic Pollutants seeks to limit pollution by persistent organic pollutants (POPs). It defines the substances in question, while leaving open the possibility of adding new ones, and also defines the rules governing the production, importing and exporting of those substances. POPs are chemical substances that possess certain toxic properties and, unlike other pollutants, resist degradation, which makes them particularly harmful for human health and the environment. POPs accumulate in living organisms, are transported by air, water and migratory species and accumulate in terrestrial and aquatic ecosystems. They are therefore a cross-border problem on which international action is indispensable. The Convention covers 12 priority POPs produced intentionally or unintentionally. These substances are formed unintentionally by a wide variety of sources, from residential combustion systems to waste incinerators. These 12 priority POPs are aldrin, chlordane, dichlorodiphenyltrichlorethane (DDT), dieldrin, endrin, heptachlor, mirex, toxaphene, polychlorobiphenyls (PCBs), hexachlorobenzene,

Convention/ Protocol	Description
	dioxins and furanes. Initially the Convention aims at prohibiting production and use of nine POPs and minimizing production and use of a tenth substance. In the case of the last two POPs, the objective is to minimize their unintentional production and release into the environment. The rules do not apply to chemicals to be used for laboratory-scale research. The Convention was adopted in May 2001. Upon signature of the Convention, the first step toward implementation is the development of national action plans to eliminate or reduce the release of POPs into the environment. More information is available on-line at http://www.biodiv.org.
CMS: Convention on the Conservation of Migratory Species of Wild Animals	In recognition of the fact that migratory species of wild animals are of global importance, the United Nations Conference on the Human Environment (Stockholm, 1972), with the endorsement of the twenty-seventh session of the General Assembly, called upon the world community of States to draw special attention to the conservation of species of wild animals that regularly cross national borders or that migrate in international waters. As a result, the Convention on the Conservation of Migratory Species of Wild Animals was concluded in 1979. The Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty concerned with the conservation of wildlife and habitats on a global scale. Since the Convention's entry into force, its membership has grown steadily to include over 100 parties from Africa, Central and South America, Asia, Europe and Oceania. The Convention was signed in 1979 in Bonn and entered into force in 1983. More information is available online at http://www.cms.int/about/intro.htm.
Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal	The Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal which came into force for the EEC in 1994 aims to introduce a system for controlling the export, import and disposal of hazardous wastes and their disposal, to reduce the volume of such exchanges so as to protect human health and the environment. Each party may add to the list other wastes listed as hazardous in its national legislation. The overall

Convention/ Protocol	Description
	goal of the Basel Convention is to protect human health and the environment against the adverse effects which may result from the generation, transboundary movement and management of hazardous and other wastes. Further objectives include: reducing transboundary movements of wastes to a minimum consistent with their environmentally sound and defficient management, and controlling any permitted transboundary movement under the terms of the Convention; minimizing the amount of hazardous wastes generated and ensuring their environmentally sound management; and assisting developing countries in environmentally sound management of the hazardous and other wastes they generate. The Basel Convention has set up a very strict control system, based on the prior written consent procedure. Hazardous wastes shall be exported only if the exporting state does not have the technical capacity and facilities to dispose of them in environmentally sound manner. Transboundary movement shall be prohibited if the state of export or import has reason to believe that the wastes shall not be managed in expected manner. Parties to the Convention must cooperate with each other in order to improve and achieve environmentally sound management of hazardous wastes and other wastes. The aim is to implement measures to ensure that wastes covered by the Convention are handled in such a way to guarantee protection of human health and the environment. http://www.unescap.org/DRPAD/VC/orientation/legal/3_waste.htm
Heritage Convention Concerning the Protection of the World Cultural and Natural Heritage	The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) was adopted by the General Conference of UNESCO in 1972. To date, more than 170 countries have adhered to the Convention. The most significant feature of the World Heritage Convention is to link together in a single document the concepts of nature conservation and the preservation of cultural sites. The World Heritage Convention aims to encourage the identification, protection, and preservation of earth's cultural and natural heritage. It recognizes that nature

Convention/ Protocol	Description
	and culture are complementary and that cultural identity is strongly related to the natural environment in which it develops. The Convention provides for the protection of those cultural and natural "properties" deemed to be of greatest value to humanity. It intends to protect a select list of heritage properties which are the most outstanding from an international viewpoint. There are currently 754 properties on the World Heritage List. Of these, 582 are cultural properties and 149 natural properties, as well as 23 mixed natural and cultural properties, and 23 cultural landscapes, located in 128 countries. The Convention recognizes that nations have a duty to ensure the identification, protection, conservation, presentation, and transmission to future generations of their cultural and natural heritage. By adhering to the Convention, nations pledge to conserve not only the World Heritage Site(s) situated within their territories, but also to improve the protection of their national heritage as a whole. http://www.undp.org/biodiversity/biodiversitycd/frameWCH.htm
UNCLOS: United Nations Convention on the Law of the Sea	The United Nations Convention on the Law of the Sea refers to several United Nations events and one treaty. The events the term refers to are the (First) United Nations Convention on Law of the Sea, the Second United Nations Convention on Law of the Sea, and the Third United Nations Convention on Law of the Sea. The treaty resulting from the Third United Nations Convention on Law of the Sea also bears the name United Nations Convention on Law of the Sea and is the most recent major development in international law governing the oceans. The Convention is a comprehensive international agreement governing a wide range of maritime matters, including territorial sea and contiguous zone, straits, exclusive economic zone, continental shelf, high seas, deep sea-bed (the Area), protection and preservation of the marine environment, marine scientific research and settlement of disputes. The Convention also provides for the establishment of international organizations like the International Sea-Bed Authority, through

Convention/ Protocol	Description
	which activities of exploration for and exploitation of the mineral resources of the deep sea-bed are organized and controlled, and the International Tribunal for the Law of the Sea for settlement of disputes.

Source: Compiled by author from the respective websites

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