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A study of Islamic environmental ethics, policies, and laws

Soubra, Nader Musbah, Ph.D.

State University of New York Col. of Environmental Science & Forestry, 1993

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A Study of Islamic Environmental Ethics, Policies, and Laws

by

Nader Musbah Soubra


A dissertation submitted in partial fulfillment
of the requirements for the Doctor of Philosophy Degree

State University of New York
College of Environmental Science and Forestry
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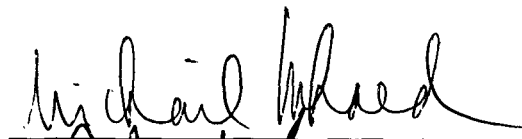
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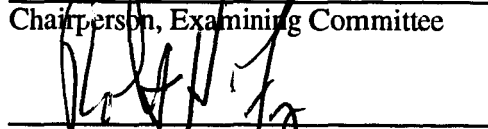
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allah,
the Compassionate, the Merciful

ABSTRACT

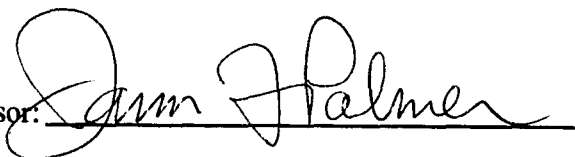
SOUBRA, NADER, M. A Study of Islamic Environmental Ethics, Policies and Regulations. Typed and bound dissertation, 280 pages, 24 tables, 12 figures, 1993.

A lack of knowledge concerning the appropriate ethical and religious values relating to environmental protection and conservation have led to their limited application in addressing environmental problems. This research addresses this issue by studying the ethical, religious, and legal bases for environmental protection and conservation from an Islamic perspective in order to promote their application in managing environmental problems. An Islamic Environmental Action Model (IEAM) is described that presents a system of individual and governmental environmental responsibilities. A survey of the environmental laws and regulations in Islamic countries is presented as well as a summary of the environmental conditions and problems they face. This summary covers laws which were written in English and others which were translated from Arabic to English. It is found that Islamic guidelines were reflected in few of these laws, which generally follow Western models. Since other scholars estimate that approximately 60 percent of the disputes in Islamic countries are settled according to common Islamic law, there is a reason to be optimistic that the IEAM could be effectively applied in these countries.

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Thanks to Allah for providing me with the health, perseverance, and ability to complete this research with help from the graduate committee; chaired by Dr. James F. Palmer who was a friend and an adviser. I also acknowledge the spiritual, emotional, and financial support of my family and friends in Syracuse, California, Saudi Arabia, and Beirut. Thank you all.

FORWARD

Because the text includes extensive reference to religious material it is essential to make clear the following:

- 1- Every effort has been made to collect and use articles and other references to provide a concise overview of the religious outlooks towards nature and the resulting environmental management strategies based on these views.
- 2- The objective of this dissertation is not to define the various religions which are discussed in the text. My objective was to "find" religion and Islam in particular and to examine the relevance of Islamic teachings to the applied methods of interacting with and managing the environment.
- 3- Efforts were made to verify the religious material and their references. If mistakes are found in this information, I acknowledge them and attribute them to my limited knowledge of the subject.

CONTENTS

ABSTRACT	i
ACKNOWLEDGMENTS	ii
FORWARD	iii
INTRODUCTION	1
CHAPTER 1. RESEARCH PLAN AND OBJECTIVES	4
A. International Background	5
1. Role of International Organizations	5
B. Problem Statement	8
C. Objectives	8
D. Overview of Dissertation	9
CHAPTER 2. THE ISLAMIC LEGAL AND ETHICAL BASIS FOR ENVIRONMENTAL PROTECTION	10
A. Basics of Islam	11
1. Attributes of God	11
B. The Islamic Perspective of Planning & Development	13
C. The Legal Aspects of Environmental Protection	14
1. Ownership of Natural Resources	17
2. Duties of the State	17
3. Collective and Individual Rights	19
4. Setting Priorities for Action	19
5. Guidelines for Eliminating Environmental Damage	20
6. Rights of the State to Avoid Environmental Damage	21
7. Individual Rights	21
8. Ruling for Needed Action	22

CONTENTS

CHAPTER 2. (Cont.)

D. The Legal Decision Making Process at the State Level	26
1. Ijtihad [Interpretation]	27
2. Ijma' [General Consent]	27
3. Qiyas [Analogical Reasoning]	28
4. Istihsan [Preference for the Better]	28
5. Remark	29
E. The Islamic Cosmology.	30
1. Allah	30
2. Metaphysical Aspects.	30
3. Functions of the Universe.	31
4. Role of Mankind.	33
5. Other Creatures.	34
6. Time.	35
7. Individual Freedom and Knowledge	37
8. Remark	39
F. The Ethical Aspects of Environmental Protection	40
1. Protecting the Earth	40
2. Doing Righteous Deeds.	41
3. Reward for Good Deeds.	41
4. The Commands of the Qura'n and the Sunnah	42
5. Consequences of Bad Action	43
6. Knowledge, Intention and Action	43
7. Different Forms of Knowledge	45
8. The Rewards and Punishment for the People in Authority	46

CONTENTS

CHAPTER 2. (Cont.)	
G. The Islamic Environmental Action Model	47
1. Basic Elements of the Model	48
2. Explanation	48
3. Islam and the Environment.	53
4. Role of Religious Teachings	53
5. The Role of Faith	55
6. The Role of the State	57
7. The Role of Individuals.	60
8. Remark	62
CHAPTER 3. PROFILE OF THE SURVEYED COUNTRIES	63
A. Geographic and Natural Resources Background	64
1. North and West Africa.	64
2. North and East Africa	68
3. The Middle East	70
4. Southcentral Asia	74
5. Southeastern Asia	77
6. Remarks	79
B. Political Background	81
C. Economic Background	82
1. North and West Africa.	82
2. North and East Africa	82
3. The Middle East	83
4. Southcentral Asia	83
5. Southeastern Asia	84
6. Remark	84

CONTENTS

CHAPTER 3. (Cont.)	
C. Environmental Background	87
1. Water and Marine Pollution	87
2. Lack of Sufficient Water Supplies	87
3. Land Degradation	90
4. Deforestation	90
D. Non-Government Organizations	96
1. Background	96
2. NGOs in the Surveyed Countries	97
CHAPTER 4. DATA COLLECTION, ANALYSIS, AND ORGANIZATION. 96	
A. Request for Information	100
B. Data Types and Sources	104
C. Data Organization and Presentation.	102
CHAPTER 5. ENVIRONMENTAL POLICY, INSTITUTIONAL, AND REGULATORY DEVELOPMENTS 109	
A. Trends in Policy Development	110
1. Group One: Limited Development	110
2. Group Two: Fragment Policy	111
3. Group Three: Comprehensive Policy	113
4. Remarks	129
B. Scope of Environmental Regulations	133
1. Data Organization	134
2. Group One	134
3. Group Two	134
4. Group Three	139
5. Remarks	145

CONTENTS

CHAPTER 5. (Cont.)	
C. The Environmental Decision Making Process	146
1. Overview	146
2. Remark.	150
D. The Use of Environmental Impact Statements	151
1. Overview	151
2. Remark.	159
CHAPTER 6. STUDY FINDINGS, DISCUSSION, AND CONCLUSION .	160
A. Overview	161
B. Findings	161
C. Discussion: The Environmental Crisis	163
1. The Moral Aspects of the Problem	163
2. The Cultural Aspects of the Problem	163
D. The Use of the Islamic Guidelines	168
E. Future Research	169
F. Conclusion	170
BIBLIOGRAPHY	172
APPENDIX A. Letter Mailed to Embassies	184
APPENDIX B. The Pakistan Manifesto.	185
APPENDIX C. Islamic Principles for the Conservation of the Natural Environment	186
APPENDIX D. Religious Maxims Relating to Environmental Protection . . .	202
APPENDIX E. The Islamic Environmental Action Model	204
APPENDIX F. Articles from the Constitution Relating Religion to the State .	205
APPENDIX G. Environmental Conditions in Islamic Countries	207
APPENDIX H. Sample Letter sent to Embassies & Local Agencies	211

CONTENTS

APPENDIX I	The National Environmental Management Act, 1987 (Gambia)	213
APPENDIX J	Translation of the Environmental Protection & Pollution Control Law of Oman dated August 17, 1985	229
APPENDIX K	Environmental Law of Kuwait (Law No. 62 For the Year 1980 Regarding the Protection of the Environment	251
APPENDIX L	The Pakistan Environmental Protection Ordinance, 1983	261
APPENDIX M	Examples of Classical & Current Environmental Laws in the Sudan	268
APPENDIX N	Other Environmental Laws in Gambia	269
APPENDIX O	Summary of Environmental Laws	272
VITA	281

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Preferences for Conflicting Choices	20
2. Elements of the IEAM and their functions	49
2. Elements of the IEAM and their functions	50
3. Overview of the Religious and Political Status of the Surveyed Countries .	81
4. National Economic Data about the Surveyed Countries	85
5. National and International Economic Data about the Surveyed Countries . .	86
6. Access to Safe Water and Availability of Sanitation Services	88
7. Freshwater Resources and Withdrawal	89
8. Percentage of Land Distribution, 1984 - 1986.	91
9. A Summary of Environmental Problems in the Surveyed Countries	92
9. A Summary of Environmental Problems in the Surveyed Countries	93
9. A Summary of Environmental Problems in the Surveyed Countries	94
9. A Summary of Environmental Problems in the Surveyed Countries	95
10. NGOs in the Surveyed Islamic Countries	98
11. Responses from the Surveyed Countries	101
12. Contacts at the Embassies and the Local Agencies	102
12. Contacts at the Embassies and the Local Agencies	103
13. A List of the Collected Data from the Surveyed Countries	104
14. Sources and Types of Collected Data	106
14. Sources and Types of Collected Data	107
15. Adoption of Comprehensive Environmental Policies	130
16. Establishment of Environmental Coordinative Authorities	131
17. Establishment of Environmental Regulatory Authorities	132
18. Scope of Environmental Regulations in the Surveyed Countries	135
19. Scope of Environmental Regulations in Bangladesh & Pakistan	138

LIST OF TABLES (Cont.)

<u>Table</u>	<u>Page</u>
20. Scope of Environmental Regulations in Gambia	141
21. Scope of Environmental Regulations in Indonesia & Malaysia	142
21. Scope of Environmental Regulations in Indonesia & Malaysia	143
22. Other Areas of Environmental Regulations	144
23. The Environmental Decision Making Process in the Surveyed Countries .	147
24. The Use of EIA, EIS, and SIA in the Surveyed Countries	151

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Options for Needed Action	24
1. Options for Needed Action	25
2. Stages of life	36
3. Theoretical Impact of Science on the Human Intellect	38
4. The Individual Decision Making Process	44
5. The IEAM: The Relationship Between God and His Creation	51
5. The IEAM: The Relationship Between God and His Creation	52
5. The IEAM: Role and Teachings of the Prophets	54
5. The IEAM: The Role of Faith	56
5. The IEAM: The Role of the State	58
5. The IEAM: The Role of Individuals	61
5. The Islamic Environmental Action Model (IEAM)	50
6. The Location of Gambia and Morocco	65
7. The Location of Algeria, Tunisia, and Libya	66
8. The Location of Egypt and Sudan	69
9. The Location of Iraq, Jordan, and Turkey.	72
10. The Location of Kuwait, Oman, and Saudi Arabia	73
11. The Location of Afghanistan, Pakistan, and Bangladesh	75
12. The Location of Indonesia and Malaysia	78

Introduction

The desire to explain the role of religious beliefs in perceiving the natural environment and how that perception affects the methods by which different cultures impact, utilize, and manage nature has been the subject of extensive debate. Religion shapes these perceptions which provide the basis for the laws defining the functions of nature and for setting the guidelines for human interaction with it.

With the increase in rate and intensity by which global human development has damaged the natural environment, international organizations-- in association with religious leaders-- have called for a re-assessment of human perception and interaction with the environment. This re-assessment aims to restore the intrinsic value of nature and persuade people of all faiths to examine their priorities as they interact with the environment in order to reverse the course of environmental degradation.

Such movements have been supported by the call for a sustainable society to protect nature for future generations. "Movement towards a lasting society cannot occur without a transformation of individual priorities and values" (Brown, C. et al. 1990, 190). This theme has been the focus of several international conferences attempting to link religious values to environmental conservation. One of these meetings included the conference in Assisi, Italy which was organized by the World Wildlife Fund (WWF) in 1986. Representatives of the world's major faiths were invited to Assisi in to share with WWF their vision of nature and of our responsibility, place, and purpose within the natural

world. The meeting resulted in initiating a conversation between conservationists and religionists based on the idea that:

Conservationists need to recognize their cultural roots and learn that many of their analyses and perceptions uncritically accept Western, utilitarian, anthropocentric norms. Likewise, the great faiths and their cultures need to realize how urgent the environmental crisis is, and learn how to express to this generation the eternal trusts they bear regarding our relationship with nature (Palmer 1990, 52).

Another meeting was the conference on Strategies for Development which was organized in 1987 by the International Union for the Conservation of Nature and Natural Resources (IUCN) and held in Ottawa. The conference focused on cultural and economic issues affecting development. Participating members agreed that "in defining goals and objectives, ideological factors like culture, religion and self fulfillment are considered alongside technical economic and ecological concerns" (Jacobs, P. et al. 1987, 26).

These attempts seek to address one of the causes of environmental degradation which is the moral values affecting the method and degree to which nature is used for man's benefit. To this regard, scholars such as Lynn White argued that the root of the ecological crisis is a moral one: "since the root of our trouble are so largely religious, the remedy must also be essentially religious, whether we call that or not" (White 1967, 351). Islamic scholars, such as Zaidi, agreed with this view and suggested that a moral solution is needed to solve this global problem. He proposed that we need "a set of principles that are environmentally relevant and socially responsible" (Zaidi 1989, 108). This set of principles refer to the Islamic teachings which integrate a solid and consistent environmental ethics into religious teachings and ultimately human action as well; when that action is done according to guidelines prescribed by religion.

Similarly, Henning and Mangun proposed that "efforts either to protect or exploit the environment are guided by values. Therefore, in order to characterize the policy-making and administrative process of government, the dynamics of human values and behaviors must be examined" (Henning & Mangun 1989, xvi). By examining the Islamic values, we can achieve a better understanding of the moral forces which shape the efforts to use, protect and manage the environment from an Islamic perspective.

This study examines the basis of Islamic environmental ethics, policies, and guidelines. The study also presents the common trends in the establishment of national policies and regulations by surveying a select group of Islamic countries. From the religious aspect, this research focuses on the connection between Islamic values and the formulation of policies and regulations. By providing an insight to these environmental values, policies, and regulations a better understanding of the Islamic principles could lead to an improvement in the cooperation between Islamic and non-Islamic countries in managing and preserving nature.

Chapter 1

Research Plan and Objectives

INTERNATIONAL BACKGROUND

Initial concern for environmental quality was reflected by the activity of individual countries which were reacting to local and regional environmental problems. An example of such activity was the enactment of the National Environmental Policy Act (NEPA) in 1969 by the United States government. The purposes of the Act were to declare a national policy regarding the environment and establish the Council on Environmental Quality (CEQ) which reports annually to the president and the public on the condition of the environment. In 1970 under the Reorganization Plan 3, Congress established the Environmental Protection Agency (EPA) to oversee the administration and enforcement of environmental regulations.

In the early 1970s, other countries used NEPA as a blue print for developing their own national environmental policies and regulations. Within a ten year period the majority of nations had such national policies: "in 1982, 111 nations had environmental ministries or their equivalence, compared with only 11 in 1972" (Goodland & Ledec 1986, 51). These individual efforts dealing with environmental issues grew into regional and international arena with the help of international organizations such as the United Nations (UN).

Role of International Organizations

The UN took the lead in focusing international attention to global environmental issues when it held its first conference on environmental quality in the summer of 1966 in Finland. The central issue discussed at the conference was the population explosion. Participating members expressed their concern for the problem by stating that "we finally realized how our beautiful world was being threatened by the inexorable rise of human

population pressures"(Polunin 1982, 115). The conference initiated the 'World Campaign for the Biosphere' and set the stage for future UN conferences on environmental quality.

In 1972, the UN held the second conference on the human environment in Stockholm. One of the objectives of the conference was to bring to the forefront global environmental issues and to seek ways in which convening countries could cooperate in dealing with such issues. Although environmental issues became polarized in northern and southern points of view, and conflicts resulted between "developed" and "developing" countries; the conference had positive impacts in the environmental field. The convening members stressed that "international efforts to solve global, regional or bilateral environmental problems have the same need for a foundation in legislation and other regulation as national protection of the environment and nature" (Koester 1990, 14). The Stockholm conference also acknowledged the concept of "close relations between environmental problems, development issues, human rights and even disarmament" (Koester 1990, 14). At the conclusion of the conference the members supported an 'Action Plan' which consisted of 109 recommendations for international cooperation on the environment and the 'Stockholm Declaration' which consisted of twenty-six general principles prepared to inspire and guide people into protecting and enhancing global environmental conditions. The conference also established the United Nations Environment Programme (UNEP) to coordinate environmental activities in the UN. The conference provided significant interest in environmental issues in Islamic countries. As the data will show, Islamic countries proceeded to prepare national environmental studies, and establish non-governmental organizations (NGOs) to address environmental issues.

The connection between environmental and developmental issues was central to the UN sponsored 1983 World Commission on Environment and Development. The commission

focused on deteriorating environmental conditions worldwide. The delegates adopted the concept of "Sustainable Development" as the main idea of their report, Our Common Future. Gro Harlem Brundtland, the chairman of the commission, defined sustainable development as "a system of development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Gro Harlem Brundtland 1990, 4). Other international institutions supported the concept of sustainable development as a possible solution to environmental problems. These new approaches proved again that development can not be measured by economic terms alone. On the contrary, development was viewed as an improvement of the lifestyle of the community as a whole while maintaining the integrity of the local cultural and ideological beliefs.

The continued degradation of the environment on a global scale was one of the factors which "pushed the environment toward the center stage in the political structures at all levels, from town councils to the UN general assembly . . . in every corner of the world environmentalism is on the rise" (Brown, C. et al. 1990, 12-13). This concern for the environment was translated into international issues discussed at the economic summits of 1989, 1990, and 1992. The United States, France, Britain, West Germany, Canada, Italy and Japan agreed in both summits that "decisive action was urgently needed to understand and protect the earth's ecological balance" (Summit of the Arch 1990. 15).

Developing¹ countries were also holding similar meetings to deal with their environmental problems. Among these developing countries were Arab and Islamic countries who were beginning to experience the effects of environmental degradation at home. In order to set the basis for environmental action, representatives of seven Arab countries met in October of 1988 to "draw-up a strategy for environmentally sound

¹ Developing refers to developed market economy, not culture.

development . . . and identify main environmental problems from which to devise principles for action" (Arab League 1988, 107).

Other governments were taking individual action to deal with environmental pollution. An example of such activity was the decision by the government of Pakistan to sponsor a national seminar in collaboration with UNEP, the Federations of Pakistan's Chambers of Commerce, and Industry to discuss the problem of increasing sea pollution. Participating members concluded that "with rapid industrial development in the country, the pollution menace is likely to assume serious proportions sooner than expected" (Ahmad Ali 1989, 44). Slowly but surely, addressing environmental issues was becoming a high priority in developing Islamic countries.

PROBLEM STATEMENT

The lack of knowledge of the Islamic ethical and religious values, and legal guidelines relating to environmental protection and conservation have led to limited application of use of these guidelines in addressing environmental problems by Islamic countries. This research addresses this issue by studying the ethical, religious, and legal bases for environmental protection and conservation in order to promote the application of these Islamic values in managing environmental problems.

OBJECTIVES

The objectives of this study are to:

- 1- Analyze the relationship between basic Islamic concepts, the religious outlook towards nature, the resulting environmental ethic, and its impact on Muslims' interaction with nature.

- 2- Present an overview of the legal environmental efforts in a selection of Islamic countries.
- 3- On the basis of the above collected information, propose an environmental action model which explains the nature of human interaction with the environment from an Islamic perspective.
- 4- Compare the theoretical outcome regarding environmental conditions of the model with the approaches to environmental protection and management in the surveyed Islamic countries.

OVERVIEW OF DISSERTATION

The subjects in this dissertation are organized to show how the Islamic religion affects the interaction of Muslims with the environment at all levels. This is achieved by putting together the legal, religious, and ethical aspects of environmental protection to form the Islamic Environmental Action Model (IEAM); which is presented in Chapter 2. In Chapter 3, a brief overview of the geographical, political, economic, and environmental issues of the surveyed countries is presented. Chapter 4 explains the methods used to collect and analyze information about environmental affairs in Islamic countries. Chapter 5, devoted to the discussion of the trends in policy development, the scope of environmental regulations, and the environmental decision making process in the surveyed countries. Chapter 6 includes the findings (an overview of the Islamic aspects of the current environmental policies and regulations of the surveyed countries), a discussion (the global environmental crisis), proposed future research, and the conclusion of the dissertation.

Chapter 2

**The Islamic Legal and Ethical
Basis for Environmental Protection**

BASICS OF ISLAM

Islam was revealed by Allah (God) to the prophet Muhammad, peace be upon him (PBUH) who taught it to his followers. The objective of Islam is to complete God's message to mankind which was revealed to numerous prophets including Moses, Jesus and Muhammad; peace be upon them. Islam is "the natural religion of man, the religion which is not associated with any person, people, period, or place" (Mawdudi 1986, 15). Islam in Arabic "has a dual meaning of submission and peace" (Nasif 1987, 47). A similar explanation of the word Islam was suggested by Mawdudi who stated "since all created things obey the law of God, the entire universe, therefore literally follows the system of Islam . . . every thing in the universe is 'Muslim'; for they obey God Almighty by submitting to this His laws" (Mawdudi 1986, 2).

The five articles of faith which define a Muslim's outlook on life are the following: "(1) belief in one God who has absolutely no associate with Him in His divinity, (2) belief in God's angels, (3) belief in God's books, and in the Qur'an as His last book, (4) belief in God's Prophets, and in Muhammad as His final Messenger, and (5) belief in life after death" (Mawdudi 1986, 95); as well as the belief in fate, the good and the bad. These articles relate directly to the subject of environmental ethics and their significance will be further explained.

Attributes of God

According to Islam, the Creator is One and distinct from His creation. "Say: He is Allah, the One and Only; Allah, the Eternal, the Absolute; He begetteth not, Nor is He begotten; And there is none Like unto Him." (Qur'an 112:1-4). The explanation of these

verses by the translator Yusuf Ali provided an essential presentation of the nature of God.¹

Some of the attributes of Allah were summarized in this verse.

Allah is He, than Whom There is no other god - Who knows (all things)
Both secret and open; He, most Gracious, Most Merciful. Allah is He,
than Whom There is no other god - The Sovereign, the Holy One, The
Sources of Peace (and Perfection), The Guardian of Faith, The Preserver
of Safety, The Exalted in Might, The Irresistible, the Supreme: Glory to
Allah! (High is He) Above all partners They attribute to Him. He is
Allah, the Creator, The Evolver, The Bestower of Forms (Or Colours).
To Him belong The Most beautiful Names: Whatever in the Heavens and
on earth, Doth declare His Praises and Glory; And He is the Exalted In
Might, the Wise. (Qur'an 59:22-24).

¹The nature of Allah is here indicated to us in a few words, such as we can understand. The qualities of Allah are described in numerous places elsewhere . . . Here we are specially taught to avoid the pitfalls into which men and nations have fallen at various times in trying to understand Allah. The first thing we have to note is that His nature is so sublime, so far beyond our limited conceptions, that the best way in which we can realize Him is to feel that He is a Personality, 'He', and not a mere abstract conception philosophy. He is near us; He cares for us, we owe our existence to Him. Secondly He is the One and Only God, the only one to Whom worship is due; all other things or beings that we can think of are His creatures and in no way comparable to Him. Thirdly, He is Eternal, without beginning or end, Absolute, not limited by time or space or circumstance, the Reality before which all other things or places are mere shadows or reflection. Fourthly, we must not think of Him as having a son or a father, for that would be to import animal qualities into our conception of Him. Fifthly, He is not like and other person or thing that we know or can imagine: His qualities and nature are unique.

The phrase "One and Only": is used to negate the idea of Polytheism, a system in which people believe in gods many and lords many. Such a system is opposed to our truest and profoundest conception of life. For Unity in Design, Unity in the fundamental facts of existence, proclaim the Unity of the Maker.

Eternal and Absolute: The latter implies: (1) that absolute existence can only be predicted of Him; all other existence is temporal or conditional; (2) that He is dependent on no person or things, but all persons or things are dependent on Him, thus negating the idea of gods and goddesses who ate and drank, wrangled and plotted, dependent on the gifts of worshippers, etc.

He begetteth not, Nor is He begotten: This is to negative the Christian idea of the godhead, 'the Father', 'the only begotten son' etc.

And there is none Like Him: This sums up the whole argument and warns us especially against Anthropomorphism, the tendency to conceive of Allah after our pattern, an insidious tendency that creeps in at all times among all peoples.

THE ISLAMIC PERSPECTIVE OF PLANNING AND DEVELOPMENT

Islam provides guidelines for all the aspects relating to the establishment and maintenance of the Islamic state. These guidelines include, but are not limited to, the legal, economical, political, and social aspects of the state. The objective of the government is to establish a state which is based on the first Islamic state which was established by the Prophet (PBUH) in Madina. That state had the following characteristics:

- 1- That it was an institution established through a democratic process namely, the free will and accord of the people desiring to form the same and to accept the Prophet (PBUH) as the paramount authority.
- 2- That it was a constitutional organization set up under a written charter (Charter of Madina).
- 3- That it was a federal structure comprising two communities, the Muslims and the non-Muslims and not two territories.
- 4- That it was an ideological state based on the concepts and fundamental principles embodied in the Holy Qura'n" (Hussain 1987, 10-11).

That state also had the following power structure:

- 1- Next to Allah the sovereign power resides in the people.
- 2- All are equal before the law.
- 3- The exercise of power is a trust.
- 4- Power has to be exercised in accordance with the commandments of Allah and his name.
- 5- Everyone vested with power is accountable for his actions.
- 6- No one is above the law. No one, not even the 'khalifa' [leader] enjoys any immunity (Hussain 1987, 11).

The objectives of the state are to protect the religion, state of mind, lives, wealth, property of the people in the state as well as protecting the territory of the state. From a philosophical and religious points of view, the state has four foundations regarding the implementation of a planning and developmental policy. These foundations are:

- 1- Tawhid (God's unity and sovereignty). This lays the rules of God-man and man-man relationship.
- 2- Rububiyah (divine arrangements for nourishment, sustenance and directing things towards their perfection). This is the fundamental law of the universe which throws light on the divine model for the useful development of resources and their mutual support and sharing.
- 3- Khilafah (Man's role as God's vicegerent on earth). This defines man's status and role, specifying the responsibilities of man as such, of a Muslim, and of the Muslim Ummah [the universal Islamic state] as the repository of the Khalifah. From this follows the unique Islamic concept of man's trusteeship, moral, political and economic, and the principles of social organization.
- 4- Tazkiyah (Purification plus growth). The mission of all prophets of God was to perform the Tazkiyah of man in all his relationships -with God, with man, with the natural environment, and with society and the State (Hussain 1987, 46).

These objectives are used to translate the religious guidelines into applicable measures, and by establishing governmental institutions which are designed to reach these objectives. An example of such activity is the Pakistan manifesto* which outlined the objectives of the state. Saudi Arabia followed a similar path.

THE LEGAL ASPECTS OF ENVIRONMENTAL PROTECTION

The previously mentioned Islamic guidelines also addressed the issue of using and protecting natural resources. Hussain summarized the duties of the state in this regard.

They are:

- 1- To develop all resources of energy and wealth and to put them to optimum use, and to ensure that they are not hoarded, wasted or kept idle.

* A copy of this manifesto is provided in Appendix B.

- 2- As all the natural and energy resources belong originally to God and then to the society as trustee, while various enterprises and institutions are established through the public exchequer, it has to harness those resources for the welfare of the people.
- 3- Private ownership of wealth, if lawfully acquired, is to be protected and allowed to be retained and used for purposes allowed by the Sharia [Islamic Law].
- 4- No publicly owned property or interest will be liquidated except in cases of necessity to the interests of the society, and no privately owned property or interest will be expropriated by the state except in cases on necessity to the public interest and on prompt payment of fair and adequate compensation . . .
- 5- All wealth and property not owned by private individuals or organizations shall vest in the state (Hussain 1987, 17-18).

In addition to the above mentioned duties, detailed guidelines were also generated by Islamic scholars from the Qura'n, the teachings and actions of the Prophet (PBUH), and legal precedence established by other Islamic jurist and rulers. These guidelines were summarized in a basic paper on the Islamic principles for the conservation of the natural environment by Islamic scholars in Saudi Arabia. These guidelines were developed to meet "the urgent need, particularly in Islamic countries, to formulate a clear method and plan that would help all responsible authorities and individuals alike in these countries to define, determine and lay down the necessary procedures and measure for the conservation of and protection of the environment, as well as for putting these procedures into effect" (Bakader et al. 1989, 10). This study was undertaken in 1982 when the government sought to establish a governmental agency for environmental protection. The paper provided the agency with broad guidelines for establishing its authority and outlining its responsibilities.**

** A copy of this paper is provided in Appendix C.

These Islamic principles for environmental management were also derived from several 'articles' [religious maxims] which constituted the first modern legislated Islamic civil code. As Hussaini reported in his book, Islamic Environmental Systems Engineering, "the following principal legal maxims are selected from the [document](*Majallah*),*** Arts. 2-99, called its principles (*qawaid*). These or similar legal maxims would most likely be included in any sharia code for environmental engineering systems planning, if it were legislated by an ideologically motivated and competent Islamic legislative assembly. These maxims should be read in conjunction with the *sharia* principles of state and government" (Hussaini 1980, 76). These maxims included:

- 1- It is not permitted for lawyers to strive to arrive at the meaning of a point of law or religion, where there is a decisive text (Art. 14).
- 2- Damage does not become of time immemorial (Art. 7)
- 3- Latitude should be afforded in the case of difficulty. That is to say, upon the appearance of hardship on any particular matter, latitude and indulgence must be shown (Art. 18).
- 4- Injury is to be repaired (Art. 20).
- 5- What ever is permissible owing to some excuse ceases to be permissible with the disappearance of the excuse (Art. 23).
- 6- An injury (harm or damage) cannot be removed by the commission of a similar injury (Art. 25).
- 7- A private injury (harm or damage) is tolerated in order to ward off a public injury (Art. 26).
- 8- In the presence of two wrongful acts . . . , the one whose injury is greater is avoided by the commission of the lesser (Art. 28).
- 9- The repelling of mischief is preferred to the acquisition of benefits (Art. 30).
- 10- Management of citizen's affairs is dependent upon public welfare (Art. 58).
- 11- Without legal cause it is not allowed for anyone to take the property of another (Art. 97) (Hussaini 1980, 76-79).

*** A Complete listing of these principles is provided in Appendix D.

In addition to these maxims, the basic paper presented a comprehensive outline of the duties and responsibilities of the state as well as the individuals in managing and protecting the environment. The various aspects of environmental management which are discussed in this paper included the following: (1) ownership of natural resources, (2) duties of the state, (3) collective and individual rights, (4) setting priorities for action, (5) setting guidelines for eliminating environmental damage, (6) rights of the state to avoid environmental damage, (7) individual rights, and (8) ruling for need action.

(1) Ownership of Natural Resources

In relation to the ownership of natural resources, the authors stressed that "ownership of all environmental elements is a common and shared right of all members of the Islamic community" (Bakader et al. 1989, 22). This implies that all people in the state are entitled to receive benefits which are derived from using these resources. This view was also extended to the ownership of private property where Hussain indicated that:

"Islam regards the owner of property as a trustee who holds the property on behalf of the community in the capacity of a trustee. His possession over the property is more of a responsibility than ownership. In general, all wealth and property belongs to God and the community is holding it as a trust from God. Within the above conceptual framework, Islam recognizes an individual's right to property by lawful means but subjects it to such limitations as to render it absolutely harmless to the greater good of the society" (Hussain 1987, 35).

(2) Duties of the State

The authors affirmed that the primary objective of the Islamic state is to promote and protect the welfare of the community. "Islamic law stipulates the interference of the ruling authorities for the good and interest of all people and to eliminate common mischief and corruption. This is their original and primary duty . . . The Jurassic rule in this connection

is: *the leader's actions are determined and dictated by the common good*" (Bakader et al. 1989, 22).

This primary duty is derived from following the ruling of the people in charge if they follow the guidelines in the Qura'n: " O ye who believe! Obey Allah and obey the Messenger, And those charged With authority among you. If ye differ in anything among yourselves, refer it to Allah and His Messenger, if ye believe in Allah and the Last Day: That is best, the most suitable For final determination" (Qura'n, 4: 59). The explanation by Abdullah Yusuf Ali is quite relevant in this matter where he notes that "all ultimate authority rests in Allah. Prophets of Allah derive their authority from Him. As Islam makes no sharp division between sacred and secular affairs, it expects governments to be imbued with righteousness. Likewise, Islam expects Muslims to respect the authority of such government for otherwise there can be no order or discipline" (Yusuf Ali 1989, 203).

According to the Qura'n, the objective of the entire Muslim nation is to promote and spread what is good and stop and eliminate what is evil to the community. The Qur'an states " Ye are the best Of People, evolved For Mankind, enjoining what is right, Forbidding what is wrong, And believing in Allah . . . " (Qura'n, 3:110). From this and other verses and laws, there can be no mistake in defining the objectives of the Islamic state or its citizens. "The primary duty of the ruler and his assistants, whether they are administrative, municipal or judicial authorities, is to do their best to realize the interests of individuals for the betterment of life and society as a whole . . . The process covers two major phases: (1) prevention of damage, and (2) remedy of damage" (Bakader et al. 1989, 23).

(3) Collective and Individual Rights

As the authors maintained in the matters where the community is negatively impacted by the actions of a single or a group of individuals, the law provides the state with the right to intervene to stop that action. "The interests of the nation and the community should be preferred to the interests of individuals in the case of conflict. Any limited harm or damage to a particular individual could be accepted if it leads to a general avoidance and control of general damage to society and the environment at large. . . . Overlooking, or even neglecting, private interest for the purpose of achieving and protecting the common interest of the public is the same as opting for lesser evil and avoiding the greater damage by accepting the lesser. The juristic rule in this respect is: *if two evils or mischief conflict, the lesser could be accepted to avoid and prevent the greater*" (Bakader et al. 1989, 21). This does not mean that individuals are not allowed to carryout their activities which are permissible by law; but it means that these individuals should abide by the rules and regulations set by the state to maintain the welfare of the entire community. More information about the rights of individuals will be presented in this section.

(4) Setting Priorities for Action

After defining the objectives and duties of the state, the authors provided an explanation on how priorities for action in the environmental arena should be set. The most important issue was that cases are evaluated on their own merit and according to the existing conditions of the society and according to its needs. Based on these principles, preferences were given to (1) fundamental interests over needed or luxury interests, (2) preference was also given to needed interests over luxury interests, and (3) actual or urgent needs were preferred to projected or probable needs. This summary is shown in Table 1 on the next page.

Table 1 -- Preferences for Conflicting Choices

Conflicting Interests	Preference
1) Fundamental vs. Needed or Luxury	Fundamental
2) Needed vs. Luxury	Needed
3) Actual or Urgent vs. Projected or Probable	Actual or Urgent

Source: Generated according to the text in Bakader et al. 1989 pages 22 and 23.

Other preferences relate to impact of the action on the community and the environment regardless of its place in time. In cases where the negative impacts of the action outweigh the positive, the action should not be undertaken. The juristic or doctrinal rule in this connection is: *avoidance of mischief should be given preference and should come before the achievement of interests*" (Bakader et al. 1989, 23).

(5) Guidelines for Eliminating Environmental Damage

The primary duties of the ruler is to prevent damage from occurring and to remedy the damage if the first option is not possible. This section explains in some detail the rights of the state, according to the Islamic law, and the actions which the state can undertake to achieve these two objectives. The two juristic rules in this regard are: "(1) no damage or retaliation for such damage is allowed, and (2) annihilating all pretexts leading to mischief" (Bakader et al. 1989, 23). The options which the state can implement in order to prevent damage from occurring in the community are: (1) forbidding the action (be it temporary or permanent), (2) limiting the scope of the action, in place, time, kind and quality in order to avoid or minimize damage, and (3) imposing measures or technical standards to prevent or minimize damage.

(6) Rights of the State to Avoid Environmental Damage

In addition to the rights of the state to eliminate and prevent damage, the state has the right to take action to remedy and repair such damage if it occurs. The juristic rules which apply in this case are:

- (a) Damage or mischief should be eliminated and removed.
- (b) Damage and mischief should not be removed through similar damage or mischief.
- (c) Look for and resort to alternatives in case the original becomes impossible.
- (d) Obligation and necessity does not annihilate or delay the rights of others (Bakader et al. 1989, 23-24).

According to these rules, the state has the right to: (1) hold individuals accountable for the elimination and removal of damage resulting from their activity, (2) impose moratoria on certain projects if such projects will cause damage in excess of the expected limit, (3) hold individuals accountable for the cost of eliminating the damage resulting from unlawful activities, (4) claim damages for indemnity from individuals for avoidable damage to the environment resulting from unlawful activities, and (5) blame individuals for intentionally violating the terms of licenses, charters permits or contracts or through evident negligence or violations of the general policies.***

(7) Individual Rights

Individuals and organizations are allowed to peruse their activities and interests as long as they abide by the rules, and standards of operation provided by the law. These standards apply to pollution limits which are set at acceptable rates for various industrial activity. The rule in this case is the following:

****The exact wording of these rights are provided in the Bakader et al. "Islamic Principles for the Conservation of the Natural Environment". International Union for Conservation of Nature and Natural Resources. Gland, Switzerland. 1983, page 24 .

Individuals, organizations, establishments and companies should not be held responsible for any damage or mischief that may result from exercising their lawful and legitimate or licensed rights, within the usual and legitimate limits and in accordance with common practices. ***For legal permission annihilates indemnity and guarantee: according to the juristic rule*** (Bakader et al. 1989, 24).

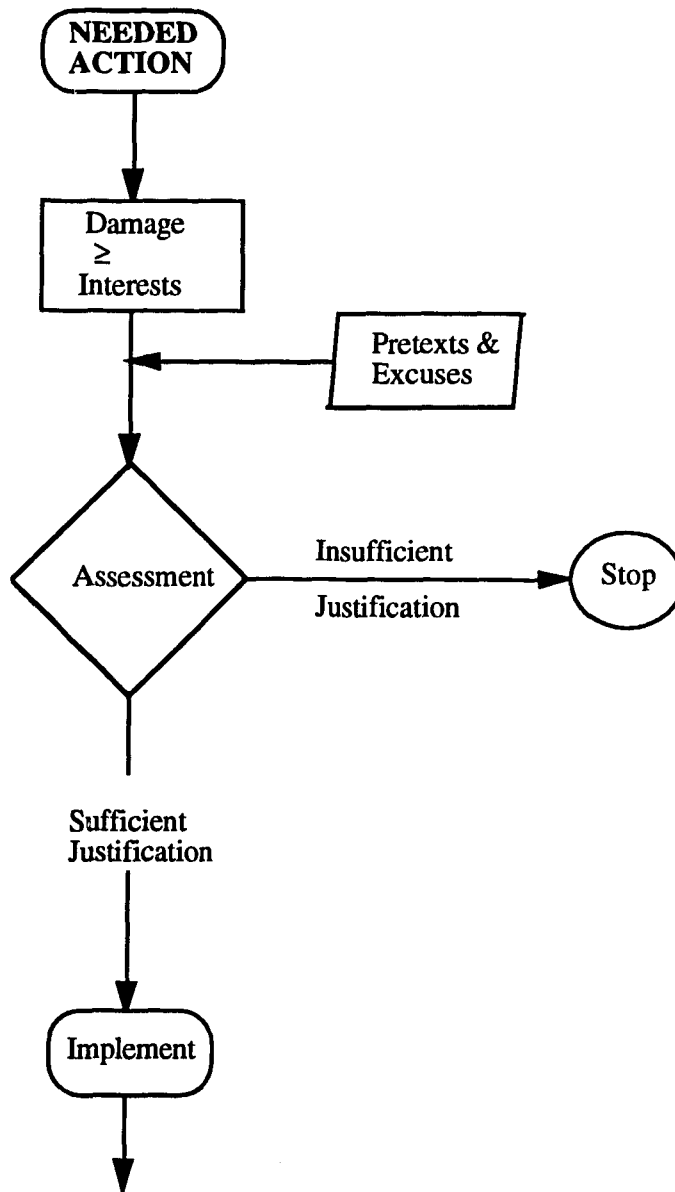
The emerging perspective on actions and their impact on the environment is that activity should be undertaken when (1) the interests of the community are served, (2) the benefits outweighs the costs, and (3) a need for the proposed activity can be demonstrated. It should be mentioned here that a saying of the Prophet (PBUH) applies in this case "there should be neither harming nor reciprocating harm" (Ibrahim et al. 1976, 106). The significance of this principle relates to the importance of knowing the impacts of an action before it is undertaken. It also adds another level of responsibility. "It is not enough to know that an action is right or wrong before it is undertaken. If an action is morally right but can cause harm to others it should not be undertaken" (Koseiby, 1992).

(8) Ruling for Need Action

In a separate section the authors explained in detail the procedure an Islamic government should follow in allowing the implementation of needed action. An action in which the damage outweighs the benefits. This section is as follows:

If, however, the community is in urgent need of some action that may result in certain damage, the need in this case should be considered a necessity in so far as it permits the forbidden. Excuses and pretexts for such actions should, in this case, be carefully and precisely assessed each time, according to its own circumstances and situation. If, however, the need for such harmful actions vanishes, the authority should stop these actions or impose moratoria on them for: Whatever is permissible for a certain reason or pretext becomes null and void when the reason or a pretext vanishes or become irrelevant (Bakader et al. 1989, 24).

This process applies to activity where the proposed action is needed to protect the religion, state of mind, lives, wealth, property of the people in the state as well as protecting the territory of the state. If such action in the environmental field relates to the above mentioned objectives, then this decision making process applies to the proposed action. Another important aspect of this process is that it leaves room for the termination of a program or action if it is decided that the community is no longer in need for its benefits; and if these benefits are exceeded by the resulting damage. This decision making process is demonstrated in Figure 1 on the next two pages.



See Next Figure

Figure 1: Options for Needed Action.

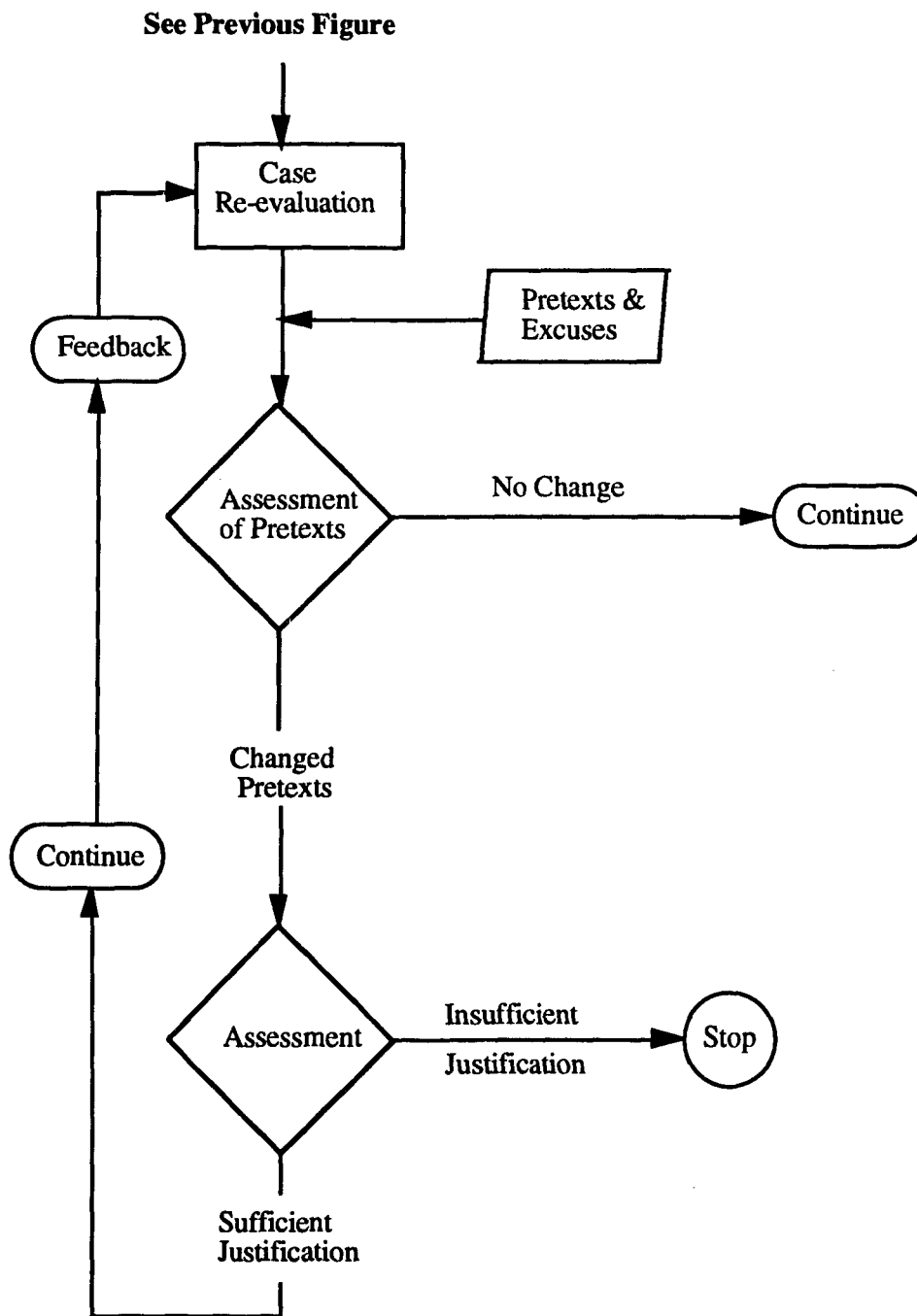


Figure 1 (Cont.) : Options for Needed Action.

THE LEGAL DECISION MAKING PROCESS AT THE STATE LEVEL

The Islamic guidelines also provided legal basis which religiously based guidelines for the derivation of laws to use and conserve the environment. These guidelines were derived according to the process summarized by Hussain (1980):

The history of classical Islamic jurisprudence shows how early Muslim jurists worked to meet the changing needs in each generation, polity, and geographical area through fresh ijtiḥad, within the constraints of shari'a. They accepted as legitimate variations in legal decisions based on sociological factors, while reconciling their ideological diverging views within the purview of the norms and values of the shari'a. They employed deductive as well as inductive methods in legal interpretation and decisions, thus ensuring that the emerging culture was ideologically Islamic, rational, idealistic, and progressive (Hussaini 1980, 18).

Because of my limited knowledge of this subject I will limit the discussion to the presentation of the main techniques of deriving these guidelines. These guidelines are derived from the Sharia or Islamic law. Islamic law is derived from two primary sources:

The Qur'an and The Sunnah and Hadith (Traditions or Sayings and actions of the Prophet Muhammad). The Qur'an is the primary source of Islamic law. This is the scriptural revelation of the will or laws of God and primary source of Islamic jurisprudence. The Sunnah and Hadith (Traditions or Sayings of the Prophet Muhammad). . . Most of all this is the "model pattern of behavior". It demonstrated how the Prophet's thoughts and deeds were grounded in the eternal verities of the Qur'an as well as the realities of the social and natural environments in which he lived (Hussaini 1980, 24).

The Qur'an and the Sunnah have specific reference to actions which are permitted and others which are prohibited according to Islam. Regarding these two categories of actions there is no room for discussion in the validity of the permitted or prohibited action. These matters also fall under the jurisdiction of the first maxim which stated that: It is not permitted for lawyers to strive to arrive at the meaning of a point of law or religion, where there is a decisive text. Thus the other means of arriving at a legal determination refers to matters which do not fall under the above mentioned category. I will mention several methods of reaching such decision. These methods are:

(1) Ijtihad [Interpretation]

Ijtihad is "the most basic method of understanding the sharia . . . in a technical sense *ijtihad* means 'to exert with a view to form an independent judgment on legal question. It has been described variously as 'systematic original thinking', 'individual reasoning', 'private expert opinion', 'independent reasoning', 'interpretation', and 'disciplined striving' (to understand the meaning of the Qur'an and Sunnah for a given situation)', and more forcefully as 'the principle of movement in the structure of Islam'" (Hussaini 1980, 25-26).

(2) Ijma' [General Consent]

"*Ijma'* is collective, organized *qiyas* [analogy] or *ijtihad*. Resource to *ijma'* is based on the authority of shari'a ordinances. However, the *sharia* does not provide an unequivocal rule on whether *ijma'* refers to the decision of the competent or of the community at large; the relation between the two; and whether it has to be a unanimous decision, the decision of a simple plurality or of a preponderant majority. These questions must be decided by *ijtihad* and *ijma'* . . . In our times, *ijma'* must take the form of decision-making through advice and consent (Shura) at all levels of government activity. Continuous, temporal legislative and political decisions must be made by *ijma'* in *majlis al-*

shura [a council] in accordance with a sharia constitution and shari'a legal codes of its own making. People capable of exercising *ijtihad* must be elected through popular consent" (Hussaini 1980, 27).

(3) Qiyas [Analogical Reasoning]

Literally qiyas means measuring or comparing. "According to the qiyas method, the cause, motive, for the rules or legal maxims derived from the sharia sources is ascertained; and the same rule is applied to new problems on the basis of similarity of the cause of the original and the new problem" (Hussaini 1980, 26).

(4) Istihsan [Preference for the better]

Istihsan, means 'regarding as better', 'to prefer, or to consider a thing commendable' . . . *Istihsan* as foundational legal concept owes its origin to explicit Qura'nic texts. "Give good tidings to My bondsmen who hear advice and follow the best (*ahsan*) thereof (Qur'an3:17-18) . . . And follow the best (*ahsan*) of what has been revealed to you from your Lord" (Qur'an39:55). Applications of Istihsan include giving juristic preference to the stronger bases of law over the weaker.

Hussaini provided an excellent summary for the usefulness of the Islamic law. He stated:

A basic message of the Qur'an and the Mission of the Prophet Muhammad (PBUH), systematized as the principles of *shari'a*; is to guide Muslims in carrying on a triadic mission of development of civilization, subject to conforming with the letter and spirit of shari'a: (1) to invent and innovate, making new departures on the basis of what had been revealed in the Qura'n, nature, and history, (2) to reform, improve and adapt; to synthesize and eclecticise; and assimilate into Islamic civilization what is found into the accumulating heritage of mankind (Muslims and non-

Muslims), (3) to assimilate through enlightened imitation (*taqlid*), with little or no change, whatever of value is found in the accumulating heritage of mankind [Muslims and non-Muslims] (Hussaini 1980, 33).

Remark

It is important to mention that above mentioned methods were used to derive the guidelines for the environmental protection and management by Bakar et al (1983). This derivation means that Islam provides a direct method of deriving and interpreting laws from the Qur'an and the Sunnah. These derived laws and guidelines could be used as the basis for the generation of detailed environmental policies and regulation. Based on this fact, Muslims have the capability of incorporating their religious derived values into the decision making process as well as the policies and regulations to protect and manage the environment. Thus, the task for Muslims at this point is to apply the guidelines which were provided by Bakader et al. and provide alternative environmental policies and decision making processes. A second benefit of using these methods is the application of Islamic values after the scientific method have been applied to study the benefits and costs of proposed action. This mean that the ethical determination which is needed to approve the proposed action has its basis in the religious teachings and guidelines. Third, all individuals are bound by the religious teachings which instruct that they will be accountable for their actions. Although the individuals in charge may ignore this concept or may not have the best interest of the people in mind, the fact that this belief exist means that it provides the proper basis for the incorporation of values in the decision making process in the future; which in contrast to other systems appear to ignore this belief.

THE ISLAMIC COSMOLOGY

Introduction

The other source of the religiously based ethic regarding environmental protection and management is the Islamic cosmology which defined the world view and purpose in life to every Muslim. In this section I will limit the discussion to the parts which are related to the subject of this dissertation. I will also present some narrations from the Prophet (PBUH) which mentioned the rewards and punishment associated with good and bad actions respectively.

(1) Allah

Islam teaches that the universe was created by God and that He alone has dominion over it. Islam makes it clear that all the functions of nature are controlled by God; “Allah makes the water flows upon the earth, upholds the heavens, makes the rainfall and keeps the boundaries between day and night. The whole of the rich and wonderful universe belongs to God” (Nasif 1987, 47). This control over nature is characterized by supreme balance between all creations. The Qur'an makes it clear that “Verily, all things Have We created In proportion and measure” (Qur'an 54:49). For this reason, God ordered humans to maintain the earth and not to destroy it; “Do not mischief on the earth After it has been Set in order, but call On Him with fear And longing (in your hearts): For the Mercy of Allah Is (always) near To those who do good” (Qur'an, 7:56).

(2) Metaphysical Aspects

In addition to the physical aspects of nature, Muslims believe in supernatural beings whose activities affect human life. “For the Muslim, . . . the world is composed of natural elements which obey certain laws, as well of supernatural dependencies which often strike

into the world of nature and bring about changes designed to satisfy unknown ends. Besides God, at whose command everything in nature moves, there are angels and jinn [invisible creatures of fire] who can act efficiently in nature whether for a good or a bad cause” (Al-Faruqi 1967, 234). This belief adds another dimension to nature, a metaphysical one. Thus, nature is a composition of inspirited living entities which are controlled by God who exercises his wishes through angles and other spiritual intermediaries.

(3) Functions of the Universe

Muslims believe that the universe has social and religious functions. The social function is to be in the service of mankind and the religious function is to be the evidence of “the Maker’s omnipresence, wisdom, omniscience and omnipotence” (Bakader et al. 1983, 15). Islam also holds that, nature as well as many of the people praise God: “Seest thou not that to Allah bow down in worship all things that are In the heavens and on the earth - the sun, the moon, the stars; The hills, the trees, the animals . . .” (Qur'an 22:18).

A third function of nature is to be God’s tool of reward and punishment. The Qur’an described many instances where natural elements were used by God to reward and punish people. Some of the elements of reward included wind and rain. The wind and the rain can also be used as tools of punishment. The Qur’an cites instances where the wind was used by God to destroy earlier civilizations. The example of the Prophet Noah illustrated how the rain and other sources of water were used by God to drown the people who did not believe in Noah’s message. Current examples of such occurrences include hurricanes, floods and earthquakes.

Another function of the universe is to provide mankind and Muslims in this case, with the "natural time" for performing their religious duties and obligations. An example of such activity is the definition and prohibition of the times for prayer by specific time periods during the day. Another example of such activity is the utilization of the lunar calendar to determine the proper time for fasting and performing the pilgrimage to the Holy city of Makkah. The Qur'an affirmed this fact: "They ask thee Concerning the New Moons. Say: 'they are but signs To mark fixed periods In time (in the affairs of) men, And for Pilgrimage . . ." (Qur'an, 2:189).

The significance of using the lunar calendar can be explained as follows:

Since the Muslim calendar contains only 354 or 355 days, the months have no regular relation to the seasons. Ramadan, the ninth month - the month of fasting . . . and Dhu'l-Hijja, the twelfth month, during the first two weeks of which the faithful are to make pilgrimage to Mecca, may occur in summer or winter. In each year the festival of Ramadan and the pilgrimage occur ten or eleven days earlier than the previous year. The every day inconveniences of this kind of calendar are simply another reminder of the good Muslim's surrender to the will of Allah. The calendar itself, for others a mere schedule of worldly affairs, the Muslim makes an affirmation of faith (Boorstin 1983, 11).

Thus, Muslims are required to maintain their contact with nature in order to conduct their religious activities. That is also why before fasting begins each year Muslims are required to visually sight the crescent of the new moon which signifies that the new lunar month has begun. In addition to defining when the month of Ramadan begins, a clear definition was made for the time to start and break the fast each day. These times were clearly defined in the Qur'an by sunrise and sunset respectively. ". . . And eat and drink, Until the white thread Of dawn appears to you Distinct from its black thread; then complete your fast till the night appears; . . ." (Qur'an, 2:187).

(4) Role of Mankind

The role of man in the Islamic tradition relates directly to the belief in the purpose of life itself. The purpose of creating man is to praise God, and the purpose of creating the entire universe is to point man towards God so that man can believe in one God and praise Him. "I Have only created Jinns and men, that They may serve Me" (Qur'an 51:56).

To achieve this objective mankind was commanded by God to use his mental abilities to reflect on the creation of the universe to reach Him. "Say: 'travel through the earth And see how Allah did Originate Creation: so will Allah produce a later creation: for Allah has power over all things" (Qur'an, 29: 20). Another verse of the Qur'an asks man to investigate the "signs" which are present in nature and which God alone could have created and controlled. "On the earth Are signs for those Of assured Faith, As also in your own Selves: will yes not then see?" (Qur'an, 51: 20-21). In another instant the Qur'an also directs man to ponder the sign which is demonstrated by the creation of the stars and their benefit to mankind. "It is He Who maketh The stars (as beacons) for you, That ye may guide yourselves, With their help through the dark spaces Of land and sea: We detail Our Signs For people who know" (Qur'an, 6:97).

From these signs God expects that, through logical reasoning, man would come to the conclusion that there could be only one God who could have created the universe. A God who, alone, is worthy of worship and obedience.

Or, who has created The heavens and the earth, And who sends you down Rain from the sky? Yea, with it we cause To grow well-planted orchards Full of beauty and delight: It is not in your power to cause the growth of the trees in them. (Can there be Another) god besides Allah? Nay, they are a people who swerve from justice (Qur'an, 27: 60) Or, who guides you through the depth of darkness On land and sea, and who

Sends the winds as heralds Of glad tidings, going before His mercy? (Can there be Another) god besides Allah? High is Allah above what they associate with Him! (Qur'an, 27: 63).

Man As A Servant of Allah

A central belief in Islam is that mankind was created to serve Allah. In the Qur'an mankind is referred to, in the Arabic language, as "Abd". The literal sense of the word means a slave; "but in its typical meaning is 'servant-worshiper' . . . in this it is essentially a statement of man's role- man ought to serve and worship God" (Mir 1987, 3). This belief eliminates the roots of the dominion debate from the Islamic point of view. All creations made by Allah to be used for the benefit of mankind, in turn mankind was created by Allah to serve and worship Him. This belief puts mankind under the power, rule and the laws of Allah which defines the ways Muslims live their lives and interact with the universe.

(5) Other Creatures

In addition to their functions of praising God and serving man, these creatures are looked upon as being part of a larger community. For that reason, Islam gives great significance and respect to all creatures. All creatures are considered distinct beings who live in families and communities the same as human beings. "There is not an animal (that lives) in the earth Nor a being that flies On its wings, but forms part of communities like you. Nothing have We omitted from the Book, and they (all) Shall gather to their Lord In the end" (Qur'an 6:38).

The respect for the rights of animals to live and grow independent of man is manifested in the laws which prohibit the killing of animals for pleasure and restricting their freedom. Islam allows people to hunt animals to meet his needs for food and shelter.

However, Muslims are prohibited from hunting animals for pleasure and keeping all or parts of their bodies as trophies. The law which guards the freedom of all animals, prohibits Muslims from using cages, or other restricting means, in order to have them as pets. "To catch birds and imprison them without a special purpose is considered abominable" (Mawdudi 1986, 128). People are allowed to domesticate animals which help man survive by providing food and transportation. Even in these cases, people are ordered to be kind to the animals by providing adequate food and shelter as well as avoiding overburdening them with work. In general, Islam advises people "to treat their animals, and particularly their mounts, well, for they will have to give account in the next world of any cruelty which they have inflicted on them" (Lewis, B. et al. 1971, 308).

(6) Time

Another aspect of the Islamic religion which defines man's role in relation to God, other humans and nature, is the belief in the linearity of time. Life is looked upon as an arena where man is constantly tested by blessings as well as hardships. "He Who created Death And Life, that He May try which of you Is best in deed; And He is Exalted In Might, Oft- Forgiving" (Qur'an, 67:2); and in another verse: "Then We made you heirs In the land after them, to see how ye would behave!" (Qur'an, 10:14). After this period of testing, which may be ended any time by death, all creatures will be resurrected by God for judgment. "On that Day will men Proceed in companies sorted out, To be shown the deeds That they (had done). Then shall any one who Has done an atom's weight Of good, see it!, and any one who Has done an atom's weight of evil, shall see it" (Qur'an, 99: 6-8). This belief in the linearity of time and in life after death put the life of a Muslim on earth in proper perspective. This perspective encourages them to act according to the Islamic teachings in order get the benefits in the after life.

Stages of Time

Muslims believe in the following stages of human life: it begins with conception, childhood, youth, middle age, old age and then ends with death. Death is regarded as a door which all humans will have to pass through in order to get to the next life. Although the physical body ends at the time of death, the spirit continues into a *Brazag* (a death zone) where all human souls will await judgment. These stages are illustrated in Figure 2 below. The next stage is end of time when Allah ends life on earth. The next stage is resurrection in which all souls will face Allah and account for their actions in their life on earth. After judgment each soul either has eternal life in heaven or hell.

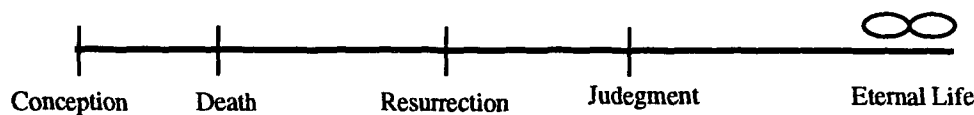


Figure 2: Stages of Life.

Thus, the Muslim should use his time in this life, wsince no one know when it is going to end, to seek actions which would benefit him in the hereafter. Such actions cover all aspects of his life. The impact of this belief on the life of a Muslim was summarized by Alkhuli (1981). He stated:

Believing in life after death is significant in several ways:

- 1- In Islam, death is not the end of life. Death is just a transition to the second life.
- 2- In Islam, human life does not end. It has two phases: a life before death and a life after death.
- 3- Believing in life after death makes a person more responsible for his deeds in the first life, because a person will be rewarded for his good deeds and punished for his bad deeds in the other life.
- 4- Life after death makes the whole thing look fair and just. Your honesty in this life may entail your poverty. Another person's

dishonesty may entail his richness. If things end up this way, life looks so unreasonable and good behavior pays little. Fortunately, according to Islam, there is life after death, where each person is rewarded or punished for his deeds in the first life.

- 5- Life after death makes a person's life well-balanced. In Islam a person must work for this life as if he lives forever and must work for the other life as if he dies tomorrow . . . Thus life is made to have an aim, i.e., obeying Allah and satisfying Him. (Alkhuli 1981, 38-39).

(7) Individual Freedom and Knowledge

In many instances Allah mentioned in the Qur'an that He has given mankind preference over other creatures. These preferences include the intellectual ability which should be used in making choices in this life. This leads to personal freedom and knowledge. With the increase in knowledge, a Muslim would gain deeper understanding of the complexity of creation. This realization leads the Muslim to become more humble to Allah by realizing the truth in His attributes, which include the Creator, the Knowledgeable, the Powerful and others which tell us about His dominion over the universe.

Another point which should be mentioned in this regard is that when knowledge is acquired it is then used in a manner which would benefit mankind while keeping in mind that individuals are accountable for their actions. Nasr (1968), Abdalati (1985), and Mawdudui (1986) supported this view. Nasr stated that "freedom in the Islamic context should be viewed from the perspective that man was given the right to dominate over nature by virtue of his theomorphic make-up, not as a rebel against heaven" (Nasr 1968, 96). While Abdalati mentioned that:

The Islamic concept of freedom is an article of faith, a solemn command from the Supreme Creator. It is built on the following fundamental

principles. First, man's conscience is subject to God only, to Whom every man is directly responsible. Secondly, every human being is responsible for his deeds and he alone is entitled to reap the fruits of his work. Thirdly, God has delegated to man the responsibility to decide for himself. Fourthly, man is sufficiently provided with spiritual guidance and endowed with rational qualities that enable him to make responsible, sound choices. Such is the foundation of the Islamic concept of freedom and such is the value of freedom in Islam. It is a natural right of man, a spiritual privilege, a moral prerogative, and above all, a religious duty (Abdalati 1985, 34).

Finally, Mawdudi summarized the impact of having more knowledge on the psyche of the Muslim. Figure 3 illustrates this effect. Thus the “cycle” which would result from this scientific investigation is the following:

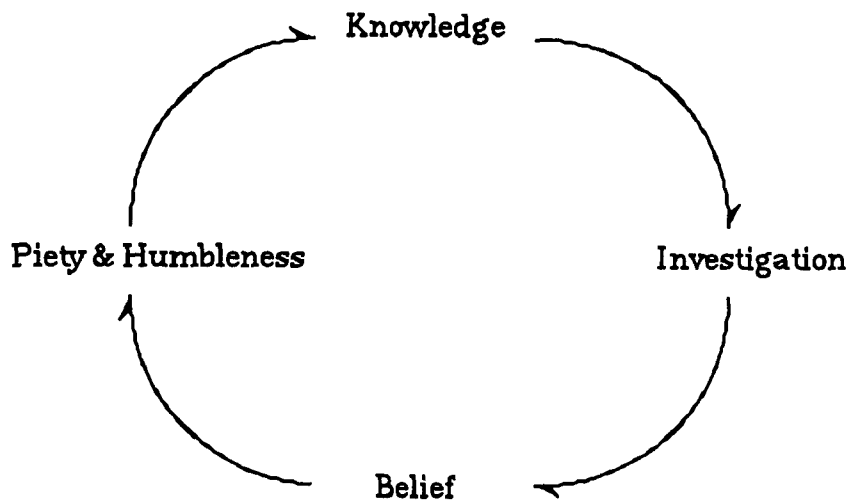


Figure 3: Theoretical Impact of Science on the Human Intellect

The statement mentioned by Mawdudi summarizes this point. In referring to the impact of increased knowledge by a scientist he said: “the deeper his insight into science, the stronger will be his faith in God. His head will bow down before Him in gratitude. He

will feel that since his Master has blessed him with greater power and knowledge, he must work hard for his own good as well as the good of humanity. His freedom will not be used to promote violence and destruction” (Mawdudi 1986, 12). This concept applies to all human beings and not just to Muslims who believe in the Islamic teachings. This can be illustrated by the comments made by Issac Newton in the early 1700s.

Newton's 'mathematical way' was a way of discovery. But it was also a way of humility, for the mathematician was a method of self-discipline as well as an instrument for exploring. The title of Newton's great work, *Mathematical Principles of Natural Philosophy*, 1729 made as plain as he could that he was displacing all the widespread pretensions to reveal the mechanics of nature. Continental reviewers again objected to the narrowness of Newton's stated purpose. He had not explained why the physical world behaved as it did but had only provided mathematical formulae . . . at the very end of the *Principia*, Book III, 'The System of the World', Newton took pains to define the limits of his method and of his achievement. "After concluding paeon to the God who exists always and everywhere . . . we have ideas of his attributes, but what the real substance of anything is we know not", and hence God could be know only "from the appearances of things" (Boorstin 1983, 406-407).

Remark

In conclusion, human intellect should be used in a manner which benefits mankind keeping in mind the limited scope of knowledge mankind has as well as accounting for the impact of proposed action to the best of his ability. From this discussion, I proceed to the ethical aspects of environmental protection.

THE ETHICAL ASPECTS OF ENVIRONMENTAL PROTECTION

Introduction

The ethical aspects of environmental protection include religiously based rules and guidelines which encourage Muslims to act in a certain manner and discourage them from doing other actions. These rules also include God's commands for interacting with nature. I will begin this section with the presentation of these commands and then proceed to present the other guidelines relating to good and bad action. Although these rules and guidelines apply to all Muslims some of them address Muslims who are in charge of public affairs because of the magnitude of their actions on the Islamic community.

The general commands are the following: (1) not to destroy the earth after it has been set in order, (2) Muslims should manifest their faith by acting according to its teachings by doing good deeds, and (3) these good deeds will help Muslims in earning paradise.

(1) Protecting the Earth

This command refers to the protection of the earth and the prevention of actions which might cause damage to the natural systems of the earth and the creatures which share the earth with mankind. The Qura'nic text in this regard is the following: "Do not mischief on the earth After it hath been set in order, but call On Him with fear and longing (in your hearts); For the Mercy of Allah Is (always) near to those who do good" (Qur'an, 7:56). From an environmental standpoint, this command might be interpreted as an order to prevent and control pollution. As Bakader et al. mentioned: "avoidance of mischief should be given preference and should come before the achievement of interests" (Bakader et al. 1989, 23). The relevance of this command to the control of environmental pollution can be further solidified if the definition of pollution is examined. Pollution can be defined as "the

presence of matter or energy whose nature, location, or quantity produces undesirable environmental effects. The contamination or alteration of the quality of some portion or aspect of the environment and its living organisms by the addition of harmful impurities" (Henning & Mangun 1989, 348).

(2) Doing Righteous Deeds

In numerous instances in the Qur'an when God addressed the people who believe He followed those words with the ones who do good deeds. This signifies that the two go together and that good deeds are the manifestation of faith. The Prophet (PBUH) also said what means : "faith is what settles in the heart and what is attested to or manifested by the actions". These groups of people are given the benefit of their actions in the afterlife as God mentioned in the Qura'n:

"But give glad tidings To those who believe And work righteousness, that their portion is Gardens, Beneath which rivers flow . . ." (Qura'n, 2: 25).

(3) Reward for the Good Deeds

Good actions will not fail to be rewarded from God. In fact they will be rewarded manifold, as opposed to evil actions, which will receive only proportionate punishment. Also, good actions wipe off bad actions. One of the verses in Qur'an relating to this fact is: "But verily the reward Of the hereafter Is the best, for those Who believe, and are constant In righteousness" (Qura'n, 12: 57).

(4) The Commands in the Qur'an& Sunnah

The examples which are listed here illustrate the benefit and reward for Muslims who act according to the Islamic teachings* . The first example is a narration about the benefits of planting a tree. In this regard:

Narrated Anas bin Malik that Allah's Apostle (PBUH) said: there is none amongst Muslims who plants a tree or sows seed, and then a bird, or a person or an animal eats from it, but it is regarded as a charitable gift for him (Khan 1983, 295).

Similar narration focused on the impact of helping animals:

Narrated Abu Huraira: The Prophet (PBUH) said, "a man felt very thirsty while he was on his way, there he came across a well. He went down the well, and quenched his thirst and came out. Meanwhile he saw a dog panting and licking mud because of excessive thirst. He said to himself, 'this dog is suffering from the thirst I did'. So he went down the well and filled his shoe with water and watered it. Allah thanked for his deed and forgave him. The people said: ' O Allah's Apostle! is there reward for us in serving the animals?' He replied: ' Yes, there is reward for serving any animate (living being)" (Khan 1983, 386).

Also,

Abdul Rahman bin Abdullah bin Masud relate on the authority of his father that' "we were accompanying the Apostle of God on a journey . . . , we saw a small red bird . . . with two young ones. We caught the chicks, and the bird came and began to hover over our heads. Meanwhile the Prophet returned, and said: who has hurt the bird by catching its young ones? Give back the chicks to it. Then he saw an ant-hill we had set fire to, and inquired who had done that. 'O Apostle of God, we said, we have burnt it. He thereupon, observed: it befits no one save God, the

* These examples are direct translations form Arabic to English and may contain awkward English sentences.

Creator of fire, to inflict the punishment of fire on a living being" (Kidwai 1983, 12)

Finally,

Abu Harairah relates that the Prophet (PBUH) said: I saw a man going about in paradise because he had cut down a tree from the side of the road which occasioned and inconvenience to the Muslims (Khan 1975, 34).

(5) Consequences of Bad Action

The following example illustrates the punishment of mistreating animals.

It is related by Abdullah ibn Amir that the Apostle of God said: 'A cruel, hard-hearted woman was cast into hell simply because for her cruelty to a cat which she held in captivity until it died of starvation. She neither gave a morsel of food nor set it free so that it could eat the rodents of the earth (Kidwai 1983, 13).

(6) Knowledge, Intention, and Action

The main principle of Tawhid, believing in the Oneness and Uniqueness of God, also entails the focusing of human actions to seek the pleasure of the Creator by acting according to the Islamic teachings. Islamic scholars have suggested that good deeds are accepted when two conditions are met. These conditions are (1) intending to do the action to seek the pleasure of God, and (2) that the action is done according to the Islamic teachings (the Qur'an and Sunnah). These conditions provide the basis for accountability where Muslims are accountable for what they intended to do whether they undertake the action or not. In this regard the Prophet (PBUH) said:

The rewards of deed depends upon the intention and hoping to get rewards from Allah. And every person will have the reward according to what he has intended. And this includes faith, ablution, prayer, Zakah [charity], Hajj [pilgrimage of Mecca], and all Ahkam [orders] of Allah (Khan 1975, 46).

Thus the resulting decision making process in undertaking a specific action is outlined in Figure 4 below. A process which applies to aspects of life if the individual has the correct perceptive on life and is acting according to the Islamic teachings.

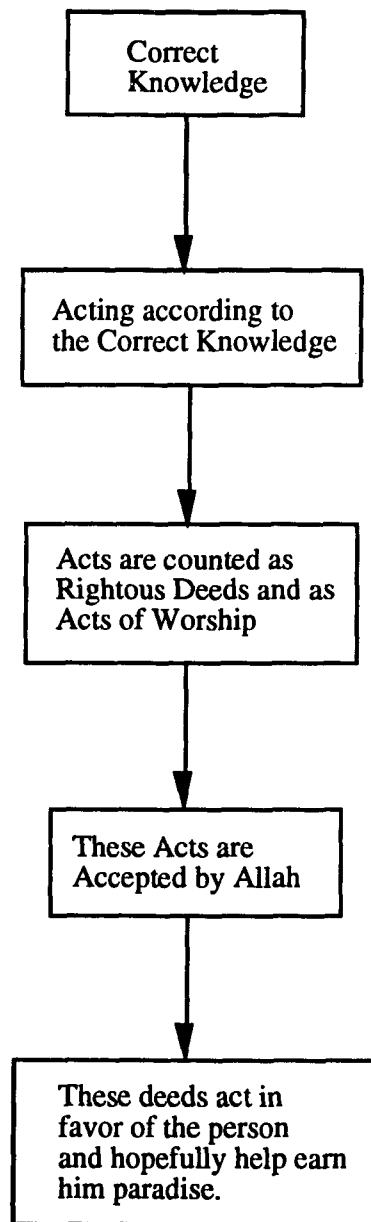


Figure 4: The Individual Decision Making Process.

This decision making process is further clarified when we look at the description of how the actions of Muslims are accounted for by Allah. This explanation was provided by the Prophet (PBUH). He said:

When a man intends to commit a sin Allah orders the Angels not to record anything merely on his intention unless he actually commits it and then only one sin will be recorded against him. But if he does not carry out his intention for fear of Allah then one virtue would be credited to him. If any man intends to do any good and is unable to accomplish it even then one virtue would be credited to him merely on his intention. But if he carries out his intention ten to seven hundred virtues would be credited to him (Khan 1972, 63-64).

(7) Different Forms of Knowledge

Islam commands Muslims to seek knowledge and to apply it in all aspects of their life. If Muslims do not apply the gained knowledge they are accountable for not using it. As the Prophet (PBUH): "the severest punishment on the day of Judgment will be for the man of learning who does not act upon it" (Al-Hashmi 1972, 21).

Knowledge in Islam is divided into three categories. These are mandatory, optional, and prohibited knowledge. (1) Mandatory knowledge refers to the basic matters of religion. This includes both: (a) ideas and actions permitted or prohibited in Islamic law, and (b) the beliefs and actions of the states of the heart. This knowledge is required in order to allow Muslims to perform their religious responsibilities properly; and prepares Muslims to take responsibilities as adults. (2) Optional knowledge refers to the study of the sciences relating to the basic functions of the Muslim community. Such knowledge refers to medicine, engineering and other similar professions. A sufficient number of Muslims must have these skills in order to benefit the Islamic community. If a sufficient number of people do not have it, this optional knowledge becomes mandatory until the

needs of the community are met; then it becomes optional again. (3) Prohibited knowledge refers to studying and using magic which is harmful to mankind.

(8) The Rewards & Punishment for the People in Authority

These examples of the narration relating to the rewards for people who in charge of the affairs of Muslims are important because they illustrate the incentives for following the commands of Allah and the punishments for disobeying them. The first example mentions that rules will be given paradise if they are just.

Iyah ibn Himar relates that he heard the Prophet (PBUH) say: the dwellers of paradise will be of three types: a just ruler who spends in charity haven been given the capacity, a man merciful and tender towards every relative and Muslim, and a pious man with a family who refrains from asking (Khan 1975, 135).

Also,

Muslims narrated that he heard the Prophet (PBUH) say: If a person is in charge of the affairs of Muslims and does not strive diligently to promote their welfare, he will not enter paradise with them (Khan 1975, 135).

In summary these religious teachings seek to provide the Islamic leaders with the control to do what is best for the community. Hussaini summarized this view by stating that: "The Islamic political man is inner-directed as well as outer-directed. He imbibes the political characteristics of the Islamic 'integrated mentality' The political elites as well as the masses are subjected to the same inner and external constraints of the *sharia*. (all people regardless of their position in government operate and respect the law)" (Hussaini 1980, 27).

THE ISLAMIC ENVIRONMENTAL ACTION MODEL

Objective

The legal, ethical, and religious teachings and guidelines which were presented earlier form what Zaidi (1989) called the belief system model. This model defined man's interaction with the environment from an Islamic perspective. The two assumptions of the matrix were maintaining man's position as the ecologically dominant being and linking this framework with divine doctrines. Zaidi explained how the world is defined with the matrix of Islamic philosophy of life and how the decision-action process operates within that matrix. The matrix consists of the following beliefs:

- 1- All God's creations were there to serve man.
- 2- Everything on earth is well measured in accordance with the respective needs of time, space and individuals.
- 3- Man was entrusted to use these resources wisely and to his benefit.
- 4- Man should also "develop his own conscious self and seek to appreciate God by examining the complexity of all His creations as well as himself" (Zaidi, 1989).
- 5- Man should use knowledge and reason to remove obstacles which may affect rational reasoning.
- 6- Every Muslim should seek the moral character set by the Prophet Muhammad (PBUH).
- 7- Humans are not permitted to exploit the environment in such a way to cause harm to other's well being, including the environment.
- 8- Science and religion complement each other. A scientist should have good religious knowledge and faith to develop scientific principles in accordance with religious beliefs.

- 9- Finally, the major deciding factor in the way man treats others as well as the environment should be guided by the fact that he will be held accountable for all his actions after death.

Overview

My intention is to expand upon the model suggested by Zaidi to explain in detail how Muslims interact with the environment on the state and individual levels. The model is descriptive in nature. The model could be used to assess the degree to which modern Islamic countries are complying with the Islamic teachings relating to environmental protection and management.

Basic Elements of the Model

This model is based on the interaction among seven basic "spheres" or elements which provide its basic structure. These spheres are: (1) Allah (God), (2) Mankind, (3) the Prophets and their messages, (4) Faith, (5) the Universe, (6) the unseen world which includes Angels and Jinn [creatures of fire], and (7) Belief in the After Life and accountability. The model has been presented in several figures in this section. Appendix E on page 204 shows the entire model which shows how these figures are connected.

Explanation

The entire model is based on the central element of the Islamic religion which is *tawhid* (the belief in One and Unique God), the belief which defines the purpose of all creation, the seen and the unseen, in relation to Allah. This relation is One of Creator and master to creation and worshiper. This relationship also provides humans with the mental framework for interacting with the universe as a whole and with nature more specifically. The definition, characteristics and function of the elements in this model is provided in

Table 2. Also figure 5 on pages 51 and 52 illustrate the relationship between God and the rest of His creation.

Table 2 -- Elements of the IEAM and their functions.

Element	Characteristics	Function
Allah	One, Unique & Distinct from His creation.	He is the Creator of all existing creatures and continuity of life in the entire universe depends on Him.
Prophets	A distinguished group of people selected by Allah to deliver His message to mankind.	Set the example for human activity on earth which defines the impact of all activity in the afterlife.
Life	The purpose of life is to worship Allah.	All aspects of life can be looked upon as a test by Allah to see how humans react, and how their faith is manifested by their reaction.
The Universe	Created by Allah for the use of mankind & as sign of Allah's perfection.	All that exists in the Universe worships Allah.
Nature	Created by Allah for the service of mankind. Nature is also a sign of Allah's perfection.	All elements of nature including man, animals, and others praise Allah. All that happens in nature happens with the knowledge and the power of Allah.
Angels	Creatures of light created by Allah.	Angels worship Allah and performs Allah's will on earth in relation to mankind for example.
Jinn	Creatures of fire created by Allah.	Some of the Jinn are good. The good Jinn worship Allah; the others inspire people to do evil actions.

Table 2 (Cont.) -- Elements of the IEAM and their functions.

Element	Characteristics	Function
Accountability	Accountability refers to life after death and the concept of being accountable for the actions in one's natural life.	Accountability sets the proper perspective on life for those who believe in this concept from doing actions which will count against them after death. Accountability also plays a role in determining one's ultimate outcome which is either eternal reward or punishment.
Knowledge	According to Islam there are three forms of knowledge: (1) Mandatory: which refers to the basic matters of religion. This include both: (a) ideas and actions permitted or prohibited in Islamic law, and (b) the beliefs and actions of the states of the heart. (2) Optional knowledge refers to study of the sciences relating the basic functions of the Muslim community. Such knowledge refers to medicine, engineering and other similar professions. (3) Prohibited knowledge: refers to studying and using magic which is harmful to mankind.	(1) This knowledge is required in order to allow Muslims to perform their religious responsibilities properly; and prepares Muslims to take responsibilities as adults. (2) A sufficient number of Muslims must have these skills in order to benefit the Islamic community. (3) Not beneficial, prohibited.
Science	Is the application of the intellectual abilities and the derivation of practical solutions to human problems.	Science is a problem solving tool. It can lead scientists to become either more humble or arrogant as their knowledge of the complexity of the universe increases.

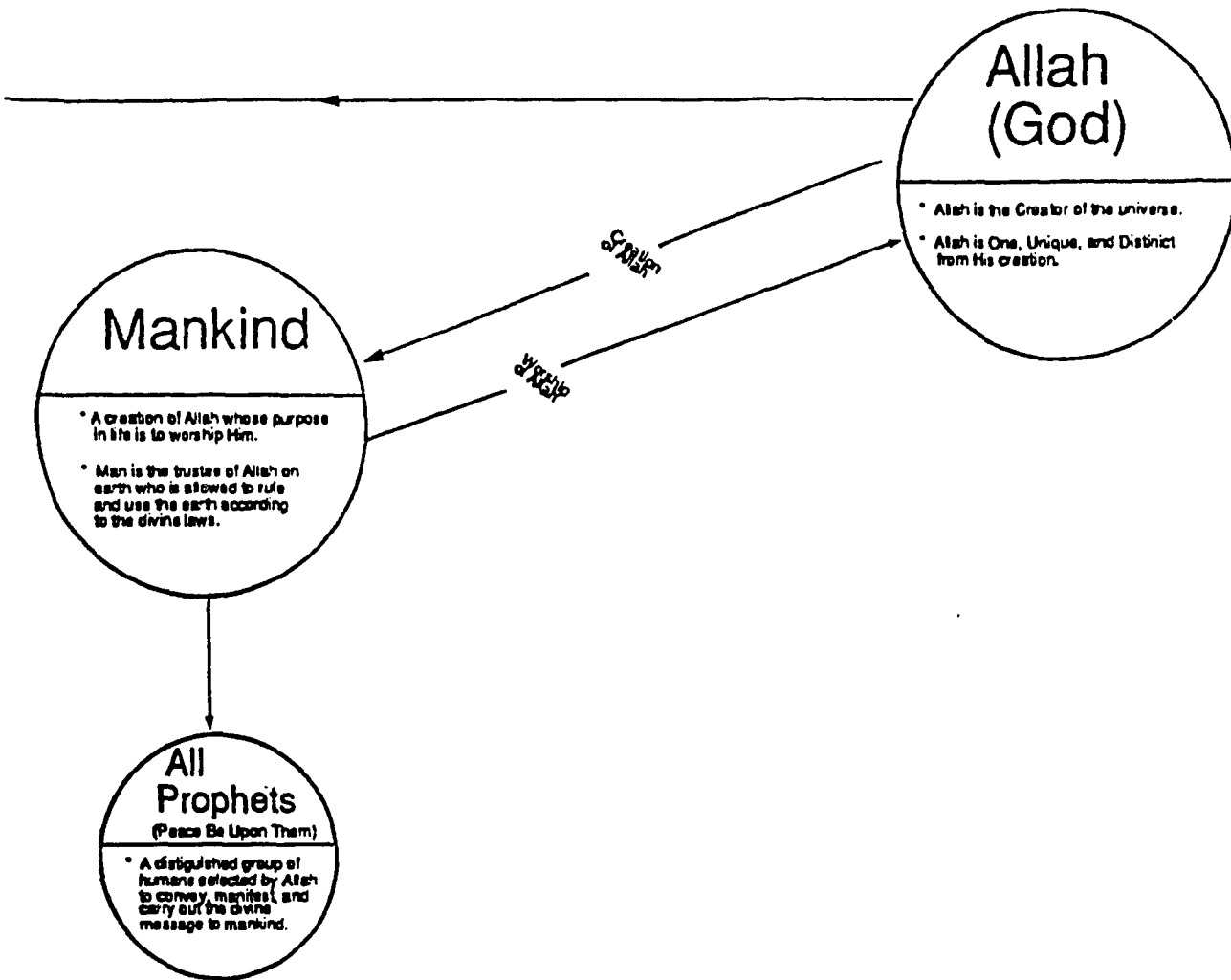


Figure 5: The IEAM: The Relationship between God and His creation.

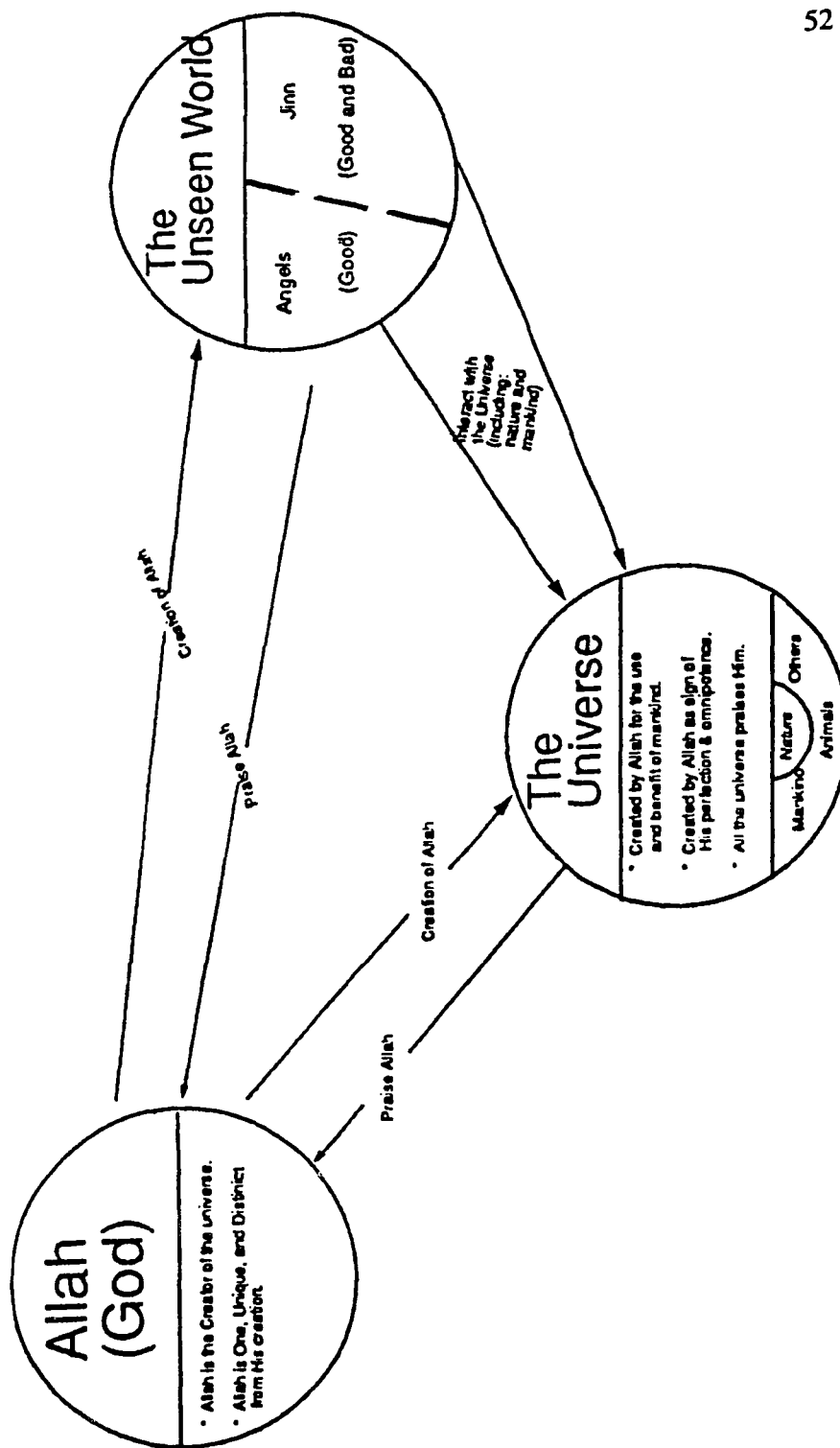


Figure 5: The IEAM: The Relationship between God and His creation.

(1) Islam and the environment

What are the parameters which are set by the Islamic religion regarding the interaction with the environment? The two main concepts which are central to the entire perspective on life are the following: first that mankind was created by Allah to worship Him, along with all other creations, and second that man is the trustee of Allah on earth. Two essential elements were given to man in order to fulfill his responsibilities, (1) the intellectual abilities which allows him to analyze, compare and choose the correct action, and (2) the laws by which Allah wants man to rule the earth.

To achieve these objectives we must understand the role of all Prophets (PBUT). All Prophets were sent by Allah to convey, manifest and carry out the divine message of Allah. The message consisted of many teachings including the rules by which people should treat one another and how they should live, and the second related to the impact of their actions if they follow the correct teachings.

(2) Role of the Religious Teachings

As we move along the model to the parts which define the teachings of the Prophets, we see that religion encompasses all aspects of human life. These include economic, social, political and spiritual aspects which were mentioned as examples. It is important to mention at this point that Muslims assert that Islam is the final message and complete religion to mankind. Also, in contrast to all other previous messages which were revealed to specific people at specific points in time, Islam was revealed for the entire humanity which means it is applicable to all people at all times. (The role of the religious teaching is shown on the next page).

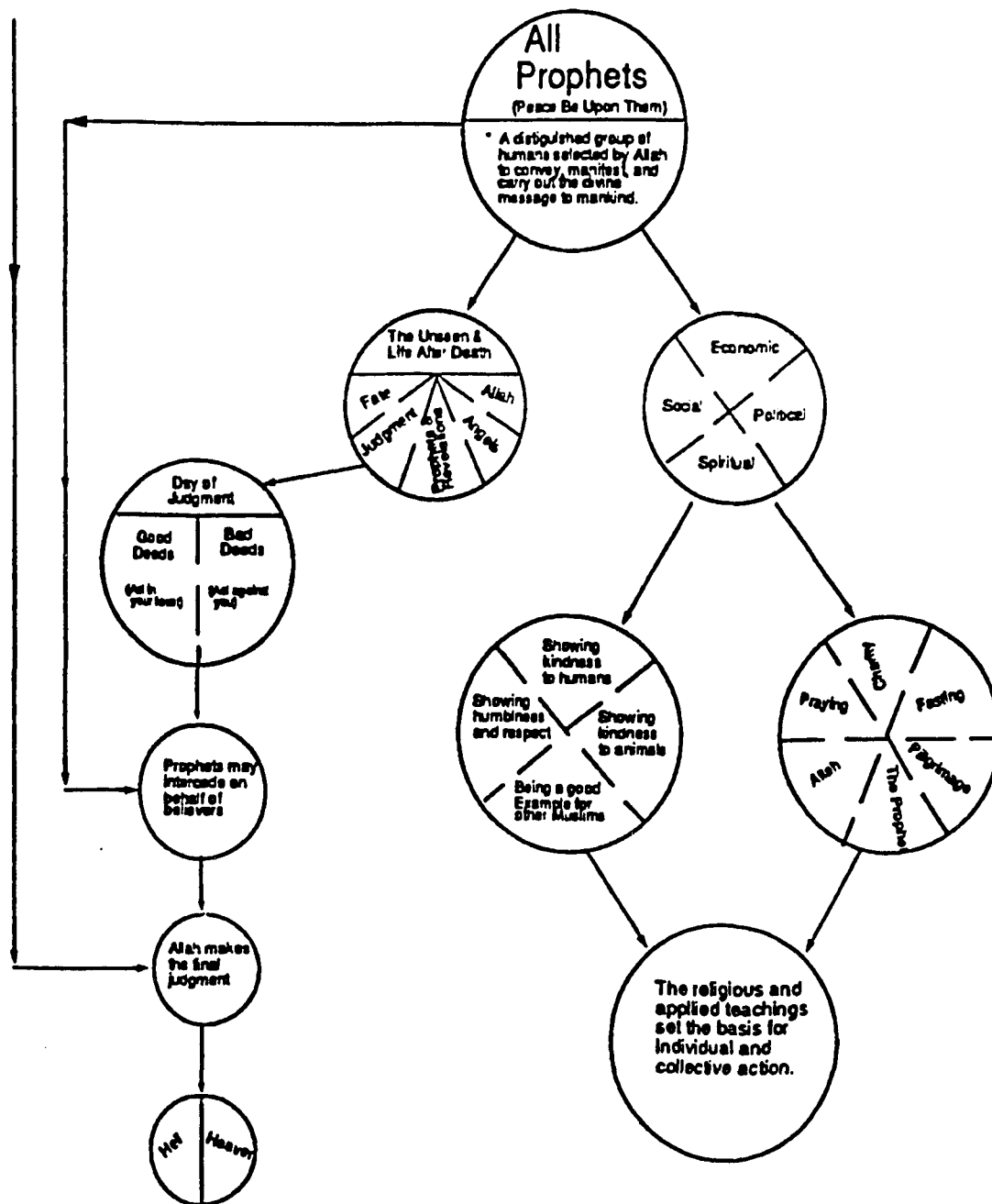


Figure 5 (Cont.) : The IEAM: The Role and Teachings of the Prophets.

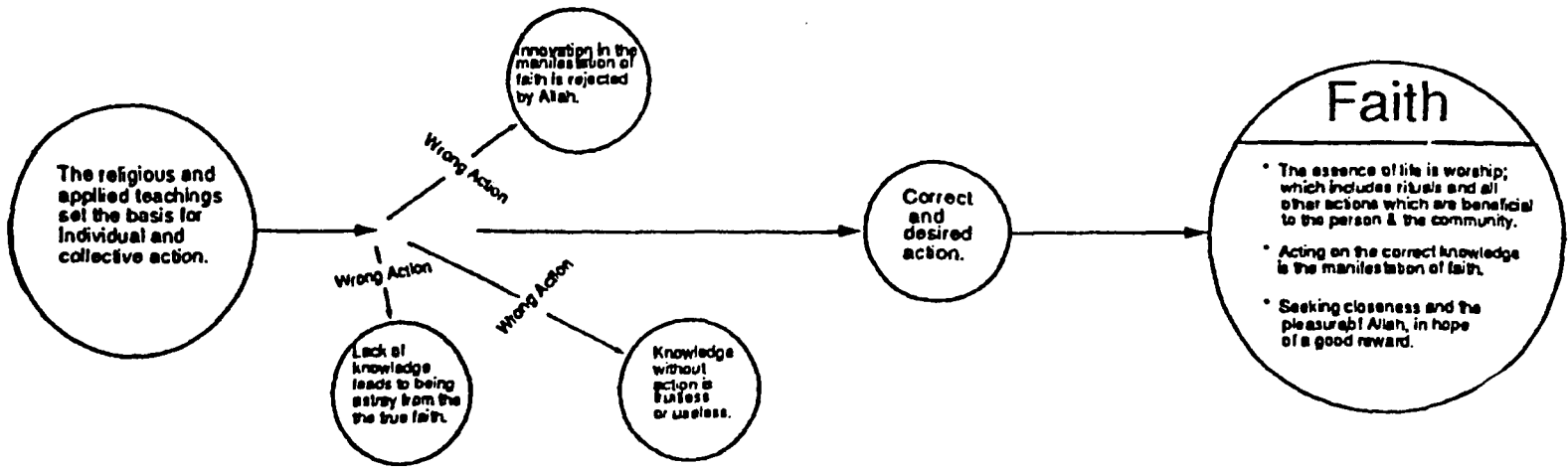
Returning to the basic message of Islam. Prophet Muhammad (PBUH) illustrated through his life, which was the manifestation and explanation of the Qura'n, how Muslims should define their priorities in life and how to conduct themselves. Thus, his teachings related to two main issues: (1) the matters of religion and spirituality, how to worship Allah correctly, and (2) how to act on an individual and collective basis in matters which relate to all aspects of life.

These two main elements set the cosmological, spiritual, and practical basis for the interaction with the universe which includes the individual, society, and nature as well. At this stage Muslims are warned and commanded to avoid three main pitfalls which may render their actions in this life, and in the after life useless or fruitless. These pitfalls include: First, follow the teachings to the Prophet as he explained them and do not introduce innovative ideas to the religion for they are rejected by Allah and the person who makes such an innovation will be held accountable for his actions and the actions of the people who followed in his footsteps. Second Muslims should always act according to the correct knowledge which was revealed to them. Failure to do so will result in their being punished by Allah as he punished people who were mentioned in the Qura'n; people who had knowledge but did not act on it. A third is that having no knowledge of the correct faith will lead people astray from the truth.

(3) The Role of Faith

These concepts lead us to the central part of the model which define the basis for the interaction with the entire surroundings at all levels including nature; that part is faith. Faith is believing in the message of the Prophet and acting correctly according to that knowledge. (The role of faith in this model is illustrated on the next page).

Figure 5 (Cont.) : The IEAM: The Role of Faith.



These teachings encourage acts of kindness to humans and animals and these commands are to be followed. If such acts bring the followers piety, faith and reward in this life and the after life, then such acts are encouraged and supported. On the other hand, acts which are damaging to the community and the environment are challenged and stopped. This religious obligation to do what is right and forbid what is evil according to the teachings of Islam is the obligation of the individual as well as the state. Thus, the essential metaphysical elements which have a central and basic role in this model are that the entire objective of individuals at all levels of responsibility is to fulfill their religious obligations. Since Islam covers all aspects of life, the religious obligation is to seek what is good and forbid what is bad or evil for the sake of Allah alone in the faith that such good actions will bring a person reward in this life as well as in the afterlife. In short, economic and political considerations play a role in the decision making process, but they are not the only factors in this process.

(4) The Role of the State

The state has the duty of establishing the political, economical, and social models as they were presented in the Qur'an and applied by the Prophet. The state has the duty of providing the surroundings which will help in establishing and spreading Islamic ideas and behavior among its citizens and to oppose and prohibit actions which act against that objective. The leaders of the Islamic state should turn to the guidelines set in the Qur'an and the teachings of the Prophet to seek guidance for their actions. Certain actions do not need extensive investigation or analysis. Such cases include actions which are strictly prohibited by the Qur'an and the teachings of the Prophet; such as killing animals for sport or without any beneficial reason, such as using the animals for food. The state is obligated to enact laws which prohibit such actions and set penalties for its perpetrators. (The role of the state is shown on the next page).

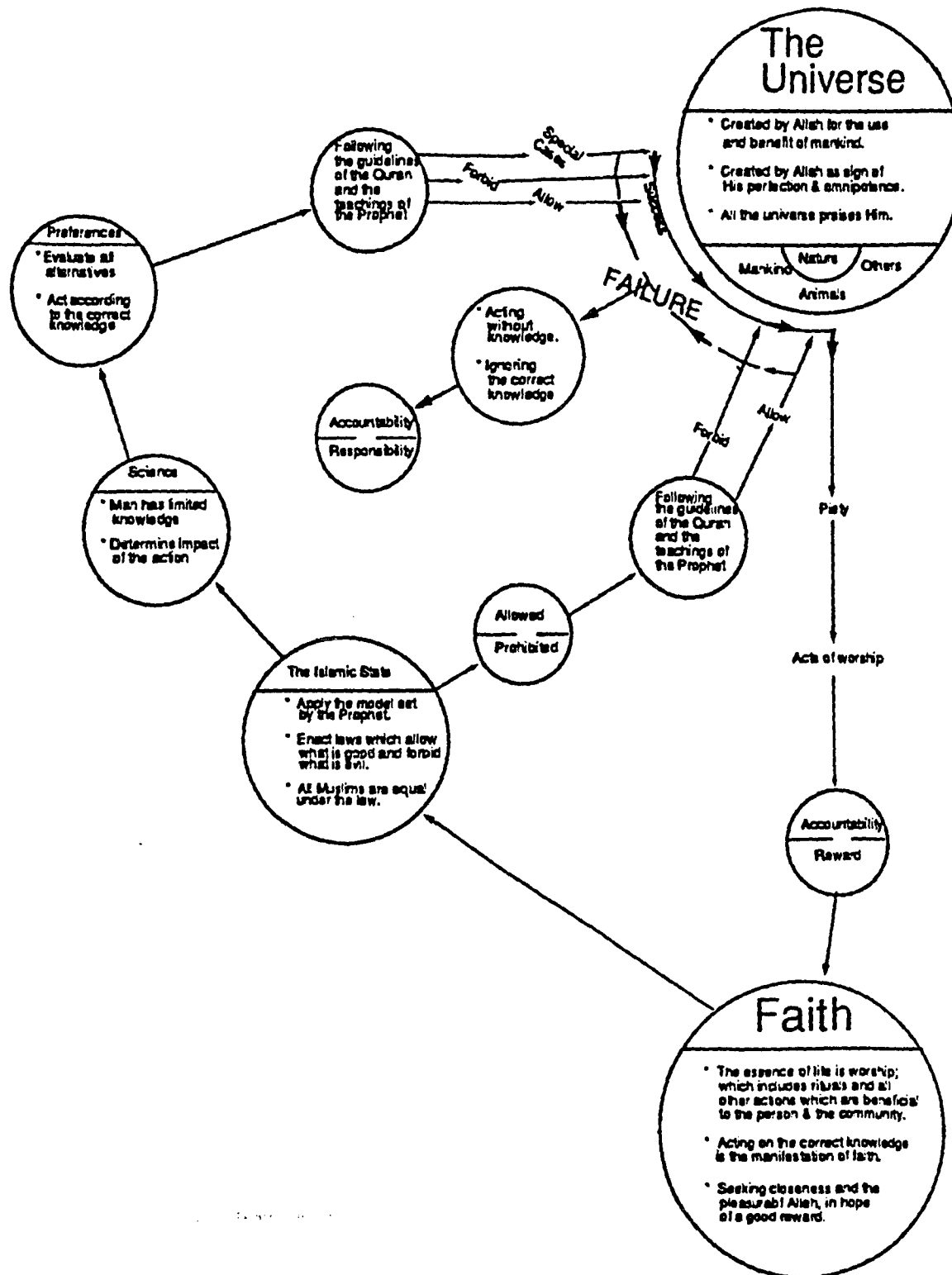


Figure 5 (Cont.) : The IEAM: The Role of the State.

On the other hand, the impact of other actions is not quite clear cut. Again in relation to the interaction with the environment, the state would use the guidelines set by the Islamic religion to protect, conserve, and use wisely the various natural elements. Thus, when an action is proposed such as building a dam for the benefit of the Islamic community, the state is required to use all scientific means possible to determine the impact of such projects.

An important point which should be mentioned here is that by determining, to the best of their ability, the impact of such projects, the state would be fulfilling its original mandate which is allowing and promoting that which is good to the community and stopping or forbidding that which is bad to the community. The issues of individual verses collective interests and the issue of special cases where damages resulting from a project outweigh its benefits were previously discussed. These guidelines are applied constantly to evaluate cases based on their merits and circumstances according to the existing conditions. After the evaluation is made the state permits or prohibits such actions. Here the religious and ethical aspects plays their role again. If the individuals who have the responsibility to make these decisions succeed in their effort, they are rewarded by Allah for their success. As the model shows, their acts are regarded as acts of worship, and thus they have manifested their faith by acting in accordance to the teaching which in turn earns them piety and good reward. On the other hand, if they failed to live-up to their responsibility, then the same individuals have either acted on the wrong knowledge or incomplete information or they ignored the correct information entirely. In this case the reward and accountability is based on the intention of the individual or group in charge. They are held accountable according to what they set out and intended to do. They are held accountable in both cases, but if they intended to do harm their acts weigh against them in the day of judgment. If they

intended no harm but failed because of the lack of information, then they will be questioned about it and Allah will judge their actions.

(5) The Role of Individuals

The same principles and parameters apply when we refer to the interaction of the individual with the environment. Individuals are also required to follow the guidelines in the Qur'an and the teachings of the Prophet for guidance regarding the correct actions relating to the use of the environment. Individuals are commanded to seek actions that manifest their faith, and to seek actions which may benefit them in this life and on the day of judgment. From this perspective, Muslims are allowed to use the various natural elements in two main ways: (1) use for study and investigation, and (2) use for immediate practical benefit. In both cases, Muslims have to keep in mind the role of animals and other creatures in the universe. Man himself is part of the natural scheme and when he interacts with nature he must regard it as a living community which has its own life and purpose. If individuals succeed in using the natural elements for these two purposes, then they have manifested their faith by following the teachings and guidelines of Islam, and at the same time they have recognized and respected in the same act the rights of these other elements as prescribed in Islam. Such action will earn them good deeds. Equally as important, by learning about the complexity of nature man increases his understanding of the Creator which in turn render him more humble and pious which is an essential virtue which Muslims are commanded to aspire to gain. As the Qur'an mentions ". . .the most honored of you in the sight of Allah is (he who is) the most Righteous of you . . ." (Qur'an, 49: 13). (The role of Individuals is illustrated on the next page).

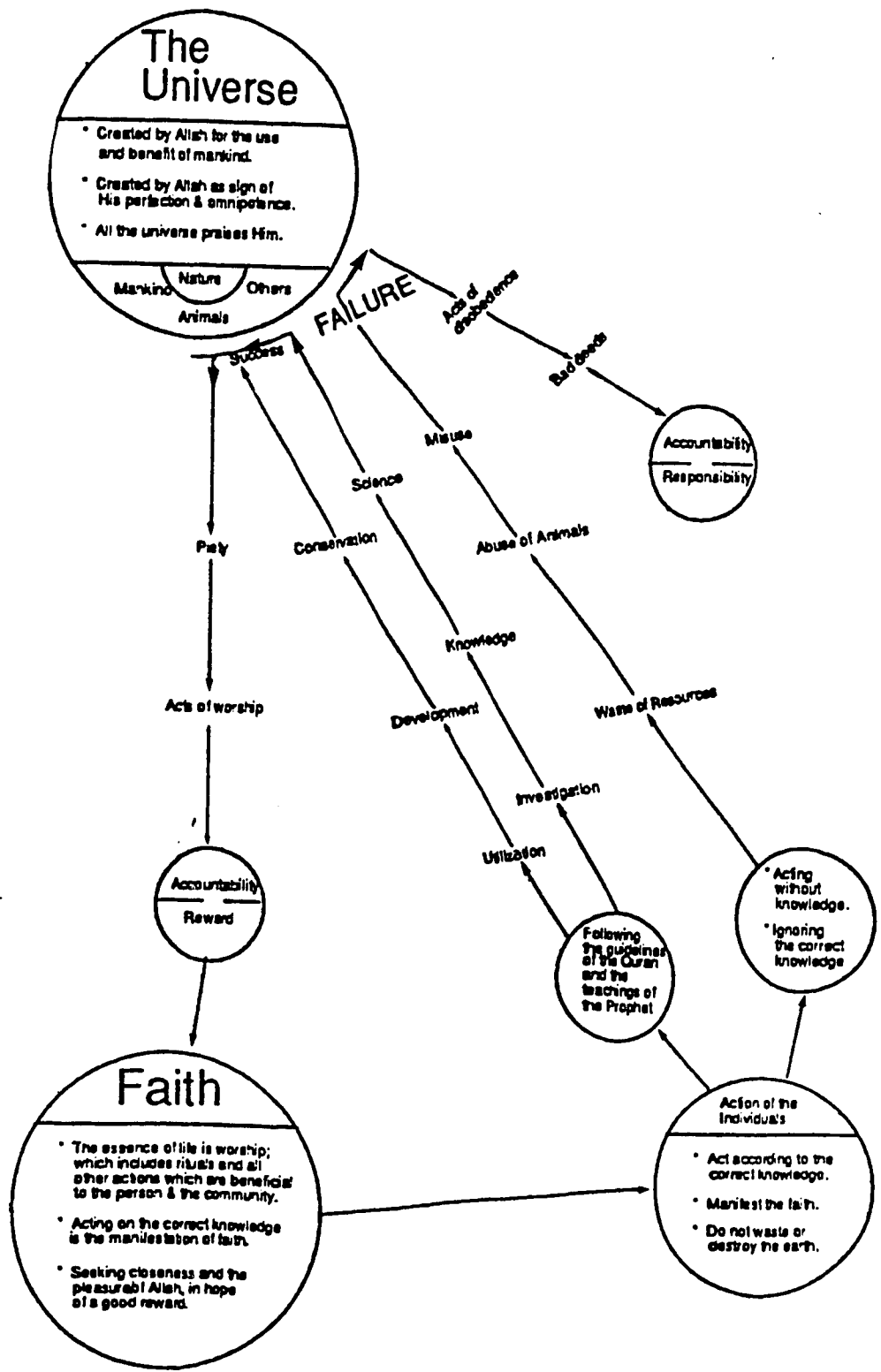


Figure 5 (Cont.) : The IEAM: The Role of Individuals

On the other hand, if the individual fails to act within the guidelines set by Islam then he is not manifesting his faith and is either acting out of ignorance or by intentionally harming other creatures. This brings us back to accountability and the issue of intent where the person will be judged according to what he set out to do. This concept adds a new dimension to the importance of knowledge because it can release the individual from having to deal with his bad action afterwards. If enough information is known about the impact of his action he can proceed to avoid that action and avoid it knowingly. If enough knowledge is not available his should seek information form religious teaching or otherwise avoid the action entirely to be on the safe side.

Remark

In summary, the essence of the model is the following: according to Islam, God is the Creator of the universe is One, Unique, and Distinct from his creation. Second, man was created by God for the sole purpose of worshipping Him. This gives rise to the message of the numerous Prophets who perfected God's message to mankind. Those who believe, obey and apply the religious teachings are rewarded in the afterlife, those who choose not to will be punished. Nature and the universe are viewed as signs of God's perfection and man's duty is to use them wisely and to keep in mind the fact that they will return to God for accountability.

The Islamic cosmology provides internal and external guidelines for interacting with nature. These guidelines have their basis in the Qur'anand the teachings of the Prophet (PBUH). In addition to these guidelines, the Islamic religion has set goals for the society and the individual. The achievement of these goals is not only personal and societal endeavors, they are acts of worship and fulfillment of religious duties. All of these elements combine to integrate values into the decision making process and both levels.

Chapter 3

Profile of the Surveyed Countries

GEOGRAPHIC AND NATURAL RESOURCES BACKGROUND

Overview

The purpose of this section is to provide an overview of the geographical and natural resources of the surveyed countries. This overview gives the reader a general idea about the natural resources of the surveyed countries and how the current environmental policies and regulations will affect these resources. The information is arranged according to the following regions: (1) North and West Africa, (2) North and East Africa, (3) the Middle East, (4) Southcentral Asia, and (5) Southeast Asia.

(1) North and West Africa

Geography

Morocco, Algeria, Tunisia, Libya, Mauritania, and Gambia are the subject of discussion in this section. With the exception of Gambia, these countries are characterized by having narrow coastal strips along the Mediterranean and the Atlantic Ocean. The coastal areas are separated from the inland desert by mountainous regions. Figure 6 on page 65 shows the location of Gambia and Morocco. The location of Algeria, Tunisia, and Libya are shown in Figure 7 on page 66.

Mineral Resources

The Northwestern region of Africa is rich with several natural resources including: oil, gas, and minerals. In 1988 exploration for natural gas in Algeria estimated total deposits at $104,200.0 * 10^9$ cubic feet¹. Algeria also has a significant crude oil reserve estimated to

¹ Source: World Oil. August 1989, (209) : 2, p. 11.

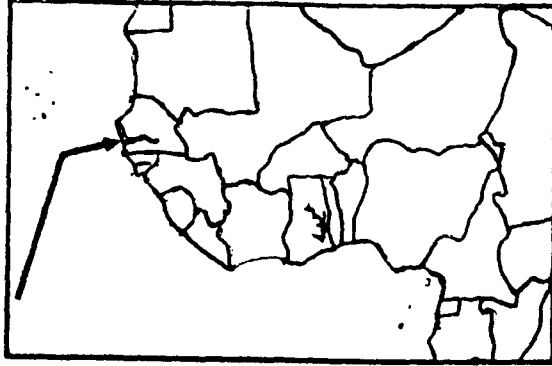
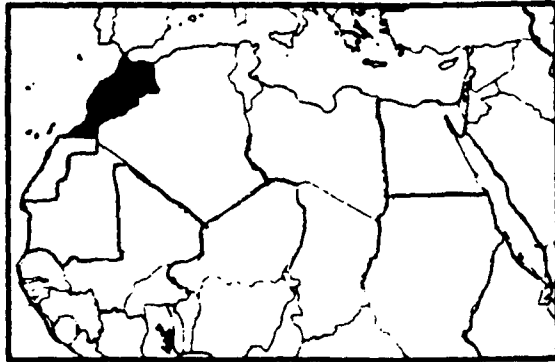
THE GAMBIA**MOROCCO**

Figure 6: The location of Gambia and Morocco.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 356, 360).

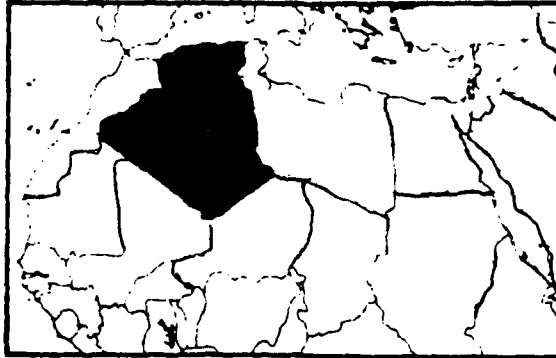
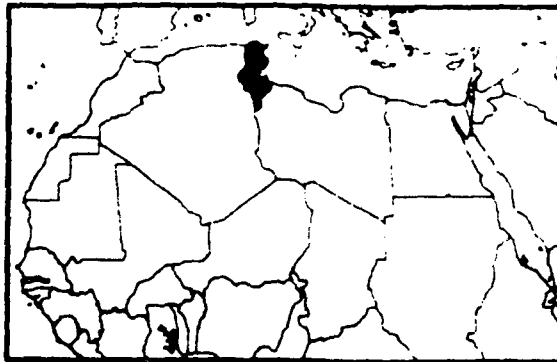
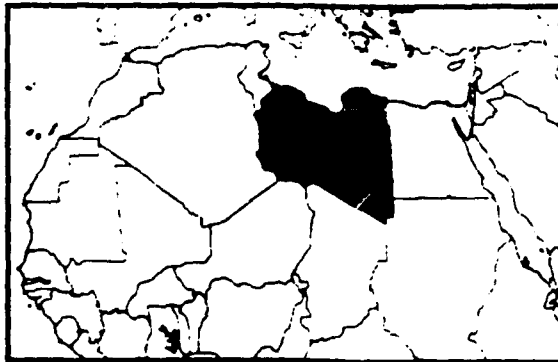
ALGERIA**TUNISIA****LIBYA**

Figure 7: The location of Algeria, Tunisia, and Libya.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 304, 348, 382).

total 8,500 million barrels². Larger deposits of oil are found in Libya where the total reserves are estimated to be 22,380 million barrels³. The other countries in the region are rich in other minerals. For example, Morocco and Tunisia produce about one fifth of the world output of phosphates and is in addition a considerable exporter of high-grade iron ore.

Water Resources

There are seven major rivers in Northwest Africa. These rivers are recharged from the Atlas mountains which stretch from Morocco to Tunisia. The countries in this region also rely on the supply of water from aquifers in Algeria, Tunisia, and Libya. In all of these countries more than seventy percent of the water is used for agricultural purposes.

Agricultural Land

Countries in the North and Western region of Africa have limited areas which are suitable for agriculture. In Libya and Mauritania virtually none of the land is suitable for agriculture.

Forests

The countries in the region have limited forested areas. Only 5 percent of the land in Algeria, Libya, and Tunisia is forested. Forests in the remaining countries account for 12 to 17 percent of the total land area.

² Source: World Oil. August 1989, (209) : 2, p. 11.

³ Source: World Oil. August 1989, (209) : 2, p. 11.

(2) North and East Africa

Geography

Egypt and Sudan are the subject of discussion in this section. These two countries are dominated by the extension of the Sahara desert into and by the Nile which is the lifeline of both countries. The Nile flows from the Sudan where it passes its four geographical regions: deserts in the north, tropical forests in the south, semi arid areas, open semi arid tropical savanna in the center and swamps in the south. Figure 8 on page 69 shows the location of Egypt and Sudan.

Mineral Resources

Some of the natural resources in this region include deposits of oil in Egypt and Sudan. In Egypt exports of oil made up 22 percent of the total principal export of the country in the period of 1988-89.⁴ Recently, exploration by the Chevron Oil company in Sudan resulted in the identification of several significant oil deposits. In 1977, "potential oil traps were defined and in 1979 oil was discovered at Abu Gabra. Subsequent drilling discovered the Heglig, Unity, and Melut fields. Full extent of the fields is not known at this stage of development, but reserves exceed several hundred million barrels" (Sabins 1987, 301). Other significant natural resources in the area include the excellent agricultural land in Sudan which has not be used to its fullest potential, as well as, other minerals which are found in both countries.

Water Supply

The Nile is the major source of fresh water in both countries. It provides Egypt with 55.5 billion cubic meters of water--more than 86 percent of the total used in Egypt each year. In addition to the availability of fresh water from the Nile, underlaying aquifers

⁴ Calculation based on the EIU Country Report (Egypt) No. 3 1991, p. 3.

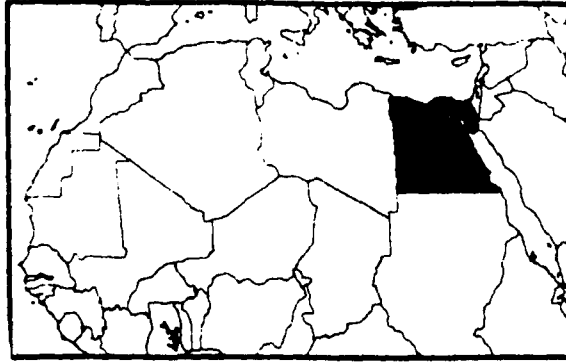
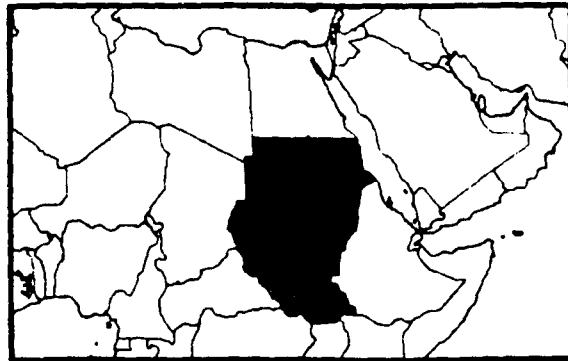
EGYPT**SUDAN**

Figure 8: The location of Egypt and Sudan.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 328, 378).

provide additional sources of fresh water. These water resources consist of "two major aquifers of Northeast Africa and the Arabian peninsula, which together cover some 9.5 million square kilometers and support a population of more than 80 million inhabitants . . . With the exception of Egypt and Sudan, all countries of the two regions depend entirely on groundwater from these aquifers to satisfy their water needs" (Ruddle & Manshard 1981, 137). Most of the fresh water, 88 percent to 99 percent, is used for agricultural purposes in Egypt and Sudan respectively.

Agricultural Land

The availability of crop and pasture land in both countries is a another significant natural resource in the region. The percentage of cultivable land is limited to 3 percent of the total land in Egypt. This land is also being used by the rapidly growing population for both residential and agricultural needs. It is estimated that 96 percent of the population, which is increasing at a rate of 1 million every eight months, lives on the 3 to 4 percent of productive agricultural land situated along the Nile.

Forests

There are virtually no forests in Egypt. On the other hand the Sudan has a moderate amounts of forests which accounts for twenty percent of the land.

(3) The Middle East

Geography

Most of the Middle East is arid and flat and contains some the largest and most barren deserts on earth. However many areas around the seacoasts are mountainous and receive adequate rainfall for agriculture, while the irrigation systems of the river valleys, sustain some of the most densely populated agricultural areas in the world. Figures 9 and 10 on

the next two pages shows the location of Iraq, Jordan, Turkey, Kuwait, Oman, and Saudi Arabia.

Mineral Resources

The dominant natural features in the Middle East are the Tigris and Euphrates rivers. These rivers flow north to south out of the Anatolian-Iranian mountains in a southwesterly direction through Turkey, Syria, and Iraq. Other major rivers in the area include the Jordan river which is shared by Jordan, Israel, and Syria. It is estimated that the countries in the region control more than 60 percent of the world's oil reserves.⁵

Water Supply

Fresh water in the Middle East is obtained from rivers, aquifers and desalinization plans. The distribution of surface waters among the countries in the region is made more complex by the political realities which affect beneficial use of the water. With the exception of Kuwait, more than 40 percent of the water is used for agricultural purposes. Contrary to other countries in the region Kuwait and Saudi Arabia use 65 percent and 45 percent of the water resources for industrial purposes.

Agricultural Land

Iraq and Turkey have 13 percent and 36 percent of their land area which suitable for agriculture. Other countries in the Middle East have limited land which could be used for agricultural purposes. Several countries have less than 5 percent of the land which is suitable for agriculture including Jordan, Kuwait, Oman, and Saudi Arabia.

⁵ Computation based of data in the World Oil of August 1989 (209) 2, p. 8.

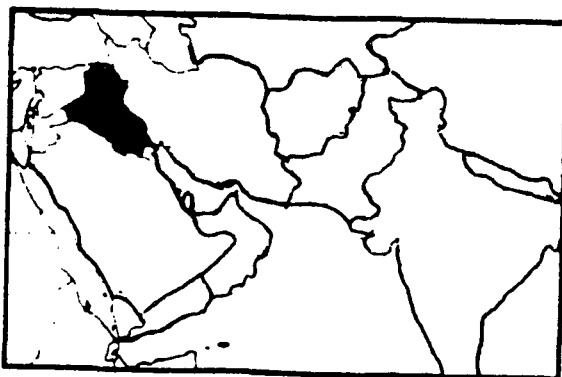
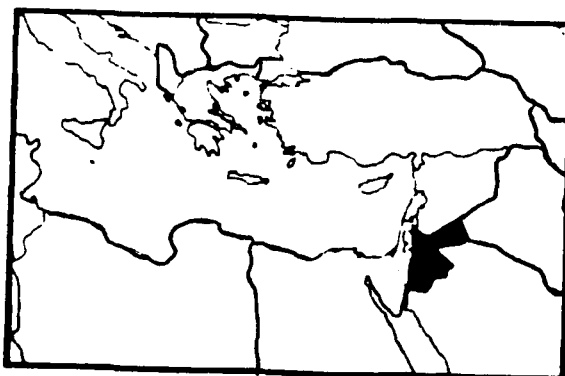
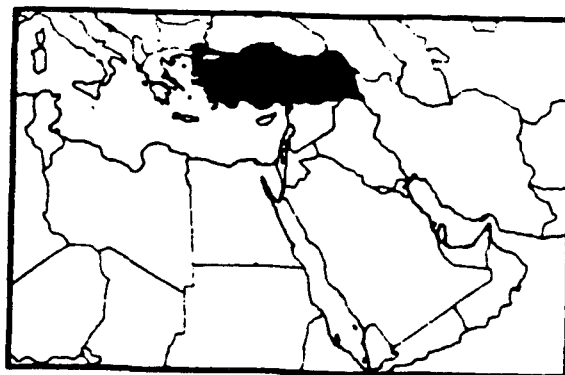
IRAQ**JORDAN****TURKEY**

Figure 9: The location of Iraq, Jordan, and Turkey.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 420, 426, 462).

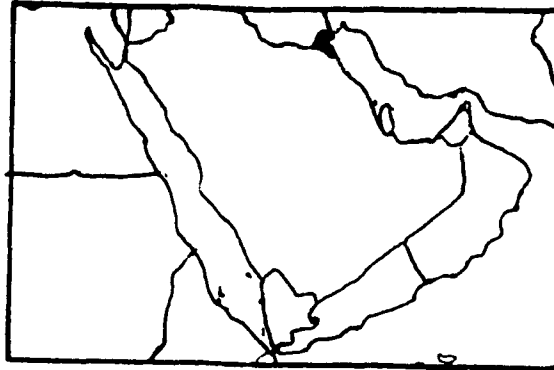
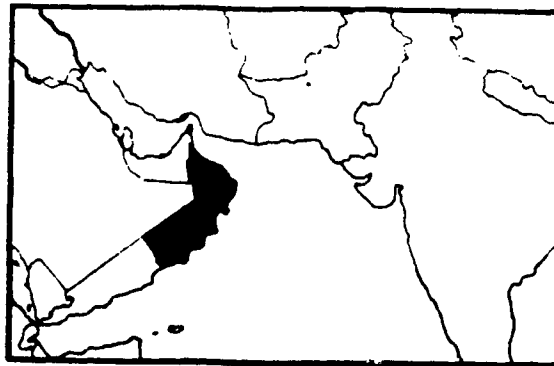
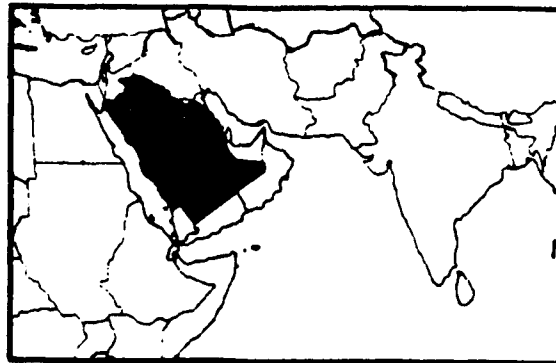
KUWAIT**OMAN****SAUDI ARABIA**

Figure 10: The location of Kuwait, Oman, and Saudi Arabia.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 432, 446, 452).

Forests

Turkey has a moderate amount of forests which covers 36 percent of the land; the remaining countries have 4 percent or less percent of their area in forests.

(4) Southcentral Asia

Geography

The Southcentral parts of Asia are characterized by having a combination of mountainous regions and limited flat agricultural areas. Afghanistan is a rugged land, characterized by steep, snowy mountains, deep valleys, barren plateaus, and windy deserts. Similar geography exist in Pakistan where most of the eastern parts of Pakistan. Bangladesh lies in the delta of several major rivers of the Indian subcontinent, primarily the Ganges, the Brahfigureutra. Figure 11 on page 75 shows the olocation of Afghanistan, Pakistan, and Bangladesh.

Mineral Resources

The availability of oil and mineral resources varies among the three countries. In Bangladesh, known mineral resources, are almost nonexistent. Only three small pockets of natural gas and coal of very low grade have been discovered. Timber from deciduous and evergreen trees is plentiful in the southern jungles but not easily accessible. In Pakistan, such resources are available in commercial quantities but they are used to meet the need of the growing population. Pakistan has a total estimated reserves of 140 million barrels of oil, 16 trillion cubic feet of natural gas, and 763 million tons of coal. Recent geologic studies have show that there are large deposits of oil in Afghanistan.

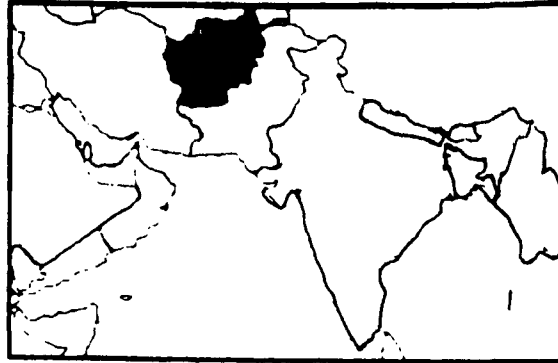
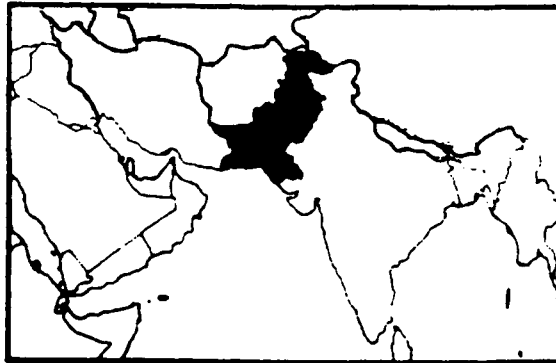
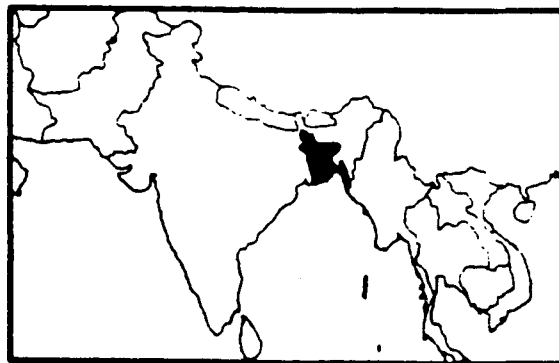
AFGHANISTAN**PAKISTAN****BANGLADESH**

Figure 11: The location of Afghanistan, Pakistan, and Bangladesh.

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 402, 406, 448).

Water Supply

In Pakistan a key issue relating to the availability of water is its quality. The government is focusing on three main issues "conditions of availability, present and projected patterns of use and supply, and the nature and costs of water transport and supply technology" (Environmental Statistics 1986, 15). In Bangladesh, the government is concerned with maintaining water quality, especially with the lack of sufficient waste treatment facilities and natural disasters. In Afghanistan a total reconstruction of the water and irrigation system is needed after the Russian invasion. Nearly all the water supply in Afghanistan, Pakistan and Bangladesh is used for agricultural purposes. Domestic and industrial use account for a maximum of 4 percent of the total supply.

Agricultural Land

In Pakistan and Afghanistan only 12 percent and 27 percent of the land is suitable for agricultural purposes. In Pakistan, more than 20 million acres of land are irrigated which in 1980 helped the country in becoming self-sufficient in wheat and other food crops. In Bangladesh 68 percent of the land is suitable for agriculture.

Forests

These three countries have limited forest resources. This is an important issue since most of the population in this region relies on fuel wood to meet their energy needs. In Pakistan, fuel-wood accounts for as much as 90 percent of all wood consumed in the country. "According to the Pakistan Household Census of 1980, 79 percent of the rural, and 48 percent of the urban, households use fuel-wood for cooking" (Biswas 1987, 324).

(5) Southeastern Asia

Geography

The geography of Indonesia and Malaysia is marked by swampy plains long coastal areas that change to hill country leading to mountain ranges. In Indonesia, the variation in the terrain is more drastic because the islands rose from the sea due to volcanic activity. Both countries have a tropical marine climate, marked at sea level by uniformly high temperatures, high humidity and moderate to heavy rainfall. Figure 12 on page 78 shows the location of Indonesia and Malaysia.

Mineral Resources

Both countries are rich in mineral and natural resources. In Malaysia, large offshore deposits of natural gas are exploited for domestic needs and export. Other mineral exports include iron ore, bauxite, and copper. Indonesia is also rich in oil, gas, and coal. Petroleum reserves exceed 50 billion barrels. In 1980, Indonesia became the world's leading exporter of liquified natural gas. Coal reserves are estimated at nearly 23 billion tons. More natural resources are expected to be discovered since only 10 percent of the terrain has been thoroughly surveyed.

Water Resources

The water supply in the Southeastern parts of Asia is constantly renewed by the tropical rain in the region. In Indonesia, 47 percent of the water is used for agricultural purposes while in Malaysia 76 percent of the water is used for the same purpose. The concern in both countries is mainly with water quality and distribution rather than water supply.

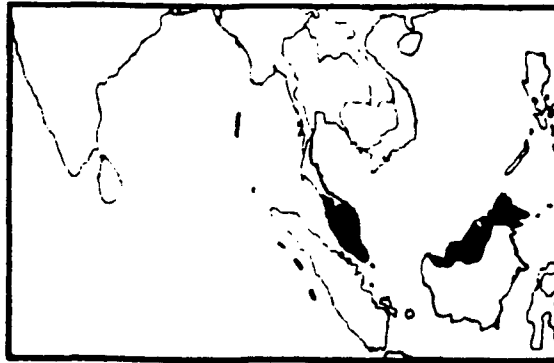
INDONESIA**MALAYSIA**

Figure 12: The location of Indonesia and Malaysia..

(Source: Hammond, A. The 1992 Information Please: Environmental Almanac, pp. 416, 438).

Agricultural Land

Both Indonesia and Malaysia have close to 13 percent of their land suitable for agricultural production. In 1990 the agricultural sector in Indonesia accounted for 23.4 percent of the GDP.⁶ A 18.6 percent ⁷contribution to the GDP is made by the agricultural sector in Malaysia. The three main food producing activities are: rice cultivation, fishing, and mixed farming.

Forests

Indonesia and Malaysia are major producers of palm oil⁸ and natural rubber. Both countries are also rich in natural forests. In Malaysia, 90 percent of the two eastern states, an area 25,000 square miles, are forested by hardwood trees. Indonesia has 22 million hectares of hardwood forests making it one of the major exporters of timber. Sixty-eight percent of forested areas in Indonesia and 61 percent in Malaysia which a major resources for both countries.

Remaks

The availability or the lack of the previously mentioned natural resources continue to affect current environmental conditions in the surveyed countries. Some of these effects include the following. First, countries which are rich in natural resources, but are classified as poor or largely in debt such as Algeria, Jordan, Malaysia, and Egypt continue to rely on the exportation of their natural resources to meet the national economic and social needs. In some cases over exploitation is leading to deforestation, destruction of

⁶ Source: EIU Country Report (Indonesia) No. 3 1991, p. 3.

⁷ Source: EIU Country Report (Malaysia) No. 3 1991, p. 3.

⁸ "In Southeastern Asia, palm oil is obtained from the African palm (*Elaeis guineensis*). Palm oil is a pleasant smelling, yellowish orange liquid that solidifies to "palm butter in the cold. It is obtained by fermentation of the pulp of the palm fruit. Palm oil is used in making soap, ointments, lubricating grease, margarine, and shortening, as well as in the manufacture of tinplate and sheet steel" (Adapted from The Encyclopedia Americana, Vol. 21, 1990).

agricultural land, and water and marine pollution. Second, rich countries who have limited natural resources such as fresh water and agricultural land and are using the revenues from the mineral resources to finance national programs. Such countries include Saudi Arabia, Oman, Kuwait, and Libya. The consequences from such actions include the negative impacts of the massive agricultural and developmental projects which undertaken by these countries. Third, the last group includes countries which are classified as developing and which are also financially dependent on foreign aid. These countries include Pakistan, Turkey, and Bangladesh. The main impact in these countries is the inability of the governments to provide basic human services which would prevent pollution resulting from residential and industrial sources.

POLITICAL BACKGROUND

Introduction

The political situation in the surveyed countries also affects the overall environmental conditions. The effects are manifested by setting of priorities and allocating resources for such priorities. As Table 3 below shows, the surveyed countries have a majority of Muslims. None the less, the Islamic religion is not incorporated directly in the political process; with the exception of few countries such as Saudi Arabia, Sudan, Pakistan, and Afghnaistan. (A copy of the constitutions which relate religion to the affairs of the state is provided in Appendix F). This implies that all aspects of the proposed Model are not applicable and it might not be possible to implement the decision making process which is proposed in its entirety. The continuous political struggle in most of the surveyed countries adds to the pressures which keeps environmental concerns a lower priority for the local governments.

Table 3-- Overview of Religious and Political Status of the Surveyed Countries.

Region/Country	% Muslims	Official Religion	Form of Government
AFRICA			
Algeria	99	N/A	Socialist Republic
Egypt	94	Islam	Republic
Gambia	90	N/A	Republic
Libya	98	Islam	Republic
Morocco	99	Islam	Monarchy
Sudan	70	Islam	Islamic Republic
Tunisia	97	Islam	Republic
MIDDLE EAST			
Kuwait	94	N/A	Constitutional Republic
Oman	75	N/A	Monarchy
Saudi Arabia	100	Islam	Monarchy
Turkey	98	N/A	Republic
ASIA			
Afghanistan	89	N/A	N/A
Bangladesh	84	N/A	Republic
Indonesia	87	One Supreme God	Indonesia
Malaysia	65	Islam	Constitutional Monrachy
Pakistan	97	Islam	Republic

N/A= Information not Available.

ECONOMIC BACKGROUND

Overview

The purpose of this section is to provide an overview of the current economic conditions in the surveyed countries and these conditions ultimately affect environmental conditions. The discussion is organized according to the previously used five regions.

(1) North and West Africa

Most of the countries in the region remain dependant on agricultural sector of the economy. The agricultural sector employs more than half of the economically active population in Morocco and Tunisia. Agriculture also makes up a significant portion of the total national income. In Morocco and Tunisia agriculture, forestry, and fisheries account for 16.4 percent⁹ and 17 percent¹⁰ of the Gross Domestic Product (GDP). Different conditions exist in Libya where the agricultural sector account for 5.5 percent of the GDP and mining, petroleum and gas sectors account for 27.7 percent of the total GDP.

(2) North and East Africa

In Egypt and Sudan, agriculture remains the dominant economic sector providing most of the jobs and national income. Between the period of 1988 and 1989 the agricultural sector in the Sudan compromised 36 percent of the GDP and accounted for the majority (> 90 percent) of the value of exports.¹¹ Similar economic conditions exit in Egypt where the agricultural sector accounted for 20.1 percent of the GDP between 1998 and 1989. The agricultural sector is also a major source of national income where the export of cotton and other agricultural products made up 35 percent of the total exported goods. Finally, the

⁹ Source EIU Country Report (Morocco) No. 3, 1991 p. 3.

¹⁰ Source EIU Country Report (Tunisia) No. 3, 1991 p. 3.

¹¹ Source EIU Country Report (Sudan) No. 2, 1991 p. 3.

agricultural sector leads other parts of the economy by providing 36 percent of the jobs in the country.¹²

(3) The Middle East

Some countries in the Middle East have been subject to continuous internal and regional political instability, others have been able to use the financial resources from their oil to develop and implement national economic and developmental plans. Such countries included Saudi Arabia, Kuwait, and Oman.

(4) Southcentral Asia

Afghanistan, Pakistan and Bangladesh have mixed economies consisting of agriculture, transportation, commerce, and manufacturing. The agricultural sector employs the majority of the labor force. In Pakistan, farming directly employs 56 percent of the labor force service and more than three fourths of the people are dependent on the land for their main source of livelihood. Similar conditions exist in Bangladesh and Afghanistan where the economy is entirely agricultural.

An issue which is shared by Pakistan and Bangladesh is the rapid increase in population which is putting more pressure on the government to meet their basic economic and human needs. In 1986, the population in Pakistan was concentrated in the central and lower Indus valley, where the population density is in excess of 2,400 per square kilometer. Pakistan's current birth rate is approximately 3.6 percent. Similarly, Bangladesh is considered one of the most populous and poorest countries in the world. Bangladesh has about 80 million people living in an area slightly larger than the state of New York. Most of the people live in rural areas; only about 10 percent live in urban

¹² Calculation based on the EIU Country Profile (Egypt) 1990-91 p. 18.

centers. A different situation exists in Afghanistan where the Russian invasion displaced millions of Afghani nationals. "Nearly 3.5 million Afghans have fled to Pakistan, and 2.5 million to Iran. Perhaps 3 million more within Afghanistan itself have moved to the cities of the mountains in the hope of finding safety" (Homeward Bound 1988, 16).

(5) Southeastern Asia

Malaysia has a diversified economy consisting of food production, agricultural and mineral production for export, commerce, and manufacturing. The country's per capita income is one of the highest in Southeast Asia. During the 1970-1981 period, the GDP growth averaged 7.7 percent per year; with the total GNP reaching \$ 12 billion. This economic growth is matched by the increase in population which was estimated to be 2.6 percent in 1981. The Indonesian economy is dominated by the agricultural sector which employs 60 percent of the labor force. Other sectors of the economy contribute to the country's GDP. Manufacturing accounted for 15 percent of GDP in 1980. Most of the people live in settlements near rivers or the sea. In some areas rivers provide the only practical means of movement through the jungle.

Remark

Tables 4 and 5 on the next two pages provide an overview of economic conditions in the surveyed countries. The notable aspects about Table 4 are the levels of outstanding debt and the percentage of expenses which are allocated for the payments of those debts. The worst case exists in Algeria where 66.5 percent of the exports are allocated for the payment of outstanding debt. This illustrates the economic trap which several of the surveyed countries are facing. Algeria is one of the richest countries in oil and natural gas; yet national economic conditions are weak.

Table 4-- National Economic Information about the Surveyed Countries.

Region/ Country	Outstanding Debt (in \$ millions)	% of GNP (1989)	Debt Service (1986) (in \$ millions)	% of Export
AFRICA				
Algeria	24,554	51.9	6,746	66.5
Egypt	38,059	124.5	3,464	43.1
Gambia	328	167.3	21	12.7
Morocco	18,858	88.1	2,092	41
Sudan	8,665	73.8	280	34.1
Tunisia	6,220	64.1	1,074	23.6
MIDDLE EAST				
Kuwait	610	1.8	470	2.2
Oman	3,456	45.3	624	14.3
Saudi Arabia	1,186	2.2	779	1.9
Turkey	36,454	47.2	7,027	37.2
ASIA				
Afghanistan	4,964	124.1	40	14.5
Bangladesh	10,255	50.3	521	30.2
Indonesia	45,771	51.2	7,923	31.2
Malaysia	16,432	46.2	4,231	14.7
Pakistan	16,682	42.1	2,341	38.3

Source: Handbook of International Trade and Development Statistics. New York : United Nations, 1991, pp. 420 - 426.

Table 5, on the next page, also illustrates an important point which is the low Gross Domestic Product of most of the surveyed countries. This situation explains the reasons for over exploiting natural resources in order to obtain hard currency to meet the economic needs on the national and international levels.

Table 5-- National and International Economic Data about the Surveyed Countries.

Region/ Country	Gross Domestic Product (\$ billions)	Per Capita Income (\$ / year)	Trading Partners
AFRICA			
Algeria	45	2,125	FR. IT. GR. US.
Egypt	40	848	IT. RO. GR. US.
Gambia	0.2	375	SW. UK. NTH. FR.
Libya	29	9,472	US. IT. GR. UK.
Morocco	12	527	FR. SP. IND. SA. US.
Sudan	7	375	SA. CH. GR. UK.
Tunisia	8	1,162	IT. FR. GR. US.
MIDDLE EAST			
Kuwait	21	12,731	JP. IR. IT. GR.
Oman	8	8,915	UAE. JP. US. UK
Saudi Arabia	108	10,595	FR. IT. GR. US.
Turkey	50	1,041	GR. IR.
ASIA			
Afghanistan	3	N/A	PK. IND.
Bangladesh	15	165	US. JP. SING.
Indonesia	83	532	JP. US. SING.
Malaysia	33	2,240	JP. US. SING.
Pakistan	34	339	SA. JP. US.

CH= Checkoslovakia, FR= France, GR= Germany, IND= India, IR= Iraq, IT= Italy, JP= Japan,
NTH= Netherland, PK= Pakistan, RO= Romania, SA= Saudi Arabia, SING= Singapore, SP= Spain,
SW= Swizerland, US= United States.

Source: World Atlas of Nations. Rand McNally, 1988.

ENVIRONMENTAL BACKGROUND

Overview

Despite the differences between the surveyed countries, common environmental problems were identified. These problems included: (1) water and marine pollution, (2) lack of sufficient water supplies, (3) land degradation, and (4) deforestation. The following is a brief presentation of these problems, a more concise presentation of the environmental problems and their causes is provided in Table 6. (Table 6 is generated from the 1992 Information Please: Environmental Almanac by the World Resources Institute).

(1) Water and Marine Pollution

Water and marine pollution are mainly caused by the lack of adequate water distribution and treatment systems. Marine pollution is caused by the lack of waste treatment systems for residential and industrial wastes. These waste are often dumped in the rivers and oceans which increase health related diseases and reduce the amount of available fresh water. In countries such as Pakistan half of the population does not access to clean potable water.

(2) Lack of Sufficient Water Supplies

The surveyed countries in North Africa and the Middle East continue to face the problem of decreasing fresh water supplies. Saudi Arabia and other Gulf countries are relying on ground water and desalinization of sea water to meet their residential and industrial needs of water. Three factors continue to make this problem more complicated. They are the limited sources of water, the mismanagement of these resources, and the complex political disputes which prevents the countries which share these water resources from reaching long term agreements to this problem.

The previously mentioned conditions are illustrated in Table 6 below. The Table shows that rural areas are particularly lacking in safe drinking water and in access to sanitation services.

Table 6-- Access to Safe Water and Sanitation Services

Region/ Country	Access to Safe Water		Access to Sanitation Services	
	Urban (%)	Rural (%)	Urban (%)	Rural (%)
AFRICA				
Algeria	85	N/A	N/A	N/A
Egypt	100	90	100	65
Gambia	97	50	N/A	N/A
Libya	100	90	100	53
Morocco	75	17	63	13
Sudan	90	20	40	5
Tunisia	100	52	84	16
MIDDLE EAST				
Iraq	95	85	95	70
Kuwait	100	100	100	100
Oman	90	55	88	25
Saudi Arabia	100	68	100	33
Turkey	100	70	95	90
ASIA				
Afghanistan	38	17	5	N/A
Bangladesh	25	66	20	6
Indonesia	41	37	32	38
Malaysia	100	66	100	67
Pakistan	84	28	56	5

Source: Adapted from The 1992 Information Please, Environmental Almanac. World Resources Institute, 1992.

Other significant environmental concern is the withdrawal of fresh water from ground sources at a high rates which exceed the natural recharge rate. Such conditions are already reaching the critical stages in Libya and Saudi Arabia. Other countries such as Pakistan and Egypt are also beginning to suffer from this problem.

Table 7--Freshwater Resources and Withdrawal.

Region/ Country	Year	Total Water Withdrawal (km ³ /Acre)	% of water resources	Domestic %	Industry %	Ag. %
AFRICA						
Algeria	1980	3.0	16	22	4	74
Egypt	1985	56.4	97	7	5	88
Gambia	1982	0.02	0	7	2	91
Libya	1985	2.62	374	15	10	75
Morocco	1985	11.0	37	6	3	91
Sudan	1977	18.6	14	1	0	99
Tunisia	1985	2.3	53	13	7	80
MIDDLE EAST						
Iraq	1970	42.8	43	3	5	92
Kuwait	1974	0.01	N/A	65	32	4
Oman	1975	0.43	22	3	3	94
Saudi Arabia	1975	2.33	106	45	8	47
Turkey	1985	0.42	8	24	19	57
ASIA						
Afghanistan	1987	26.11	52	1	0	99
Bangladesh	1987	22.50	1	3	1	96
Indonesia	1975	9.42	2	23	30	47
Malaysia	1987	16.59	1	13	11	76
Pakistan	1975	153.40	33	1	1	98

Source: Adapted from World Resources 1990-91, pp. 330-331.

(3) Land Degradation

Land degradation in the surveyed countries is mainly caused by natural causes such as desertification and man made causes which include use of agricultural land for residential and industrial purposes, mismanagement of agricultural land. These practices lead to salinization of the land, as in the cases of Egypt, and farming in marginal areas which leads to soil erosion. In Egypt, Algeria and Bangladesh, more land is required for residential needs and at the same time more agricultural products are required to meet the needs of the growing population. This problem is being solved by expanding the residential areas at the expense of good agricultural land and increasing the reliance on the import of agricultural products to meet the needs of the growing population. In Egypt more than fifty percent of the grain products are imported from Canada and the US while a large area of agricultural land is being lost each year for residential areas where the population is increasing at the rate of one million every eight months.

(4) Deforestation

Deforestation is caused by excessive harvesting of the forests in the surveyed countries. Indonesia and Malaysia are the two countries most affected by this problem, the rest of the surveyed countries have limited forested areas (less than 14% of their total area). The causes of deforestation include the resettlement of the population in the forest, the clearing of the forest for major agricultural and industrial projects, and the collection of wood for fuel in rural areas in Pakistan and many parts of Africa.

Table 8 on the next page provides an overview of the land distribution of the surveyed countries, and illustrates the potential danger of deforestation in some of these countries. Although the Table indicates that 68 percent and 61 percent of the land in Indonesia and

Malaysia are still forested, the Table shows that countries such as Pakistan, which is suffering from large scale deforestation, has only 4 percent forested land.

Table 8-- Percentage of Land Distribution, 1984-1986.

Region/ Country	Cropland & Pasture	Permanent Meadows	Forest & Woodland	Other Land
AFRICA				
Algeria	3	13	2	80
Egypt	3	0	0	97
Gambia	17	9	17	56
Libya	1	8	0	91
Morocco	19	47	12	23
Sudan	5	24	20	51
Tunisia	31	20	4	46
MIDDLE EAST				
Iraq	13	9	4	74
Kuwait	0	8	0	92
Oman	0	5	0	95
Saudi Arabia	1	40	1	59
Turkey	36	12	26	27
ASIA				
Afghanistan	12	46	3	38
Bangladesh	68	4	16	12
Indonesia	12	7	68	15
Malaysia	13	0	61	26
Pakistan	27	6	4	63

Source: Adapted from UNEP Environmental Data Report. 2nd edition, 1989/90.

Table 9 -- A Summary of Environmental Problems in the Surveyed Countries.

Country	Major Environmental Problems	Causes of these Problems
Afghanistan	War Devastation	Severe destruction of the environment and the country's infrastructure has been caused by the ten year war against the ex-Soviet Union.
Algeria	Land Degradation (Soil erosion).	Caused by farming in marginal areas, overgrazing, destruction of vegetation for firewood.
	Water (Scarce water and droughts).	Caused by poorly maintained water supplies, and high cost of new water supplies. Sewage treatment is rare, tap water is usually not potable.
	Pollution (Coastal and Marine pollution).	Caused by untreated urban sewage, and industrial effluents.
Bangladesh	Water Pollution	Caused by the lack of sewage treatment and industrial effluent.
	Access to Clean Water (Many people in the country have no access to potable water).	Lack of adequate facilities and water distribution centers.
	Deforestation (Forested areas reduced to less than 16% of total land area).	Needs of the expanding population, clearing of forest for agriculture.
Egypt	Oil Pollution (Beaches and offshore reefs are coated with tar).	Caused by petroleum residues from ships, offshore facilities, and pipelines.
	Soil Damage and Loss (Soil salinization affecting 28% of the land).	Caused by increased pressure for agricultural production, and wind erosion.
	Water Pollution	Caused by use of pesticides, lack of adequate sewage disposal & industrial effluents.

Table 9 (Cont.) -- A Summary of Environmental Problems in the Surveyed Countries.

Country	Major Environmental Problems	Causes of these Problems
Gambia	Deforestation (91% of the country's forests has been lost).	Cutting for fuelwood, and clearing for agricultural land.
	Water-borne Diseases (Gambia is dominated by riverine habitat).	The population is vulnerable to malaria, schistosomiasis, and other diseases caused by poor water sanitation.
	Water Development (Destruction of the mangrove forests).	Clearing the land for rice production.
Indonesia	Rain forest Degradation	Increased logging activity, and expanding population.
	Watershed Degradation	Caused by wastes from industrial areas and sewage from urban centers.
Kuwait	War Destruction	Caused air, water, marine and land destruction, pollution and contamination by crude oil.
Libya	Water (Scarce water and droughts).	Caused by pumping of water from underground resources which exceed the natural recharge rates.
	Land Degradation (Soil erosion).	Caused by farming in marginal areas, overgrazing.
	Pollution (Coastal and Marine pollution).	Caused by untreated urban sewage, and waste from petroleum refining and industrial effluents.

Table 9 (Cont.) -- A Summary of Environmental Problems in the Surveyed Countries.

Country	Major Environmental Problems	Causes of these Problems
Malaysia	Coastal Degradation	Over exploitation and soil erosion.
	Water Pollution	Caused by runoff from tin mines, silt, and oil spills.
	Deforestation	Increased logging activity.
Morocco	Land Degradation (Soil Erosion)	Caused by farming in marginal areas, overgrazing, destruction of vegetation for firewood.
	Water and Wildlife Mismanagement	Massive irrigation projects. Uncontrolled hunting and habitat destruction.
	Pollution (Coastal and Marine pollution).	Caused by untreated urban sewage, and industrial waste.
Oman	Water Scarcity	Caused by insufficient rainfall and by pumping of water from underground resources which exceed the natural recharge rates.
Pakistan	Water Pollution (Half the population has no access to clean water).	Water pollution is caused by inadequate sewage facilities, industrial pollution, and pesticide runoff.
	Water Scarcity	Insufficient rainfall, and increased salinity of irrigation water.
	Land Degradation (Loss of agricultural land, and soil erosion).	Caused by population pressure, overgrazing, water and wind erosion.
	Deforestation	Clearing for agriculture, and harvesting fuelwood.

Table 9 (Cont.) -- A Summary of Environmental Problems in the Surveyed Countries.

Country	Major Environmental Problems	Causes of these Problems
Saudi Arabia	Coastal Pollution	Large spills of crude oil along the coastal areas of the Arabian Gulf, caused by the Gulf War.
	Desertification (Desert encroachment 30 ft /year).	Natural occurrences.
	Water Depletion	Caused by pumping of water from underground resources which exceed the natural
Sudan	Desertification (Loss of agricultural land).	Caused by overgrazing, wood cutting leading to wind and water erosion.
	Environmental Health Problems (Water-borne diseases including: Malaria and blharzia).	Caused by lack of adequate sanitation especially in urban areas.
	Loss of Wildlife	Excessive hunting & poaching. effluents.
Tunisia	Land Degradation (Soil erosion potentially affecting 76% of the land).	Caused by farming in marginal areas, overgrazing, population expansion.
	Water (Scarce water and droughts).	Caused by poorly maintained water supplies, and high cost of new water supplies.
Turkey	Air and Water Pollution (Sulfur dioxide pollution in urban areas and water pollution from industrial an household wastes).	Chemical such as Mercury and detergents have been found in rivers and the sea.
	Deforestation (15,500 acres of forest are converted agricultural land annually).	Expansion of agricultural production and grazing.

Finally, in addition to these important environmental concerns, Appendix G contains an overview of current environmental conditions in the Arabian Gulf area after the war against Iraq. This information is included because the environmental damage will affect the Islamic countries in that region for some years, and the effort to mitigate the damage will be of great interest for those who are interested in environmental protection and management in those countries.

NON-GOVERNMENTAL ORGANIZATIONS

Introduction

The purpose of this section is to present the information regarding the different NGOs which were identified in the collected data. My objective is to define their types and their scope of their activity.

Background

Definition

The term NGO "encompasses all organizations that are neither governmental nor for profit . . . NGOs can be large or small, secular or religious, and either donor or recipients of grants. Some NGOs are designed to serve their own members, while others serve those who need help. Some NGOs are concerned only with local issues, but others work the national, regional and international levels" (Brown & Korten 1989, 3).

History

Many of the early independent international organizations were established after World War II to provide assistance relief efforts to victims of war and famine. Such organizations included the Catholic Relief Organization and CARE. "In the 1960s, many NGOs, began to see their mission as a mix of relief and development work" (Livernash 1992, 35). Other

NGOs started focusing on environmental issues in the early 1970s. The World Bank took this opportunity to use these organizations to provide services to local and rural areas in the developing countries. Although the focus of the discussion is on NGOs in the Islamic countries, the view of international NGOs and specifically those which are based in the "West" is significant to the overall discussion.

NGOs in the Surveyed Islamic Countries

Overview

A list of the identified environmental NGOs is provided in Table 16 on the next page. More information about the activities of these NGOs in the individual countries is also provided in this section.

Types of Organizations

The three types of NGOs were identified from the collected data included political organizations, conservation groups, and research and educational institutions. The data also indicated that international organizations such as the UN and the IUCN had a major role in initiating the development of such organizations. In general these organizations acted as watchdogs for the governmental activities and as advocates for grass root activity.

Role of NGOs

A summary of the various roles NGOs have in developing countries was provided by Livernash (1992). He stated that "NGOs are evolving in three main direction. First, many southern NGOs are seeking greater autonomy from those in the north. Second, NGOs are increasing their efforts to make connections both by forming networks and associations of NGOs and by using new communication technology to stay abreast of issues and keep in touch with NGOs in other countries. Third, NGOs in developing countries are performing

new roles, such as legal defense and policy research" (Livernash 1992, 20). Examples of such roles were observed in the collected information.

Table 10-- Environmental NGOs in The Surveyed Islamic Countries.

Country	NGO
Algeria	-
Bangladesh	The Bangladesh Rural Advancement Committee.
Egypt	The Green Party, 1990.
Gambia	-
Indonesia	The Indonesian Environmental Forum (WALHI). Friends of the Earth.
Kuwait	The Kuwait Society for the Protection of the Environment.
Libya	-
Malaysia	The Environmental Protection Society of Malaysia. Consumers Association of Penang. Malayan Nature Society.
Morocco	-
Oman	-
Pakistan	-
Saudi Arabia	The National Commission for Wildlife Conservation and Development The King Khaled Wildlife Research Center in Riyadh.
Sudan	The Institute for Environmental Studies at the University of Khartoum. The Sudanese Society for the Protection of the Environment.
Tunisia	Association Tunisienne de Protection de la Nature et de L'Environnement, (ATPNE).
Turkey	No Information.

Chapter 4

Data Collection, Analysis, and Organization

REQUEST FOR INFORMATION

Overview

This section contain the information relating to the data collection process as well as the types of information which collected.

Contacts

Our objective was to contact representatives of Islamic countries in the United States to get information about current environmental policies and regulations. If these sources did not have that information, they were asked to provide us with the names of agencies and officials who would be able to provide us with the needed data.

Country Selection

There was no preconceived idea about the countries which we intended to contact. We contacted as many "Islamic" countries as possible. The term "Islamic country" refers to independent states which have defined in their constitution that Islam was the official religion; or countries which had a majority of Muslims in its population.

Mailing

Requests for information were mailed to embassies in Washington D.C. starting in January of 1990. The request for information was mailed to thirty-six embassies. (The request for information is provided in Appendix H).

Response

The responses from the embassies in Washington D.C. were prompt and quite encouraging. Most of the countries responded within a month after receiving our letter.

Their responses provided us with names of officials and addressed the local environmental agencies which we could contact to obtain the needed information. From that point, a second request for information was sent to the local agencies, mentioning our contact in the Washington, D.C. Table 12 on the next two pages shows the list of contacts in the respective countries and the request for information.

Responses

At this stage responses were few. Copies of actual environmental policies and regulations were obtained from Oman, Gambia, Kuwait, Saudi Arabia, and Pakistan. This information is shown in Table 11 below.

Follow Up

In the case of Saudi Arabia, the environmental standards and information about endangered species was not beneficial to the overall discussion but it added to the background information. Further contact with MEPA did not result in obtaining the needed laws relating to environmental policies and regulations. Other countries which did not respond to the request for information, such as Indonesia and Malaysia, were contacted again, since it was known that they have extensive national environmental programs.

Table 11-- Responses from the Surveyed Countries

<u>Country</u>	<u>Response Date</u>	<u>Type of Information</u>
Gambia	March 1991	Copies of Environmental Regulations
Oman	August 1991	Copy of the Main Environmental Law in Oman
Kuwait	May 1990	Copy of the Main Environmental Law in
Saudi Arabia	November 1990	Copies of the Environmental Standards
Pakistan	January 1992	A copy of the National Environmental Ordinance

Table 12-- Contacts at the Embassies and the Local Agencies.

Country	Contact in the US	Responded	Local Contact	Responded
Chad	Embassy of Chad 2002 R. St., NW Washington, DC 20009	YES	The Minister of Tourism and the Environment Njamena, Chad	NO
Egypt	Mr. El-Sayed AbdelRauof El-Reedy Embassy of Egypt 2310 Decator Place NW Washington, DC 20008	YES	Agency for Environmental Affairs 11 Hassan Sabry Street Zamalek, Cairo Egypt	NO
Gambia	Mr. Baba Drammah Counselor Embassy of Gambia 1030 15th St. NW Suite 720 Washington, DC 20005	YES	M. N. Yam Permanent Secretary The Environmental Unit Ministry of Health & Environment The Quadrangle Bangul, The Gambia	YES Provided copies of regulations.
Indonesia	Embassy of Indonesia 2020 Massachusess Ave NW. Washington, DC 20036	NO		
Kuwait	Mr. Abdulhamid Ali Embassy of the State of Kuwait 2940 Tilden St. NW Washington, DC 20008	YES	Mr. Ibrahim Hadi Director General Environmental Protection Council P. O. Box 24395 Safat, Kuwait	Provided a copy of the National Environmental Policy / Law.
Mali	Embassy of Mali 2130 R. St., NW Washington, DC 20008	YES	Ministry of L'Environment er de L'Elvage	YES No Laws
Oman	Embassy of Oman 2342 Massachusets Ave, NW, Washington, DC 20008	YES	Sr. Sadiq Bin Abdul Hussein Al-Mascati P. O. Box 323 Muscat, Oman	YES Provided a copy of the National Environmental Policy / Law.
Pakistan	Mr. Irfan Hussain Minsiter of Infromation Embassy of Pakistan 2315 Massachusess Ave NW. Washington, DC 20008	YES	Dr. Qutb IUCN Saheed-e- Millat Ceretairait Blue Area Islamabad, Pakistan	YES Copy of the Pakistan Env. Ordinance

Table 12 (Cont.)-- Contacts at the Embassies and the Local Agencies.

Country	Contact in the US	Responded	Local Contact	Responded
Qatar	Embassy of the State of Qatar 600 New Hampshire Ave NW, Suite 610 Washington, DC 20037	YES	Ministry of Information P. O. Box 1836 Doha Qatar	NO
Saudi Arabia	Information Officer Embassy of Saudi Arabia 601 New Hampshire Ave NW, Suite 1180 Washington, DC 20003	YES	Dr. Nizar Ibrahim Taufiq Meteorology and Environment Protection Administration P. O. Box 1358 Jeddah 21431 Saudi Arabia	YES Copies of Env. Standards
Singapore	Embassy of Singapore 1824 R Street NW Washington, DC 20009	YES	Public Affairs Dept. Ministry of the Env. 40 Scotts Rd. 19 Storey Environment Bldg. Singapore, 0922	YES No Regulations
Tunisia	Mr. Muhammed Mestlr Embassy of Tunisia 1515 Masia Ave., NW Washington, DC 20005	YES	Director de L'Environment Ministre de L'Economie National Rue de L'Arabie Seoudite	NO
United Arab Emarites (UAE)	Embassy of the UAE 600 New Hampshire Ave NW, Suite 740 Washington, DC 20037	YES	Ministry of Planning P. O. Box 904 Abu Dabi, UAE	NO

Table 13-- A List of the Collected Data from the Surveyed Countries.

Country	Collected Data
Gambia	<ul style="list-style-type: none"> * National Environmental Management Act, 1987, No. 4. March 10, 1987. * Pesticide Control and Management Act, 1983, No. 5. August 13, 1983. * The Environmental Prevention of Dumping Act, 1988, No. 15. August 26, 1988. * The Wildlife Conservation Act, 1977, No. 1". February 14, 1977.
Oman	<ul style="list-style-type: none"> * Environmental Protection and Pollution Control Law of Oman, August 17, 1985.
Kuwait	<ul style="list-style-type: none"> * Law No. 62 for the Year 1980: Regarding the Protection of the Environment". Edition No. 1316. Kuwait : Environmental Protection Council of the State of Kuwait, 1980.
Pakistan	<ul style="list-style-type: none"> * Pakistan Environmental Protection Ordinance (PEPO). The Gazette of Pakistan. December 31, 1983, pp. 245-25.
Saudi Arabia	<ul style="list-style-type: none"> * MEPA, A Concise Reference on Pollutants and Their Environmental Effects. Publication No. 2. Jeddah, Saudi Arabia. Al Madina Printing and Publication Company, 1985. * MEPA, Environmental Protection Standards. Document No. 1409-01. Jeddah, Saudi Arabia. Al Madina Printing and Publication Company, 1982. * MEPA, The National Data Book of the Endangered Animals of the Kingdom of Saudi Arabia. Publication No. 2. Jeddah, Saudi Arabia. Al Madina Printing & Publication Company, 1984.

Data Types and Sources

Six months after mailing the first request for information, I proceeded to look for alternative sources of data because of the low response rate. These sources included the Library of Congress (which was contacted in September of 1990), the World Bank (which was contacted in 1991), and USAID (which was contacted in 1991). Officials at the Library of Congress indicated that they had information about recent environmental policies and regulations of selected Islamic countries. They provided me with a list of officials to

contact; a list which I had already compiled. They also suggested that I could go to Washington to search for the documents in the Library. Since I did not have the funding to go to Washington for a week, I did not do that search. World Bank officials responded by providing me with a copy of a country environmental study and national action plan for Tunisia dated November 16, 1989. USAID officials provided copies of country studies about the legal and institutional aspects of environmental and natural resources management in Malaysia and Sudan, dated May 1981 and June 1981 respectively. Although these reports were outdated, the reports supplemented the background information regarding the development of national environmental policies and regulation in the two countries. Information about other countries was collected from numerous articles. These sources are mentioned in Table 14 and are fully cited in the bibliography.

Table 14 -- Sources and Types of Collected Data.

Country	Data	Source	Type
Algeria	Overview of environmental laws	Book by Hass	Brief discussion
Bangladesh	Overview of environmental laws	Asian Development Bank	Brief discussion
Egypt	Overview of environmental laws	Book by Hass	Brief discussion
	Overview of environmental policy	Article by Hass	Brief discussion
Gambia	Environmental regulations	Dept. of the Environment	Copies of the laws
Indonesia	Overview of environmental laws	Asian Development Bank	Brief discussion
	Overview of environmental regulations	Articles	Brief discussion
Kuwait	Environmental regulations	Dept. of the environment	Copies of the laws
	Overview of environmental policy	Article by Al-Sultan	Brief discussion
Libya	Overview of environmental laws	Book by Hass	Brief Discussion
Malaysia	Overview of environmental laws	Asian Development Bank	Brief discussion
	Overview of environmental regulations	Articles	Brief discussion
Morocco	Overview of environmental laws	Book by Hass	Brief discussion
	Overview of environmental laws	Article by Mekouar	Brief discussion

Table 14 (Cont.) -- Sources and Types of Collected Data.

Country	Data	Source	Type
Oman	Environmental regulations	Dept. of the environment	Copies of the laws
Pakistan	Overview of environmental laws	Asian Development Bank	Brief discussion
	Environmental regulations	Dept. of the environment	The Pakistan Env. Protection Ordinance
	Overview of environmental policy	Article [Env. Policy & Law]	Brief discussion
Saudi Arabia	Overview of environmental policy	Article by West	Brief discussion
	Environmental standards	MEPA	Copies of the standards
	Feasibility study	The Royal Commission	Detailed use of EIR
Sudan	Overview of environmental policy	Article by Demidicki	Brief discussion
	Country report	USAID	Detailed study
Tunisia	Overview of environmental laws	Book by Hass	Brief discussion
	Country study	The World Bank	Detailed study
Turkey	Overview of environmental policy	Book by Hass	Brief discussion
	Overview of environmental laws	Book by Ercman	Brief discussion

Data Organization and Presentation

The collected information was divided into three categories and were presented in three separate chapters. The first category is the trends in policy development which is included in the first section of Chapter 6. In that section the data are organized as follows: (1) the countries which have been influenced by international agencies, yet their national environmental policies and institutional remain fragmented and incoherent, (2) those countries which have been influenced and helped by international agencies and have succeeded in developing comprehensive national environmental programs, (3) the countries whose policies and institutions are in the planning stages and where international organizations have charted the scope and the means by which a national environmental policy is developed and carried out. The second category is the scope of environmental regulations which is included in Chapter 7. In this category the data were also organized into three groups according to the availability and coverage of the collected data. Group one includes the countries which provided no information regarding such laws. Group two includes the countries who are in the process of developing such laws and are still relying on their old or "classical regulations". Group three includes the countries which have extensive environmental regulations. The third category relates to the environmental decision making process which is included in Chapter 8.

Chapter 5

Environmental Policy, Institutional, and Regulatory Developments

TRENDS IN POLICY DEVELOPMENT

Introduction

This section includes a summary the process by which the surveyed countries adopted their current environmental policies and regulations. The collected information provided limited information about the development of national environmental activity in Afghanistan, Bangladesh, and Turkey. In the first case, no response was obtained from the Afghani government because of internal struggle among the Afghani people to select a system of government. The government of Bangladesh also did not respond to our request for information. But, some information was collected from the Asian Development Bank regarding the use of environmental impact statements and the various environmental laws which are in effect. This information will be presented in Chapters 8. The little information which was available about the environmental activities of the Turkish government indicated that developments were still in their early stages. The one source, Ercman et al. (1977) briefly addressed the availability of environmental laws relating to air and water pollution as well as forest conservation. He indicated that these laws are administered and enforced by local agencies and municipalities. The scope of these laws is discussed in Chapter 7.

Group One: Limited Development

This group includes the countries whose policies and institutions are in the planning stages and where international organization have charted the scope and the means by which a national environmental policy is developed and carried out form group four. Such developments are characteristics of the situation in Tunisia.

Tunisia

The first step towards initiating a national and comprehensive environmental policy began in July of 1988 with the establishment of National Environmental Protection Agency (NEPA) under Law No. 88-91. The Agency was established under the direct responsibility of the Prime Ministry to set national environmental policy, set environmental regulations and standards, licensing, monitoring air, marine, and industrial pollution. This Agency was established with the assistance and encouragement of the World Bank which provided the government of Tunisia with a comprehensive reports explaining the environmental needs of Tunisia from legal, institutional and financial aspects and how to implement a national environmental policy to meet the future needs of the country. There was no additional information which might have indicated that the proposed national plan is being implemented. (The study was completed by Borin, L. et al., sponsored by the World Bank. The full citation is provided in the bibliography).

Group Two: Fragment Policy

This group included the countries which have been influenced by international agencies, yet their national environmental policies and institutions remain fragmented and incoherent. This group includes Algeria and Morocco. In both cases no information was provided by the respective governments and the presented information was collected from other sources.

Morocco

Little information has been found regarding the development of national environmental policy in Morocco. That information indicated that examining environmental issues from a national perspective began in the early 1970s. That interest was initiated in 1974 with the establishment of the National and Regional Committees for the Environment. The duties of

the National Committee were to assess environmental problems, and to assist in drafting legislation to resolve environmental problems. Other recent legal activities in the environmental field were reported by Mekouar (1986). These legal developments included the preparation of: a Draft of the Maritime Code was prepared by the Ministry of Fisheries and Navy in 1985 and another draft for the Protection & Management of the Environment in 1985. Further information about these laws was not available.

Algeria

The development of a national environmental agency and policy in Algeria began in 1974. In July of 1974 the government established the Committee for the National Environment to study the problems of improving the environment and conditions of life, of preserving and recreating the biological resources, of pollution and, of all aspects of man's environment. The Committee for the National Environment was responsible for: "1) exchanging information between ministries, 2) coordinating the preparation of measures and programs involving more than one ministry, 3) providing advice on all studies concerned with the environment, and 4) developing a national code for the protection of nature and the environment" (Hass 1990, 137).

The duties and responsibilities to manage and protect the environment in Algeria were passed from one national agency to another. The duties were passed from the Committee for the National Environment in 1974, to the Ministry of Hydraulics, Land Development and Environmental Protection in 1975 to the Secretariat of State for Forest and Land Development from the Ministry of Hydraulics in 1979 and finally to the National Agency for Environmental Protection which was established in 1983 by Law No. 83-3. This law defined a broad framework for the development of an environmental policy in Algeria. The law created a corps of environmental specialists to draw up procedures for environmental

monitoring and assessment. Further information regarding new developments in this area was not available.

Group Three: Comprehensive Policies

The third group refers to the countries which were influenced and helped by international agencies and have succeeded in developing a comprehensive national environmental programs. Detailed information was collected about Sudan, Gambia, Pakistan, Indonesia and Malaysia. Less data was available about Egypt and Saudi Arabia. The collected information about this group showed variation in the extent to which the national environmental activities were developed. The information also provided insight to the incorporation of the cultural and religious aspects of managing and protecting the environment into the overall policies and laws. The discussion begins with the less elaborate development to the most comprehensive ones.

Egypt

The effort to adopt a national environmental policy in Egypt began in 1980. Before 1980, "there was virtually no environmental policy making machinery, and most attention was focused on environmental research. Almost all environmental research was coordinated by the Environmental Research Council within the Academy of Scientific Research and Technology" (Hass 1990, 137). Such institutions included the Academy's Institute of Oceanography and Fisheries in Alexandria.

The effort to reach an agreement to prevent pollution in the Mediterranean by the regional programs of UNEP had a significant impact in pushing for national environmental law, institution and standards in order to implement the Mediterranean Action Plan. In fact, it was the efforts of institutions such as the Academy of Scientific Research and

Technology and the Institute of Oceanography and Fisheries in Alexandria, which convinced governmental authorities that it was in the national interest of Egypt to be a party to this agreement. This was one of the major steps which lead the way for further developments.

In late 1980s, an Interministerial, Ministerial Committee for Environmental Affairs was established by President Sadat. The Committee was responsible for (1) discussing policies, (2) coordinating legislation, and (3) formulating uniform pattern for action based on existing environmental legislation. A year later, in September 1981, the Academy established the permanent National Environmental Committee whose mandate was to: (1) recommend policy, (2) prepare legislation, (3) evaluate new international agreements. The main focus of the Committee at that time was to evaluate the Mediterranean Action Plan of which Egypt was a party.

After these institutional developments, the Environmental Affairs Agency was established by Presidential decree in December 1982. This agency was viewed as a centralized and permanent body whose objective was "to serve as a link between all agencies and ministries concerned with the environment it was located within the office of the prime minister with a technical staff of ten people and an annual budget of \$8 million. In January 1985 the staff was expanded to twenty-one full time professionals" (Hass 1990, 138). Further information about current activities of the Environmental Affairs Agency was not available but there are reports which indicate that major national projects are being planed to control air pollution in the country.

Saudi Arabia

Despite the existence of significant governmental interest in environmental issues in Saudi Arabia, information about the governmental activities in that field has been limited. What was available indicated that interest in pollution began in 1967 and the need for a national monitoring system was agreed upon in 1977. In 1981, the Meteorological and Environmental Public Administration Agency (MEPA) was established in pursuant to the Royal Decree No. 7/M/8903. The purpose of the Agency was to:

Provide and develop a comprehensive environmental service by determining and promulgating standards for ambient air and water quality; to establish a comprehensive monitoring and surveillance of the air, water and solid waste disposal practices of the kingdom; and to implement a broad public education program on the environment (West 1981, 120).

The government of Saudi Arabia sought to determine the Islamic basis for environmental management and protection and from this basis derive the duties and responsibilities of the Agency. As the authors of the Basic Paper on the Islamic Principles for the Conservation of the Natural Environment noted:

The preparation of this paper was first mooted during the process of establishing the central administration for the protection of the environment in the Kingdom of Saudi Arabia, the responsibilities of which include the development and submission of recommendations to the government of the Kingdom of Saudi Arabia pertaining to laws and regulations for the protection of the environment (Bakadr et al. 1989, 9).

This is an explicit and direct reference and use of Islamic principles to manage the environment. No further information was available regarding the transformation of these guidelines into enforceable environmental laws and regulations.

Sudan

The development of a national environmental policy in the Sudan followed similar steps to the ones in Egypt and Saudi Arabia, but in case of the Sudan more information was collected and a better understanding of the overall process is presented. Until 1981, the Sudan did not have any comprehensive environmental legislation. National environmental issues were addressed through numerous air, water and soil protection laws which were enacted prior to 1975. To this effect, Article 37 of the 1973 constitution stated that "all natural resources are the property of the state which is entrusted with ensuring the appropriate exploitation of these resources" (Johnson & Ofosu-Amaal 1982, 18). However comprehensive national plans to achieve this objective were not taken until May 1983. In 1983 the Programme for Political Action announced its new comprehensive policy as part of a national development plan. The policy defined a general outlook towards the environment and proposed a national approach to addressing environmental concerns. Natural resources were viewed as a "national wealth that needs to be cherished, developed and protected if it is to survive" (Demidecki 1984, 47). In order to achieve these objectives the Council [the governing body of the Sudan] stated that:

The responsibility for conserving and protecting natural resources from decline and deterioration is a national responsibility. Apart from efforts on the international level, individuals, groups, regional and central government and neighboring states should coordinate their efforts to fulfill this responsibility because these resources are for our good and for the good of mankind (Demidecki 1984, 48).

Government leaders used the Islamic concepts of stewardship of nature, and responsibility of the officials in charge a trust to use the resources wisely as the basis for the national environmental policy. The national program also addressed the issues of exploration for petroleum and agricultural and rural development; two sectors which have a major impact on the future environmental conditions in the Sudan. The program

emphasized that "it is envisioned that the country's largest economic investment will be realized by developing the petroleum fields and investing the earnings in developing renewable resources and by exploiting mineral resources" (Demidecki 1984, 47). With regards to agricultural and rural development the program regarded these two fields as basic future requirements. In addressing the issue of rural development the statements stressed that decentralized governing bodies will be established to national and regional planning activities.

The program also established the institutional entities which would have the responsibility of implementing this policy; these were the High Council for Natural Resources and a special supporting committee. The objectives of the High Council were to:" (1) formulate and review general national policies, and (2) to draw up laws and bills connected with conserving, developing and using natural resources in a comprehensive and balanced way so that they are protected from decline" (Demidecki 1984, 48). The role of the special committee was to define the tasks and fields of competence for the council and of the regional and central administrative bodies. The Committee met in September of 1983 and considered a document defining a broad policy proposal for conservation of renewable natural resources. The document outlines the following:

- (1) a general policy for conservation of natural resources.
- (2) secondary policies concerning soil, increasing water in rural areas, saving water in rural areas.
- (3) education of the public in the rational use and protection of natural resources, and scientific research (Demidecki 1984, 48).

Gambia

The adoption of a national environmental policy in Gambia was preceded by the enactment of several laws addressing various environmental issues in the country. These issues included: protecting endangered species, controlling and preventing the dumping of toxic and hazardous wastes, and protecting the water resources of Gambia. In 1987 the government of Gambia passed the National Environmental Management Act (NEMA).^{*} The Act defines the national policies towards the environment and established the legal basis for the implementation of that policy. Article 3 set the parameters for the governmental parties which should be involved in the application of the provisions of NEMA.

Every other Minister responsible for the administration of any other Statute which contains provisions relating to the natural environment, shall take such steps as are necessary to ensure that such statute is administered in accordance with the principles out in the Articles of the African Conventions specified in the schedule to this Act (NEMA 1987, Article 3, 3).

The national policy and the responsibility of the individuals was expressed in article four of the Act:

Any person involved in any activities in respect of the natural environment of the Gambia, shall undertake such activities-

- (a) having regard to the necessity to promote the sustainable utilization, rational development and conservation of these resources in accordance with currently recognized scientific principles taking into account the need to maintain essential ecological processes and genetic diversity in the best interest of the people; and
- (b) in accordance with the principles of the African Convention specified in the Schedule to this Act (NEMA 1987, Article 4, 3).

^{*} A copy of NEMA is provided in Appendix I.

These sections of the Act provided that all sectors of the government whose activities affect the environment have to comply with the law, it also defined similar parameters on the personal level.

In other Articles of this Act the responsibilities of the various governmental bodies were outlined in some details. Article 8 established the Natural Environment Management Council. The Council consisted of five ministers and is headed by the Minister of Water Resources and the Environment. The three main functions of the Council were outlined in Article 10:

- (a) to coordinate the responses of public bodies to the environmental effects of activities which affect the sustainable utilization, rational development and conservation of natural resources.
- (b) to examine the extent to which such activities may be integrated with one another so that to attain most effectively the sustainable utilization, rational development and conservation of natural resources
- (f) determine all matters arising from any environmental impact statement produced in pursuance of subsection 2 of section 5 of this Act. (NEMA 1987, Article 10, 5).

The Act also established the Advisory Committee on the Management of the Natural Environment in 1987. The committee consisted of ten members from the scientific and environmental fields who are appointed by the Minister. The functions of the Committee are to:

- (1) to advise the Council on scientific and technical terms.
- (2) to make proposals to the Council with regard to activities relating to the sustainable utilization, rational development and conservation of natural resources to be taken by public bodies; and
- (3) may initiate studies or inquiries relating to the sustainable utilization rational development and conservation of natural

resources and may recommend measures in support of such work to the Council. (NEMA, Article 14, 6).

Oman

The most comprehensive law concerning the protection of the environment in Oman is the Environmental Protection and Pollution Control Law of 1985.* The law defined the national policy towards the environment and established the Environmental Protection Council. The law aimed to protect of the health and welfare of its citizens as well as the country's natural environment and its resources. The objectives of the law were to "protect and develop the nation's natural resources in the best possible manner without damaging ecological systems on land or in the sea" (Oman 1985, 5). Information about the previous legal environmental activities leading to this comprehensive act were not available. For this reason the discussion will focus on the national goals and objectives outlined in this law.

The Law defined the legal parameters for protecting the environment and established the governmental agencies and bodies to administer and enforce these laws. More specifically, the Law defined the following: (1) the general environmental terms associated with this law, (2) expanded the authority of the Environmental Protection Council which was established the Decree of 79/68, (3) established the Technical Assistance Division, (4) set the general requirement for the preparation of an EIS in Oman, (5) defined the responsibilities of owners and operators of areas which may cause pollution, and (6) set the penalties for violating the mandates of the Law.

* The Translation of this Law is provided in Appendix J.

Kuwait

Recent official interest in the impact of development on the environment began in 1952 with the establishment of the Development Board. During the initial period, the Board developed the master national physical plan to control the physical development of Kuwait. This type of planning for future development established Kuwait as the pioneer in the gulf region in controlling development to protect the environment. From the legal standpoint, several law were enacted in the early 1960s and 1970s to address various environmental issues. These laws included: the law 12/1964 for the Protection of Navigable Waters Against Pollution by Oil and the Law 13/1977 for Protection Against Ionizing Radiation.

More organized development in the environmental field emerged after the UN conference in Stockholm in 1972. These developments included the establishment of non governmental organizations and the designation of a governmental body to formulate national environmental policy. This lead in 1978 to the establishment of a Supreme Committee for the protection of the Environment by the Council of Ministers. "The Committee found a need for establishing a central body authorized to look after the environment and supervise all the activities pertaining to the protection of the environment including monitoring and inspection and take the necessary in that effect. To realize all the previous ideas, the present law [1980] was drafted, established the Environment Protection Council and empowering it with the necessary capabilities" (Law No. 2 for the year 1980 Regarding the Protection of the Environment, 14).*

This law provided the regulations and guidelines for monitoring of environmental activities, requiring EIAs, establishing training programs and cooperating with other Gulf States in controlling pollution. The law also established the Environmental Protection

* A copy of the Law is provided in Appendix K.

Department within the Ministry of Health and the Environmental Protection Council. The Council consisted of ministers from seven ministries as well as Kuwait's municipality, and the Kuwait Institute of Scientific Research. The main functions of the Council are:

- (1) Suggest a general policy for the protection of the environment.
- (2) Suggest short and long term work plans concerning all activities related to protection of the environment.
- (3) Coordination of the activities of the different departments concerned with the protection of the environment.
- (4) Study problems resulting from pollution or deterioration of the environment and suggest appropriate control measures.
- (5) Participate in formulating the research policy in the field of environment protection in coordination with concerned organizations.
- (6) Prepare bills, regulations, and orders for protection of the environment and supervise their enforcement.

(Law No. 2 for the year 1980 Regarding the Protection of the Environment Article 3, 6-8).

The Council also has the right to:

- (1) Order the suspension of work in any institution or ban the use of any tool, machine or material either partially or totally, if they involve any hazard to the environment. The suspension will be for a week and may be extended for another week if absolutely necessary. The Council shall have the right to authorize its chairman to issue such an order in case of an emergency and for a period no longer than three days, after which the case shall be presented to the Council. (Law No. 2 for the year 1980 regarding the protection of the environment, Article 7, 10).
- (2) Request any information it may deem necessary from an institution carrying out activities that may pollute the environment. (Law No. 2 for the year 1980 Regarding the Protection of the Environment Article, Article 10, 10).

Pakistan

The collected data from the survey provided information about the most recent developments in Pakistan regarding the adoption of a comprehensive environmental policy. The comprehensive approach to environmental protection and management were outlined in the The Pakistan Environmental Protection Ordinance of 1983* and the Pakistan National Conservation Strategy which was approved in 1992.

The Ordinance accomplished the following objectives: (1) outlined the overall approach to environmental protection and management, (2) established the Pakistan Environmental Council, Pakistan Environmental Protection Agency, (3) required the preparation of environmental impact statements for projects which may have significant impacts on the environment, and (4) established guidelines for public participation in the EIS process. The other legal development which enabled Pakistan to have a comprehensive explicitly national environmental policy was the approval of the Pakistan National Conservation Strategy in March of 1992.

With the approval of this strategy, Pakistan becomes the 23rd country in the world with an explicit national policy document for a sustainable future. The process of the development of the National Conservation Strategy has extended over many years. It is a process that emerged out of a partnership between the government of Pakistan and the IUCN - The World Conservation Union sought an alternative pattern of development. A national workshop in August of 1986 identified the need for preparing such a strategy. Actual work commenced in April 1988, and was completed in August 1991. The preparation of the national strategy was supervised by a high level Steering Committee headed by the Deputy Chairmen, planning commission, assisted by nine federal secretaries, and five eminent private sector representative (National Conservation Strategy Approved 1992, 107).

* A copy of the Ordinance is provided in Appendix L.

This National Conservation Strategy was developed and approved in consultation with the IUCN, government officials, community leaders and the general public. As the report indicated on the development and approval process:

Workshops, seminars, and discussions were arranged on various topics all over the country. Public hearings were also held in three cities and five villages to hear the views of local communities. In all, over 3000 experts and concerned citizens were given an opportunity to comment and provide an input to the NCS. A regular newsletter and radio talks by the NCS staff kept the country informed on the process of strategy making. This wide ranging process of consultations had the single advantage of creating a constituency for the NCS even while it was in the process of formulation (National Conservation Strategy Approved 1992, 107).

The specific duties to apply the national environmental policy and law were given to the Pakistan Environmental Council and the Pakistan Environmental Protection Agency. According to the provisions of the 1983 Ordinance the Pakistan Environmental Council of which the President of Pakistan is the Chairman, the Council is required to:

- (a) ensure the enforcement of the Ordinance.
- (b) establish a comprehensive national policy.
- (c) give appropriate direction to conserve the renewable and expendable resources.
- (d) ensure that environmental considerations are interweaved into National Development Plans and policies;
- (e) ensure the enforcement of the National Environmental Quality Standards; and
- (f) give direction to any Government agency, body or person requiring him to take measures to control pollution being caused by such agency, body or person or to refrain from carrying out and particular activity prejudicial to public interest of the purposes of this Ordinance.

(Pakistan Environmental Protection Ordinance 1983, 248).

Similarly, the Pakistan Environmental Protection Agency was empowered to administer and enforce the Ordinance. The Agency was required by law to:

- (a) administer this Ordinance and the rules and regulations;
 - (b) prepare national environmental policy for approval by the Council;
 - (c) publish an annual report on the state of the environment.
 - (d) establish National Environmental Quality Standards with the approval of the Council;
 - (e) revise the National Environmental Quality Standards as and when deemed necessary;
 - (f) coordinate environmental policies and programmes nationally and internationally;
 - (g) establish a system for surveys, surveillance, monitoring, measurement, examination and inspection to combat environmental pollution.
- (PEPO 1983, 248-249).

Indonesia

The spilling of crude oil outside the Singapore harbor led the governments of Indonesia and Malaysia to enact environmental regulations to legally guard them against future accidents of this nature. The spill occurred when "a Japanese tanker carrying 337,000 tons of crude oil from the Persian Gulf to Japan ran aground outside Singapore Harbor . . . and spilled oil that formed into slicks three miles wide. About 4,500 tons of oil, or nearly 2 percent of the cargo seeped from three tanks that were damaged when the ship struck . . . The spillage of 4,500 tons or more is the worst to hit the Singapore area, which is one of the world's busiest shipping lanes" (Vast Spill 1975, 4). The spill caused the governments to respond on two levels. The first was to set up governmental body to deal with the clean up of the oil; "the government [of Indonesia] said to day January 8, 1975] that a special headquarters was being established in the inland sea area to supervise

the cleanup of the oil slick and the compensatory payments to fishermen and others" (Halloran 1975, 8). The second was the enactment of environmental regulations:

Indonesia's Ministry of Justice made a thorough legal investigation into what in the legislation was applicable, only to discover that no pollution legislation existed at the time nor had Indonesia ratified the International Maritime Organization(IMO) Convention on Civil Liability for Pollution Damage by Oil 1969. The impact of the 'Showa Maru' incident beyond the amicable settlement that resulted, it also emphasized Indonesia's shortcomings in the field of environmental law, particularly marine pollution law. In fact this incident triggered Indonesia's interest in and development of its ever-growing corpus of environmental legislation (Tolentino, 1988, 238).

Before this incident concern for environmental conditions was firmly expressed in the Constitution of 1945. The next step towards establishing a national policy continued with the passage of various pollution control laws such as Indonesia's General Regulations on Pollution Control which of 1974. From that point the national environmental policy in Indonesia began to take shape with the adoption of the Third-Five Year Development Plan in 1978. The plan established the overall objectives and defined the strategies to achieve them. These strategies included: "continuing economic growth, achieving equitable distribution of development benefit, and promoting dynamic and sound national stability" (Suprpto 1990, 25). The government of Indonesia also used this plan to establish the State Ministry for Development Supervision and Environment. "At that stage, the Ministry emphasized and promoted an environmentally sound development strategy with special attention to environmental problems related to pollution control, critical land degradation, loss of forests, and attempt to establish legislation to meet these problems" (Suprpto 1990, 26).

The 1978 provisions ensured that development proceeds in accordance with government policy. A directive was issued to the Ministry of State for Development Supervision and the Environment to that effect. The directive stressed the following goals: " (1) environmental effects must be taken into account early in the planning of new projects, programs and activities, (2) environmental assessment must be carried out for projects, programs and activities that are likely to have a significant effect on the environment, and (3) the results of the assessment must be used in planning, decision-making and implementation of the project" (Lohani 1985, 189).

The Fourth-Five Year Plan of 1983-1988 provided further policy and structural changes. "During this period, The Ministry in Charge of the Environment restructured into the State Ministry for population and Environment, reflecting a conscious effort to balance population and environmental concerns . . . The Ministry focused its activities on implementation of environmental law through establishing governmental legislation requiring impact assessment for proposed projects. However, the legislation stressed an integrative approach to assessing impacts of change" (Suprpto 1990, 26). The 1986 EIS legislation is administered by the State Ministry of population and the environment; the central agency for coordination and review established under the of the third five year plan.

Malaysia

Malaysia is one of the developing countries which have built on its earlier environmental laws, numbering more than 300 hundred. It passed the most comprehensive legislation addressing environmental issues in March 1974 under the provisions of the Environmental Quality Act. Malaysia is one of the few countries in the third world which has "adopted an environmental policy as a component of its development strategy" (Gruppe & Ofosu-Amaal 1981, 13). The law introduced regulations to control land use, zoning,

preventing soil erosion, forest clearing, tailing and mining operation and, protection of maritime fishing.

Environmental policy in the third Malaysian Plan (1975-1980). The objectives of the plan were to eradicate poverty and to restructure society. Similar to other developing countries, Malaysia's environmental policy aimed to balance the future needs for economic and social development with sound environmental management. To achieve this goal, the third Malaysian Plan outlined these five objectives: "(1) natural resources and ecosystem management, (2) research into land use and management, (3) forestry management, (4) wildlife management, (5) environmental pollution control" (Gruppe & Ofosu-Amaal 1981, 14).

The Malaysian government relied on statutory and non-statutory laws to achieve the overall objectives. The statutory measures were embodied in the regulations of the 1974 law. The non-statutory controls were "restricted to areas which are not amenable to regulation by federal legislation including areas within the competence of state governments" (Maheswaran & Singam 1985, 157). These were in the form of standards and guidelines which were defined to control development.

In addition to declaring a national environmental policy, the 1974 Act also (1) appointed a Director General of the Environment, (2) accepted the EIA as management tool to prevent pollution prior to the initiation of development, and (3) established national parks. The duties of the Director General of the Environment included: issuing licenses for waste and discharges and emissions, formulation of standards, coordination of pollution research, and dissemination of information and education material to the public. This development was followed in 1975 by the establishment of the Division of the Environment (DOE)

within the Ministry of Science, Technology and the Environment. The DOE was created as an administrative response to mounting environmental problems-pollution. The Ministry's objectives were to use short term statutory means to control pollution and take remedial action. From a non-statutory standpoint, the Ministry focused on setting environmental guidelines for planners and developers, and the long-term strategy proceeded to establish the EIA procedure. In addition to these duties the DOE was also responsible for: (1) administering the Environmental Quality Act of 1975, (2) investigating the cause of environmental problems, and (3) coordinating of environmental planning.

Remarks

The collected data indicated that concern for environmental conditions in the surveyed countries is rising. This trend is supported by the establishment of national environmental policies and institutions to implement these policies. (A summary of these activities is provided in Tables 15, 16, 17, and 18 in this section). These Tables were prepared from the collected data and from other sources such as the book by Haas: Saving the Mediterranean.

Table 15 -- Adoption of Comprehensive Environmental Policies.

Country	Adopted (Year)	Supporting Agency
Algeria	1974	UNCHE
Bangladesh	1977	No Information
Egypt	1980	UNCHE
Gambia	1987	National Effort
Indonesia	1982	National Effort (UNEP Support)
Kuwait	1980	National Effort (UNEP Initiative)
Libya	No Information	No Information
Malaysia	1974	National Effort (World Bank Support)
Morocco	No Information	No Information
Oman	1985	National Effort
Pakistan	1983	National Effort (IUCN Support)
Saudi Arabia	No Information	No Information
Sudan	1983	National Effort (World Bank Report)
Tunisia	1988	World Bank
Turkey	No Information	No Information

Table 16 -- Establishment of Environmental Coordination Authorities.

Country	Year	Authority
Algeria	1974	The Committee for the National Environment
Bangladesh	1977	Environmental Pollution Control Board
Egypt	1980	The Ministerial Committee for Environmental Affairs
Gambia	1987	The National Environmental Management Council
Indonesia	1972	The National Committee on Environment
Kuwait	1980	The Supreme Committee for the the Protection of the Environment
Libya	1981	The National Commission for Environmental Protection
Malaysia	1975	Department of the Environment
Morocco	1974	The National Committee for the Environment
Oman	1985	The Environmental
Pakistan	1983	Pakistan Environmental Protection Agency
Saudi Arabia	1977	Meteorology & Environmental Protection Administration Protection Council
Sudan	1983	The High Council for Natural Resources
Tunisia	1978	The National Environmental Board
Turkey	1983	Interministerial Supreme Environmental Council

Table 17 -- Establishment of Environmental Regulatory Authorities.

Country	Year	Authority
Algeria	1983	The National Agency for Environmental Protection.
Bangladesh	--	The Ministry of Local Government, rural development and Cooperatives.
Gambia	--	The Ministry of Water Resources & the Environment.
Egypt	1982	The Environmental Affairs Agency.
Indonesia	--	The Ministry of Population and the Environment
Kuwait	1980	The Environmental Protection Department (Ministry of Public Works).
Libya	--	--
Malaysia	1975	The Ministry of Water Resources & the Environment
Morocco	--	--
Oman	1985	The Ministry of the Environment.
Pakistan	1982	Pakistan Environmental Protection Agency
Saudi Arabia	1981	Meteorology & Environmental Protection Administration.
Sudan	--	--
Tunisia	1989	The National Environmental Protection Agency
Turkey	--	--

SCOPE OF ENVIRONMENTAL REGULATIONS

Overview

The section focus on the earlier and the recent environmental regulations. Information about recent environmental regulation is presented to present an overview of the efforts to protect and manage the environment.

Early Environmental Regulations

The collected data was classified according to the areas of environmental concern including: pollution control (air, water, marine, and land sources), forest conservation, control of toxic waste, and the availability of pollution standards. The majority of the countries have some of regulations dealing with these areas. The important issue in this regard is the relevancy of these laws to current environmental needs. The collected information indicated that the earlier environmental regulations are still applied. Such regulations have been enacted in the early 1900s and they were based around protecting the environment as it relates to health issues. These regulations have their basis in the laws of the countries which colonized the Islamic countries at the beginning of the century. In case of the Sudan, the laws from the 1930s have their bases in a combination of English and old Egyptian laws; while in Malaysia, the laws were derived from Dutch origins. Table 19 on page 135 provides an overview of the scope of environmental regulations in the surveyed countries.

Data Organization

The data were organized into three groups according to the availability and coverage of the collected data. Group one includes the countries which provided no information regarding such laws. Group two includes the countries who are in the process of developing such laws and are still relying on their earlier regulations. Group three includes the countries which have extensive environmental regulations.

Group One

Although information was obtained regarding the adoption of national environmental policies and the establishment of environmental organization, little or no information was obtained regarding applied environmental laws. These countries included Morocco, Tunisia, Saudi Arabia, Oman, Kuwait, and Afghanistan. Table 18, which was based on the collected information show the overall status of the available environmental laws.

Group Two

Group two includes the countries who are in the process of developing such laws and are still relying on their earlier regulations. These countries include Turkey, Egypt, Sudan, Pakistan, Bangladesh. Some aspects of the countries in this group were that: (1) some information has been collected regarding the status of environmental laws, (2) the same sources indicated that environmental laws are fragmented, and (3) that more comprehensive legislation are still in the development process.

Table 18 -- Scope of Environmental Regulations in the Surveyed Countries.

Country	Air	Water	Marine	Land
Algeria	No Info.	No Info.	1983	1983
Bangladesh	1977	1977	1977	1971, 1977 1980, 1983
Egypt	1982	1982	1983	1983
Gambia	No Info.	1977	1977	1987, 1988
Kuwait	No Info.	No Info.	Treaty	Treaty
Indonesia	No Info.	1974	1963, 1973 1983	1982
Libya	No Info.	No Info.	No Info.	No Info.
Oman	No Info.	No Info.	No Info.	No Info.
Malaysia	1977, 1978	1974, 1976	1977, 1978 1979	1974
Morocco	No Info.	No Info.	1985	1985
Pakistan	1983	1983	1976, 1983	1961
Sudan	1975	1969	No Info.	1969
Saudi Arabia	No Info.	No Info.	No Info.	No Info.
Tunisia	No Info.	No Info.	No Info.	No Info.
Turkey	1972, 1979	1979	1965	1983

Turkey

As Ercman (1977) pointed out "there is no specific legislation for protection of the environment nor of waters, including coastal waters. The existing legislation provisions are fragmentary and mostly governed by public law rules. Examples are the Public Health Act of 6 May 1930, the Local Authorities Act, the Forest laws, the Ports Act of 14 April 1925, the Water Act of 1926, the Water Resources Act, the Ground Water Act of 1960 and Regulations and the Construction Laws" (Ercman et al. 1977, 109). In general these laws prohibit the pollution of air and water and set penalties for violating parties. He also indicated that ministries of Agriculture, Commerce, and Health and Social Welfare Are

responsible for detecting, determining, and monitoring of pollution and initiating prosecutions for offenses against the Water Resources Act 1971. Finally, a bill on the prevention of pollution and the protection and Management of Waters has been drafted in 1977. The bill required "new establishments to be equipped with waste treatment; a time limit is allowed for existing industrial establishments discharging effluents to take measures to install purification plant" (Ercman et al. 1977, 112). A similar bill on Air Pollution Control (Clean Air Act) No. 914, which was prepared by the Ministry of Health and Social Affairs and submitted to the Parliament was not passed in 1977. More updated information about these bills and other recent environmental activities were not available. It is important to mention new development in environmental legal and administrative systems should be expected as Turkey begins to interact with the newly developed European Economic Community (EEC).

Egypt

Recent pollution control regulations were developed in accordance with the Mediterranean Action Plan. These regulations focused on controlling pollution from non-point sources and by setting priorities for environmental action. One of these priorities was the allocation of funds to construct waste water treatment plant in the countries to minimize pollution in the Mediterranean.

Sudan

In the Sudan environmental regulations were enacted mainly to protect water resources of the country to combat water born diseases which were prevalent in the Sudan. These regulations date back to the beginning of this century. (An example of such regulations is provided in Appendix M). Other environmental regulations set the standards for

conservation of natural resources and the establishment of national parks. An example of such laws is the Wildlife and National Parks Act of 1973.

Pakistan

The Asian Development Bank provided most of the information about environmental regulations in Pakistan. Copies of the data, (shown in Appendix O), indicated that environmental regulations covered all aspect of pollution such as air, water and marine pollution. The information also showed that the regulations are relatively old, with the most recent regulation being the Pakistan Environmental Protection Ordinance of 1983.

Bangladesh

A similar situation exists in Bangladesh where the Asian Development Bank provided most of the information about environmental regulations in the country. The regulations were relatively new dating back to the 1970s and 1980s. A listing of these laws is provided in Table 19 and in Appendix O.

Table 19-- Scope Environmental Regulations in Bangladesh & Pakistan

	Bangladesh	Pakistan
Air Pollution Control Legislation	Control Ordinance, 1977. Factories Act, 1965.	(PEPO), 1983. Motor Vehicle Act, 1938.
Water Pollution Control Legislation	Environmental Pollution Control Ordinance, 1977. Factories Act, 1965.	(PEPO), 1983.
Marine Pollution Control Legislation	Environmental Pollution Control Ordinance, 1977. Territorial Waters and Marine Zones Act, 1974.	(PEPO), 1983. Territorial Waters and Maritime Zone Act 1976.
Land Based Pollution Control Legislation	Pesticides Ordinance, 1971; (Amended in 1980 & 1983). Environmental Pollution Control Ordinance, 1977.	Agriculture Pesticides Ordinance, 1961.
Land Use Legislation	Local Government Ordinance, 1982. Prourashara Ordinance, 1977.	NWFP Urban Planning Ordinance, 1978. Land Reform Act, 1973-75.
Forest/Wildlife Conservation Legislation	Environmental Pollution Control Ordinance, 1977. Forest Act, 1927; (Modified 1973). Wildlife (Preservation) Order, 1973.	The Forests Act, 1927.
Hazardous & Toxic Substances Legislation	Information not Available.	Information not Available.

Group Three

Group three includes countries which have extensive environmental regulations. This group includes Gambia, Indonesia, Malaysia.

Gambia

It was surprising to find out that comprehensive environmental regulations were enacted by Gambia. The laws covered almost all aspects of environmental pollution. The laws paid specific attention to the preservation of natural resources and protection of endangered species. A summary of these regulations is presented in this section.

The National Environmental Management Act of 1987.

The Act defined the National environmental strategy and set up the institutional and the legal instruments to achieving the goals of the strategy. This included the establishment of the National Environmental Management Council and the use of EIS for projects which may have significant impact on the environment. A copy of the National Environmental Management Act is shown in Appendix I.

The Environmental Protection (Prevention of Dumping) Act of 1988.

The Act set the procedure for the establishment of standards for the storage, recycling and disposal of waste. The Act also established a permit system for the dumping of wastes in Gambia. Specific reference is made to illegal dumping of wastes from other states in the Gambian territories. These regulations focused on the dumping of hazardous wastes in the country and the penalties for such actions.

The Wildlife Conservation Act of 1977.

This Act was entirely devoted to the protection of natural resources, specifically referring to national parks and hunting of wild animals. The Act gave ministers to designate national parks and to issue licenses for hunting wild animals. The Act also prohibited the sale of the meat, or trophy from any wild animals. In addition to that, the Act limited importing and exporting of wild animals to individuals who have obtained valid import permits. Similar regulations were set for the exportation of wild animals. The remaining provisions of the Act defined the penalties for violating these regulations and established national reserves in Gambia.

The Pesticide Control and Management Act, 1983.

The Act established a pesticide advisory board to "advise the Director on the use and application of pesticides, consider and approve applications for the registration of pesticides, and on the recommendation of the Director, determine which registered pesticides shall be canceled" (The Pesticide Control and Management Act 1983, 21). The Act also aimed to control the use of pesticides by classifying them for general and restricted use. Additional provisions defined the procedures for issuing licenses for the use of pesticides. The Act also empowered governmental authorities to record the use and applications of the pesticides. These authorities also had the right to inspect and take samples of storage and disposal sites of pesticides. The title pages of these Acts are shown in Appendix N.

Table 20 -- Scope of Environmental Laws in Gambia

Topic	Corresponding Regulation(s)
Air Pollution Control Legislation	Information not Available.
Water Pollution Control Legislation	The National Water Resources Council Act, 1977.
Marine Pollution Legislation	The Fisheries Act Control No. 17, 1977.
Land Based Pollution Control Legislation	The Pesticide Control & Management Act, 1987. The Environmental Protection (Prevention of Dumping) Act, 1988.
Land Use Legislation	Information not Available.
Forest & Wildlife Conservation Legislation	The Wildlife Conservation Act, 1977. The Wildlife Conservation Regulations, 1978. Articles VIII & X of the National Environmental Management Act, 1987.
Hazardous & Toxic Substances Legislation	Sections 6 & 7 of the Environmental Protection (Prevention of Dumping) Act, 1988.

Indonesia

In Indonesia, substantial regulatory development took place after the 1972 UN conference where the government proceeded to enact laws to address environmental issues in Indonesia. The discussion of the laws was limited because the collected data does not provide sufficient information about them and because some of the listed laws are outdated and their applicability at this time is questionable.

Malaysia

The development of such extensive environmental regulations in Malaysia was attributed to the early integration of environmental concerns into economical planning of both countries. The Third Malaysian Development Plan was completed with the assistance of the World Bank. The collected information indicated that the available regulations cover all aspects of environmental concern. These regulations are listed in Table 21.

Table 21 -- Scope of Environmental Laws in Indonesia and Malaysia

Areas of Environmental Concern	Corresponding Regulation(s)	
	Indonesia	Malaysia
Air Pollution Control Legislation	Information not Available.	The Motor Vehicle (Control of Smoke & Gas Emissions) Rules, 1977. The Environmental Quality (Clean Air) Regulations, 1978.
Water Pollution Control Legislation	Act No. 11 of 1974 for the Protection and control of Pollution caused by oil. Regulation No. 17 of 1974 on the supervision of oil and natural gas exploration. General regulations on Pollution Control, 1974.	30 Laws directly related to water Pollution. More than 100 indirectly related laws. Regulations of the Environmental Quality Act, 1974. Local Government Act of 1976. (L.M. Act 171).

Table 21 (Cont.) -- Scope of Environmental Laws in Indonesia and Malaysia

Areas of Environmental Concern	Corresponding Regulation(s)	
	Indonesia	Malaysia
Marine Pollution Control Legislation	Act No. 4 of 1963 concerning Indonesia Waters.	The Environmental Quality (Prescribed Premises), (Crude Palm Oil Regulations), 1977.
	Act No. 1 of 1973 concerning the Indonesian continental Shelf.	The Environmental Quality (Prescribed Premises, Raw Natural Rubber) Regulations, 1978.
	Act No. 5 of 1983 concerning the Indonesian exclusive Economic Zone.	The Environmental Quality (Sewage & Industrial Effluents) Regulations, 1979.
Land Based Pollution Control Legislation	Information not Available.	Pesticide Act, 1974.
		Street Drainage and Building Act, 1974.
Land Use Legislation	Information not Available.	Town and Planning Act, 1976.
Forest/Wildlife Conservation Legislation	Information not Available.	National Parks Act, 1988.
		Protection of Wildlife Act, 1972.
Hazardous & Toxic Substances Legislation	Government Regulation No. 7 of 1973 (Pesticides).	Information not Available.
	Regulation No. 33 1965, No. 9 1969 and Nos. 12 & 13 of 1975 (Radioactive Substances).	

Other Environmental Regulations

Other areas of environmental concern which were not previously discussed in this Chapter include the enactment of regulations to conserve forests, control pollution from

toxic wastes, the use of pollution standards. The information regarding the enactment of law to conserve forests indicated that several countries had such regulations, including Algeria, Gambia, Sudan and others, as shown in Table 22 below. More attention has been given to controlling toxic wastes as is illustrated by the same table. The collected information about these regulations was very brief; detailed information was only obtained from Gambia concerning the control of toxic substances (The Pesticide Control and Management Act of 1983). Other countries have indicated in their general policies that they have given the national environmental committees or agencies the responsibility of setting such standards. Saudi Arabia have already set such standards and they are being implemented. (The titles and sources of these standards are provided in the Bibliography).

Table 22 -- Other Areas of Environmental Regulations.

Country	Forest Conservation	Pollution Standards	Toxic Wastes
Algeria	No Info.	No Info.	1983
Bangladesh	1977	No Info.	No Info.
Egypt	No Info.	1982	1988
Gambia	1977, 1978, 1987	1983, 1987, 1988	1988
Indonesia	-	-	1965, 1969, 1973, 1975
Kuwait	No Info.	1982	No Info.
Libya	No Info.	No Info.	No Info.
Malaysia	1972, 1988	1978	1953, 1967, 1970, 1974, 1983, 1984
Morocco	No Info.	No Info.	1983
Oman	No Info.	1985	No Info.
Pakistan	1927	1983 (Proposed)	No Info.
Saudi Arabia	No Info.	1984	No Info.
Sudan	1939	No Info.	No Info.
Tunisia	No Info.	W.H.O.	No Info.
Turkey	1971	1979	No Info.

Remarks

The presented data indicate that the surveyed countries have proceeded to establish environmental regulations to protect the environment. It has also been observed that the regulations are a combination of classical and more recent ones. This brings up an issue which relates to the effectiveness of these regulations. Although the regulations need to be updated to meet the modern pollution control requirements, the classical or customary laws play a significant role at the local level.

As was noted in the case of Sudan "sixty percent of all disputes are resolved by customary law . . . statutory law is considered alien by the majority of the population"(Johnson & Oforu-Amaal 1982, 16). And in another instance the authors found that "customary law and Islamic law norms . . . enjoy a high degree of adherence and compliance" (Johnson & Oforu-Amaal 1982, 17). For these reasons, the newly enacted laws should take into consideration the conduct or compliance of the various laws in the country. The issue brings up another important point because the Islamic laws "enjoy a high degree of adherence and compliance". Therefore, if the national environmental policy as well as the regulations had their basis in the Islamic religion the acceptance and effectiveness of these laws would be increased. Such a policy would avoid the inadequate transplantation of other methods of environmental protection and decision making and it would remove the obstacles which might be encountered with the adoption of such laws and procedures. The various methods of environmental decision making process and the use of EIS are presented in Chapter 8.

THE ENVIRONMENTAL DECISION MAKING PROCESS

Objectives

The objective of this section is to provide an overview of the environmental decision making process in the surveyed countries. Such an understanding could be achieved by examining the duties of the regulating bodies such as the environmental councils and the national agencies which were established to administer the national polices and laws. A part of this section is devoted to comparing the applied decision making process to that described in the basic paper for Islamic environmental management and conservation.

Overview

Because the same sources were used to identify the decision making process and the overall policies, similar gaps in information exist and those will be defined accordingly. Despite this lack of information, I was able to prepare Table 23 which provides an overview of the environmental decision making process in the surveyed countries.

It could be generalized that the newly formed environmental agencies and departments of the environment have been entrusted with overseeing the implementation of adopted regulations. In countries such as Sudan, Oman, Gambia, and Kuwait a council is established to make overall decisions. The councils are also involved in assessing the issues which arise from the use of environmental impact statement of proposed projects. This issue is discussed in the next section of this section.

Table 23 -- The Environmental Decision Making Process in the Surveyed Countries.

Country	Form	Body	Law
Afghanistan	No Info.	No Info.	No Info.
Algeria	No Info.	National Agency for Environmental Protection 1983	No Info.
Bangladesh	No Info.	No Info.	No Info.
Egypt	No Info.	Environmental Affairs Agency 1982.	Presidential Decree 1982
Gambia	Consultation	Natural Environment Management Council, 1987	National Environmental Management Act, 1987.
Indonesia	Consultation	Ministry of State for Development Supervision and the Environment.	Directive 1986.
Kuwait	Consultation	Environmental Protection Council 1980.	Law number 62 of 1980
Libya	No Info.	No Info	No Info
Malaysia	Consultation	Department of the Environment Director General of the Environment.	Environmental Quality Act 1985
Morocco	No Info.	No Info	No Info.
Oman	Consultation	Environmental Protection Council.	Environmental Protection and Pollution Control Law of 1985.
Pakistan	Consultation	The Pakistan Environmental Council	Pakistan Environmental Protection Ordinance, 1983.
Saudi Arabia	No Info.	Metearological & Environmental Protection Administration	Royal Decree No. 7/M/8903, 1981.
Sudan	Consultation	The High Council for Natural Resources.	The Program for Political Action.
Tunisia	No Info.	National Environmental Protection Agency 1989.	
Turkey	No Info.	No Info.	No Info.

Sudan

The environmental decision making process in the Sudan lies between the central government and the regional and local authorities. The policy which was adopted in 1983 recognized the need to strengthen the regional and local authorities to make the national environmental policy more effective. The 1981 USAID report recommended that the government of Sudan take the following steps: "(1) establish and integrated environmental and natural resources management policy, (2) review institutional structure, and (3) formulate comprehensive environmental and natural resources legislation" (Johnson & Ofosu-Amaal 1982, 60-64). These actions were taken in 1983.

Kuwait

Law number 62 of 1980 set the guidelines for environmental decision making process. The Law gave the Environmental Protection Council the authority to undertake the following actions: (1) collect and request any information relating to the pollution control, (2) suspend or ban the use of any tools or material which may be hazardous to the environment. Other rights of the Council were mentioned previously.

Gambia

In Gambia the decision making process is carried out by the Natural Environment Management Council which was established in 1987. The Council is made up of five ministers and is headed by the Minister of Water Resources and the Environment. From a functional standpoint, the Council meets at least once every three months, and the decisions are made by voting on issues and securing a majority vote. The National Environmental Management Act also stipulates that in the event of a tie vote the Chairman shall have a casting vote.

Saudi Arabia

The collected information indicated that part of the decision making process lies with the MEPA. As West (1981) noted:

MEPA occasionally will require environmental impact statements although EISs will not form the backbone of environmental protection as in the United States. When projects are expected to cause major adverse impacts that can not be mitigated, then EISs will be mandatory. However, guidelines have not yet been developed for the preparation of such statements (West 1981, 121).

Oman

The environmental decision making process lies with the Environmental Protection Council which makes decisions regarding national and international issues in Oman. Other decision making provisions were given to the Technical Assistance Division which is empowered to collect data, conduct studies and enforce the provisions of the Environmental Protection and Pollution Control Law of 1985. As the law indicated the Council has the power to:

enact laws and regulations to apply this law, establish and operate a central facility to conduct environmental studies and establish environmental monitoring stations throughout Oman. The Council is also authorized to fulfill environmental obligations undertaken by Oman on regional and international levels.

and take

all the necessary measures to protect the environment of Oman as well as improving and protecting the natural resources for future generations. This action concerns the social and economic aspects. It also involves the variety of land and water resources specially found in Oman particularly the endangered ones.

(Environmental Protection and Pollution Control Law 1985, 5, 12).

The Technical Assistance Division was established to assist the Council in administering and enforcing the Law. The duties of the Division included: (1) setting environmental standards, (2) environmental specifications, (3) identifying the number, types and location of national sanctuaries and other historical and culturally significant areas in Oman, and (4) making suggestions regarding the proposed environmental laws and standards. The Division was also required to collect and update land use and environmental information and to monitor changes in environmental systems in Oman.

Indonesia

In Indonesia the environmental decisions have been delegated to the Ministry of State for Development Supervision and the Environment in 1986. The Ministry sets national policy and enforces national environmental regulations. Among these regulations is the requirement for EIS for specific projects.

Malaysia

The decision making process for the need and approval of the EIA lies within the Department of the Environment; headed by the Director General of the Environment.

Remark

The only reference to the use Islamic guidelines in the decision making process is the establishment of environmental councils. These councils vote on proposed actions and evaluate the impacts arising from the use of environmental impact statements. This process is not unique to the Islamic thinking but it was worth noting in this section.

THE USE OF ENVIRONMENTAL IMPACT STATEMENTS

Overview

As it was noted in this Chapter, the EIS varied from being a report or document needed to obtain a permit. When used in this context the document accounted for the inputs and outputs; these variable were then compared to the pollution to examine if the project can be approved. Other countries used the EIS in the form which is applied the US and Europe where the public is involved by commenting on the proposed projects and where several alternatives are considered. Most of the surveyed countries are using EIS or EIAs in one form or another to account for the impact of development projects on the environment. The current status of the use of such impact statements is summarized in Table 24 below.

Table 24 -- The Use of EIA, EIS and SIA in the Surveyed Countries.

Country	EIA	EIS	SIA
Algeria	1983	No Info.	No Info.
Bangladesh	No Info.	No Info.	No Info
Egypt	No Info.	1982	No Info.
Gambia	1987	1987	1987
Indonesia	1982	1982	1983
Kuwait	1980	No Info.	No Info.
Malaysia	1985	1985	No Info
Oman	1985	No Info.	No Info.
Pakistan	1983	1983	No Info
Saudi Arabia	No Info.	No Info	No Info.

Egypt

Regarding the use of EIA or EIS, Hass reported that this process was initiated by a directive issued by the Prime Minister in 1982. The directive required stated that "Environmental Impact Statements should be drawn up and reviewed before new public

sector factories are constructed" (Hass 1990, 144). There were no information regarding the requirement for the documents or the review process.

Sudan

The USAID report also addressed the issue of using EISs in the Sudan. The authors concluded that the existing legislation does not require a formalized and systematic environmental impact analysis of projects. They also found that "some of the legislation (both old and new) required potential developers to inform the competent Government authorities of environmental or potentially adverse effects of their proposed projects" (Johnson & Ofosu-Amaal 1982, 46).

With regards to the first steps which the government of Sudan can take to improve the use of EIS for development projects, USAID officials suggested that the government can start by initiating a simple and basic policy regarding the use of EIS which can become more elaborate in the future. The recommendations included establishing:

(1) an environmental impact assessment policy, which imposes an obligation on developers (whether in the public or private sector) to provide adequate information on the potential impact of proposed project on the natural environment. This policy need not establish as elaborate procedure as exist in some parts of the developed world, but the minimum it could provide for will be the maximum review process that can be carried out by the technical and manpower resources of the Sudan. It certainly could set out to establish (2) certain relevant and easily attainable environmental quality standards for the Sudan, and (3) it should then establish suitable procedure which ensures that new development projects (and, over a certain moratorium period, existing ones) satisfy these criteria. (Johnson & Ofosu-Ammal 1982, 47).

Kuwait

Regarding the use of EIS in Kuwait, the Law of 1980 stated in section 2 that "Environmental Impact Statements should be considered in any project that may influence natural resources. This will be given priority in case the industrial, urban or social development considered will adversely affect nature" (Section 2 of the general policy outlined in Law No. 62 for the Year 1980, 29). The Law did not include any further details about the contents of the EIS or the review process or the types of projects which mandate the preparation of such documents.

Bangladesh

The collected information about the use of EIS was very limited but it indicated that "the Planning Commission carries out environmental assessment of development projects at the behest of the Environmental Pollution Control Board" (Lohani 1985, 190).

Gambia

The Gambian government provided provisions for EISs and Social Impact Assessments (SIAs) associated with development projects. The EIS was required for projects which significant impact on the environment in Gambia. "The Minister may require that any activity or project proposed to be carried out in The Gambia, which is likely to have a significant impact on natural resources shall be the subject of a formal statement setting out those impact which shall be submitted to him prior to the commencement of that activity or that project" (Article I, Section (5), 2 of NEMA 1987, 4). In a separate Article, the Law also set general provisions for preparing SIAs; "in formulation of all development plans, full consideration shall be given to ecological, as well as economic and social factors" (Article XIV of NEMA Act 1987, 14).

The impact statements are submitted to the Minister and are reviewed by the Natural Environmental Management Council as described in Article 10. Under that Article the Council was required to "determine all matters arising from any environmental impact statement produced in pursuance of subsection 2 of section 5 of this Act" (NEMA 1987, Article 10, 5). The impact statement is to be submitted before the commencement of development projects.

Saudi Arabia

More recent information about the use of EIS in Saudi Arabia was provided by a proposal for an industrial study in the Jubail area dated 1981. The report indicated that the impact statements should be prepared at least six months prior to any new construction, or two months prior to any relocation or major alteration of an existing facility, the facility owner/operator shall prepare and submit to the Health Services Department of Environmental Affairs Group Manager an Environmental Information Report (EIR)" (The Royal Commission for Jubail and Yanbu, Environmental Reporting, Testing and Monitoring Guidelines 1985, 2-4).

The proposal also stated that the EIR should describe the inputs and outputs of the proposed projects. The impact report should also "demonstrate that environmental controls and procedures will be applied to the extent that the criteria set forth in Attachment A will be adhered to. It shall also describe the proposed provisions for any testing, monitoring, and reporting required in subsequent sections of this attachment" (The Royal Commission for Jubail and Yanbu, Environmental Reporting, Testing and Monitoring Guidelines 1985, 2-4). The proposal also indicated that the EIR should be presented as a single document including all the above mentioned information. More specifically the EIR should adhere to the following format:

- (1) Company name, plant name, physical location, and mailing address.
- (2) Name, title, and telephone number of the person to be contacted.
- (3) A brief schematic and written description of the facility to be built/modified, including any raw materials and products.
- (4) Maximum and normal hourly, seasonal and annual production rates and raw materials and fuel throughputs, as well as expected operating schedule in terms of hours/day, days/week, and weeks/year for each product or sets of products.
- (5) Plot plans showing building dimensions, plant boundaries, and locations of major process equipment.
- (6) A schedule with dates for beginning and completion of construction, as well as for reaching normal and full capacity.
(The Royal Commission for Jubail and Yanbu, Environmental Reporting, Testing and Monitoring Guidelines 1985, 2-4).

The EIR is reviewed by the Royal Commission, which will issue an Environmental Approval Certificate (EAC). "The EAC may be issued with or without conditions. As condition for approval, it may include (but not limited to): raw material and / or production rate limitations, emission restrictions, design requirements, testing specifications, performance tests, continuous monitoring, and data reporting" (The Royal Commission for Jubail and Yanbu, Environmental Reporting, Testing and Monitoring Guidelines 1985, 2-4).

Oman

The provisions for the preparation of EISs were provided in Article 14 of the Law. The Law requires that "all person or persons preparing environmental impact statements regarding industrial, developmental or other projects which may have environmental effects should include detailed information about the possible impact of these projects on the environment" (The Environmental Protection and Pollution Control Law 1985, 14).

The review process for the EIS and permit for work and source areas are also outlined in the Law. The Law requires all owners of sources and current work areas are required to submit to the Council, within six months of enacting this law, impact statements regarding the activities which will be carried out in those areas. The EIS is reviewed within three months from its submission to the Council by the vice president of the Council. After reviewing the document, the vice president defines new quantities, specifications and the time period by which the owner will comply.

Pakistan

According to the 1983 Ordinance, Environmental Impact Statement to be submitted to the Agency [Pakistan Environmental Protection Agency].

- (1) The provisions of this section shall apply to such
 - (a) persons or class of persons.
 - (b) industrial activity or class of industrial activity.
 - (c) category, type, or volume of discharges of air pollutants or wastes.
 - (d) area or class of areas.
 - (e) classes of public waters as may be prescribed by regulations (PEPO 1983, 250).

The Ordinance stipulated that the EIS should be prepared at the planning stage. The EIS should include detailed information regarding the following items:

- (a) the impact on the environment of the proposed industrial activity.
- (b) the treatment works of the proposed project.
- (c) the unavoidable adverse environmental effects of the proposed project; and
- (d) the steps proposed to be taken by the project proponent to minimize adverse environmental effects. (PEPO 1983, 250).

In addition to the above requirements, the Agency has the right to set additional guidelines for the preparation of the EIS.

The Agency may proscribe guidelines for the preparation of environmental impact statements and , where such guidelines have been prescribed, the proponents of projects shall prepare environmental impact statements according to the said guidelines. (PEPO 1983, 250).

The Ordinance also required the Agency to review and approve the EIS. In the review process, the law allows the Agency to solicit public input.

The agency may itself or through the appropriate Government agency review the environmental impact statements and, where it deems appropriate, it may also involve public participation in the assessment of the environmental impact statement. (PEPO 1983, 250).

The Agency also has the right to require the applicants to make changes in the proposed projects in order to receive obtain project approval. These request for modifications are based on the national environmental interest and objects.

Indonesia

According to the mandated directive of 1978, the Ministry of State for Development Supervision and the Environment was empowered to require such impact statements. The general guidelines for the preparation of the EIS included the following:

- (1) Environmental effects must be taken into account early in the planning of new projects, programs and activities.
- (2) Environmental assessment must be carried out for projects, programs and activities that are likely to have a significant effect on the environment.
- (3) The results of the assessment must be used in planning, decision-making and implementation of the project.

- (4) EIA studies are done made on a project by project basis. (Lohani 1985, 189).

The EIS is required for the following projects: "dams and reservoirs, swamp reclamation for agricultural development, irrigation and other water resources projects, large industrial and industrial estate zone and development, and mining" (Lohani 1985, 189). The collected information indicates that State guidelines for preparing an EIS were ratified in 1988.

Malaysia

The adoption of the EIS process in Malaysia took ten years. It started with a national seminar on EIA in 1977 and was adopted in the final form in 1988. Although it took a long time, the EIS was implemented in the form which is used in the US. This means that the decision making process left room for public input, review, and participation. The decision making process regarding the need for an EIS lies within the Department of the Environment. An EIS is required for projects which expected have major impact on the environment. Some of the projects which require the preparation of an EIS were defined in the Third Malaysia Development Plan. For the specified projects the law requires that:

Under the provisions of the section [34 A of the Environmental Quality Act], any person intending to carry out any of the activities which are prescribed, shall be required to submit to the Director General of Environmental Quality for approval, a report containing an assessment of the impacts such activities is likely to have on the environment. The EIA report shall also contain proposed measures that will be undertaken to prevent, reduce or control the adverse impacts on the environment . . . the EIA report shall be submitted to the Director general for approval prior to the granting of approval of activity by the relevant authority. Penalties for contravention of section 34A include a fine and imprisonment or both. (Chuen 1989, 310-311).

In other cases where certain projects are not defined the above mentioned classification; the proposed project is evaluated by the ability of the party involved to prove that the impact of the project can be mitigated; otherwise an EIA is required.

Public involvement in the EIA process was outlined by Chuen (1989). According to him, the public can provide input through public surveys, by sitting attending the meeting of the ad-hoc panel, and by providing written comments after document has been put on public display. The opportunity to provide input was of significant concern to several authors; Including Chuen who indicated that no public hearing are held to obtain public comments. Similarly, Nor (1991) indicated that the EIS is regarded by the department of the Environment as a classified document which makes it impossible to review the document before the final report is prepared.

Remark

The collected information showed that EISs consisted of two forms. The first is a report which explains in detail the inputs, outputs, and impacts of proposed projects. The second is a report which explains in detail the inputs, outputs, impacts of proposed projects and also includes provisions for using the document as planning tool which is may involve public review and participation. In the countries where the full implementation was observed, there continues to be conflict regarding the applicability of such process as well as its benefit. Although the guidelines for the EIS were set, conflict among the various governmental agencies persist over the authority to review the document completeness and accuracy and eventually approve the EIA. In addition to this conflict there is no clear specification on the question of who will monitor the level of implementation of recommended environmental management measures.

Chapter 6

Study Findings, Discussion, and Conclusion

Overview

The purpose of this brief Chapter is to: (1) summarize some of the Islamic aspects of the adopted environmental policies and regulations, (2) explain the applicability of the Islamic principles to the current environmental crisis, and (3) provide an example of the use the principle to environmental management problems.

Findings

There were five observed aspects of the Islamic guidelines in the studied environmental policies and regulations. The first instance of using Islamic principles was observed in Saudi Arabia. In that country, the Basic Paper of the Islamic Principles for the Conservation of the Natural Environment was the basis for their national environmental policy. The use of this paper represents a direct reference to religious guidelines. Despite this declaration, a determination on the incorporation of these Islamic principles into the overall policy could not be made since no documentation was obtained from MEPA regarding this issue. If additional data were available about the national mandate and guidelines for MEPA it could have provided a solid example that the guidelines which are presented in this paper could be translated into applied policies and regulations.

The second case was observed in Sudanese regulations where, the Islamic principles were mentioned in the policies contained in Article 37 of the 1973 constitution which state that "all natural resources are the property of the state which is entrusted with ensuring the appropriate exploitation of these resources" (Johnson & Ofofu-Ammal 1982, 18). This declaration makes a direct reference to the religious maxims which were presented earlier and indicates the responsibilities of the state in using and distributing the benefits of the natural resources of the state.

The third observation of Islamic values related to the environmental policy in Pakistan where the government adopted the following perspective in section 13 of the Pakistan Environmental Protection Ordinance. In discussing liability of the workers associated with environmental issues, the law in the Ordinance had some Islamic concepts. These provisions stated that workers are liable only if they intentionally meant do harm otherwise;

"No suit, prosecution or other proceeding shall lie against the Council, the Agency, the Director General, or the members, officers, employee, experts or consultants of the Agency for anything in good faith done or intended to be done under the Ordinance or any rule or regulations" (Section 13 of the Pakistan Environmental Protection Ordinance, 1983).

The fourth Islamic concept which was observed in the collected information was the use environmental councils and the voting process in the council for the decision making process. This process was particularly applied to decide the adequacy of environmental reports and EISs. One of the observed trends in the surveyed countries was the use of two governmental bodies for the enactment and implementation of national environmental policies. In several countries, Sudan, Gambia, Kuwait, and Oman, the governments established a national environmental council or committee to define the overall policy and a technically oriented agency which was entrusted with the implementation of these policies. The technical assistance divisions were mandated to collect data, monitor environmental condition, and set pollution standards for the country.

The fifth Islamic concept which was noted in the collected regulations included the provisions which allowed environmental inspectors to enter the premises of any area and collect samples to determine if the operators or owners were complying with the environmental standards. Such provisions were found in the regulations of Oman. These provision were as follows:

The right to: (1) inspect, seize any source or work areas, (2) collect samples from any area at any time, and (3) issue citations. In the same respect the government also has the right to seize any area which is a sources of pollution after thirty days of repeated violations.

These observations illustrate two main points. The first is that most of the surveyed countries have proceeded to adopt other models of environmental policies and regulations. This is evident by the limited use of Islamic principles and guidelines. The second point is that some countries, particularly Saudi Arabia, have made a definite effort to revive and incorporate Islamic principles in their policies and regulations. The government has also requested in the basic paper itself that other Islamic countries make use of these guidelines to make the policies reflective of the local religion and culture which in turn makes them more acceptable, applicable, and enforceable. The limited use of these guidelines in the Islamic countries as well as the lack of appropriate overall environmental approaches to the current environmental problems are contributing to the expansion of these problems on a global scale. Some of the causes of the environmental crisis and the contribution which the Islamic teachings can provide in this regard are presented in the next two sections.

Discussion: The Environmental Crisis

The causes of the current environmental crisis include all aspects relating to the establishment and maintenance of entire societies. This includes but is not limited to the economical, social, political, cultural and numerous others factors which affect the resulting environmental conditions. In this section I will focus only on the topics which the research focused on, mainly the religious, ethical issues.

Moral Aspects of the Crisis

The major contribution to the debate about the moral causes of the current environmental crisis was made by Lynn White in 1967. In his essay The Roots of Our Ecological Crisis, White proposed that root of the problem is a moral one and that "since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call that or not. We must rethink and re-feel our nature and destiny" (White 1967, 351). His statement relating to the rethinking and reevaluation of the religious values was shared by some religious scholars and rejected by others. Fiske (1970) agreed with White and suggested that "the fundamental teaching of Genesis that man is created in God's image and intended to have dominion over the rest of creation gave ultimate significance to the scientific method" (Fiske 1970, 5). A similar supportive position was taken Nash (1989) who stated that "White's desire was to reform, not destroy religion . . . What he had in mind was a revolution in ethics with religion, as a basic determinant of morality, on its cutting edge. Religious values, White's knowledge of history led him to believe, are fundamental in the dynamics of cultural and social change" (Nash, 1989). This issue of the lack of respect to the environment was the main point made by several Christian clergy including the Pope and others such as Father Serrini. The Pope indicated in a statement focusing on the global environmental conditions that: "the most profound and serious indication of the moral implication underlying the ecological problem is the lack of respect for life evident in many of the patterns of environmental pollution . . . Respect for life, and above all for the dignity of the human person, is the ultimate guiding norm for any sound economic, industrial or scientific progress" (Pope John Paul II 1989, 2). Similarly Father Serrini stated that one of the caused of the problem was the "uncontrolled use of technology for immediate economic growth, with little or no consideration for the planet's resources and their possible renewable, disregard for just and peaceful relations among people; destruction of cultures and environment during war; ill-

considered exploitation of natural resources by consumer oriented societies; unmastered and unregulated occupation with the present without any regard for the future quality of life" (Serrini 1987, 48).

The root of the religious and ethical problem lies in the dominion on mankind over nature and the stripping of nature of its intrinsic values apart from man's beliefs and the usefulness of nature to mankind. The question of man's dominion over nature was addressed by Bratton (1984), Stone (1990), and Steffen (1992). Bratton indicated that: Man's dominion was not a simple transfer of civil power, but was actually a spiritual transfer of authority centered in a special creative act . . . Again, environmental commentators have tended to emphasize the dominion aspect and have neglected that God gives mankind exactly the same blessing as the rest of creation and that He requires that man assume the responsibility of representing God's interests (Bratton 1984, 203). Stone (1990) also agrees that: "The ecological teaching of the Bible is inescapable. God made the world. He thinks the world is good. He never relinquished title to it. And he has never revoked the connections that oblige us to take excellent care of it (Stone 1989, 60). Finally, Steffen (1992) explained dominion as a "rationally conceived action shows that what human beings do affects their relations and leads to consequences. Genesis shows that human beings can exercise their capacity for disrelating themselves to God (sin). Disrelationship with God, because it arises from motives other than the desire to maintain intimacy, affects the character of human action and identifies projects of alienation (Steffen 1992, 71). These are some of the religious views regarding the Christian and Jewish outlook towards nature. They authors which are mentioned here agree on a basic view towards nature. This view is by no means the dominant view but it competes with a different view which is based on man's superiority to the natural environment and that man

has the freedom to use nature to meet his needs in a manner which is less restricted by the Christian ethic towards the environment.

The Cultural Aspects of the Problem

Moncrief (1970) was one of the authors who stressed the importance of the cultural causes of the global environmental problem. The authors disagreed with White's account for the cause of the problem and indicated that cultural factors have a greater contribution to the problem than the religious aspects. In his article "The Cultural Basis of Our Environmental Crisis", Moncrief agreed with White in that human ecology is deeply conditioned by beliefs, our nature and by religion. But Moncrief clearly rejected the argument that the Judeo-Christian doctrine regarding man's relation to the rest of the creation is the roots of all the West's environmental crisis. He added that the "wide acceptance of such simplistic explanation is at this point based more on fad than on facts" (Moncrief 1970, 509).

Moncrief suggested an alternative sequence of events which took into consideration cultural variables. To explain the causes of the environmental crisis in the West, Moncrief used cultural factors derived from the American culture. These variables explained the reasons for the ecological crisis. Some of the causes which he focused on included the following: (1) no culture has been able to completely screen out the egocentric tendencies of human beings, (2) the absence of moral direction concerning our treatment of our natural resources, (3) the inability on part of the social institutions to make adjustments, and (4) the abiding faith in technology. These are important factors which I intend to address from the Islamic perspective in the next section.

The impact of technology and culture was addressed by numerous authors including Merchant (1980), Kidder (1990), and Postman (1992). In her book, *The Death of Nature*, Merchant suggested that: "the needs and purposes of society were changing with the commercial revolution, (and) the values associated with the organic view of nature (were) no longer applicable (Merchant, 1980). Kidder suggested that: "global problems arise not because of technology itself, but because technology forces us to reexamine values that used to be acceptable . . . which means in the end, that there are but two choices. You can ignore new developments and cling to old values. Or you can uplift the values and embrace the development. Try to follow the first, and the list of global problems will continue to grow (Kidder 1990, 13). While Postman proposed that technology also changes the culture in which it is introduced. When the needs and purposes of a society change, technology is used to further these changes. As Postman (1992) suggested "a new technology does not add or subtract something. It changes every thing" (Postman 1992, 18). He added: "New Technologies alter the structure of our interests: the things we think about. They alter the character of our symbols: the things we think with. And they alter the nature of our community: the arena in which thoughts develop" (Postman 1992, 18). These changes in turn challenge us to interpret and apply moral values (whether derived from religion or not) to accept this new technology and set the guidelines for acceptable and unacceptable uses. Thus the circle is completed when: (1) religious guidelines are found to be inapplicable or inadequate to current environmental problems, (2) the needs and focus of entire societies change thus emphasizing priorities which focus on individual needs, and (3) the inability of applying moral judgments to the application technological advances which keeps changing the tools of analysis and understanding of the world around us. I will attempt to address these issues from an Islamic perspective.

The Use of the Islamic Guidelines

I agree with Zaidi (1989) who suggested that the cause of the environmental crisis is a moral one and that Islam provided a viable alternative to the applied approaches to environmental protection and conservation. He suggested that the "Islamic Belief System" incorporates into it the elements which are needed to present a balanced approach to the interaction and use of the environment. This belief system maintains man's position as the ecologically dominant being and at the same time links this framework with divine doctrines. The application of the Islamic religious values to the environmental crisis can be summed up in four points.*

The first is that the Islamic cosmology puts the relationship between God and mankind at the center of for all actions. This belief defines the role of mankind as servants of God along with all other creatures which were created to worship Him. Second, accountability has a high degree of importance at all levels including the interaction with nature. Although Muslims have set their visions and hopes in the afterlife, they are to undertake in this life actions which will earn them the rewards in the afterlife. Third, the cosmology provides nature with intrinsic value because it is viewed as a combination of other forms of life which were created by God to worship Him as well as to benefit mankind. These forms of life are viewed as "communities" which have their own existence. Fourth, the cosmology provides the bases for the establishment of environmental policies and regulations with the objectives of protecting the welfare of the Muslim community keeping also in mind the responsibility towards all other nations and creations.

* These points were derived from the collected information for this research other points may be applicable and may not be mentioned in this dissertation.

The use of these Islamic guidelines have several implications. First, the use of the guidelines provides the state with unique decision making processes. This refers to the preference for the better alternatives which benefits the entire Islamic community and keeping in mind the impact of the proposed action on other nations. These guidelines which were discussed by Bakader et al. give equal weight to the moral aspect of the decision and the welfare of the community as well as the needs of the community for the proposed project. This approach makes the incorporation of religiously based rules easier because it allows the state to allow and forbid what is allowed and forbidden according to the Islamic teachings. In other words, the concept of sin and the impact of these sins could be added to environmental pollution.

FUTURE RESEARCH

In the following section I suggest four possibilities for future research in the applicability of the Islamic religious and ethical teachings of the international, national and individual levels. These suggestions are the following.

- 1- On the international levels there should be a effort to investigate the ability to use Islamic guidelines as a common factor between Islamic countries to address regional environmental problems. There should also be a effort to find common grounds between the Islamic and non-Islamic countries from the ethical standpoint in order to undertake action to protect the environment for its intrinsic value first and second for its potential benefit to mankind.

- 2- The second proposal relates to the initiation of country based studies which focus of the applicability of the Islamic guidelines to the national and local environmental problem. This is an important issue since most the Islamic countries still apply Islamic law to

resolve internal disputes. If a wider application of these guidelines is achieved, higher compliance and acceptance of the adopted environmental laws could be achieved.

- 3- The third proposal refers to the application of the Islamic guidelines to current environmental problems. The purpose of this application would be to illustrate that the religiously based guidelines are applicable to modern environmental problems and that an alternative to the other used model is readily available. Such use of the Islamic guidelines was illustrated by Farooq and Ansari (1983) in defining the Islamic criteria for water reuse in Saudi Arabia.
- 4- The fourth suggestion is to undertake a detailed survey in Islamic countries to assess the validity of the proposed Islamic Environmental Action Model. The research would verify the decision making process at the individual level and may also address its applicability in the environmental decision making process.

CONCLUSION

The limited incorporation of appropriate religious ethics in formulation of environmental policies and regulations in Islamic and non Islamic countries continues to contribute to the propagation of the global environmental crisis. This can be attributed in part to the domination of the nation state formula in the international arena. This continues because international organizations such as the United Nations, are organized to facilitate interaction among nation states. This system actually highlights the political differences among Islamic states rather than focusing on the common reasons for protecting the environment.

This study has shown that Islamic religious and ethical guidelines relating to the use and conservation of the natural environment are available in very detailed fashion. These guidelines address the responsibilities of the state and the individual alike. These guidelines also incorporate a belief in accountability for all actions undertaken in interacting with nature. The guidelines give nature its intrinsic value and encourage Muslims to act responsibly towards it. This view seeks to conserve nature, not only because of how it might benefit mankind financially or in other ways, but also because nature deserves to be protected because it is the creation of Allah with its own identity which should be protected. This is not only the Islamic view, but is a tradition shared by Christians and Jews as well.

Many authors have suggested that there is a need for a change in values to reverse the course of environmental degradation. Islam provides a viable ethical, legal, and decision making alternatives to the currently applied models. A starting point for the use of the Islamic approach would in applying the guidelines in Islamic countries. This would provide the opportunity to demonstrate their and usefulness in Islamic and non-Islamic countries.

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APPENDIX A

List of (36) Embassies Receiving the Letter

Embassy of the Republic of Afghanistan
Embassy of the Democratic and Popular Republic of Algeria
Embassy of the State of Bahrain
Embassy of the People's Republic of Bangladesh
Embassy of the State of Brunei
Embassy of the Republic of Chad
Embassy of the Federal Islamic Republic of the Comoros
Embassy of the Republic of Djibouti
Embassy of the Arab Republic of Egypt
Embassy of Ethiopia
Embassy of Gambia
Embassy of the Republic of Guinea
Embassy of the Republic of Indonesia
Iranian Interest Section
Embassy of the Republic of Iraq
Embassy of the Hashemite Kingdom of Jordan
Embassy of the State of Kuwait
Embassy of the Islamic Republic of Mali
Embassy of the Islamic Republic of Mauritania
Embassy of Morocco
Embassy of the Republic of Niger
Embassy of the Federal Republic of Nigeria
Embassy of the Sultanate of Oman
Embassy of Pakistan
Embassy of the State of Qatar
Embassy of Saudi Arabia
Embassy of the Republic of Senegal
Embassy of the Republic of Singapore
Embassy of the Somali Democratic Republic
Embassy of the Republic of Sudan
Embassy of the United Republic of Tanzania
Embassy of Tunisia
Embassy of the Republic of Turkey
Embassy of the United Arab Emirates
Embassy of the Yemen Arab Republic

APPENDIX B

The Pakistan Manifesto

President Zia's Manifesto

10. President Zia ul Haq announced a 6-Point Manifesto on January 12, 1985 in the context of holding general elections to the National and Provincial Assemblies and the Senate in Pakistan which he will implement during his 5-year term beginning from March 23, 1985 as elected President of the country. These points are:—

- (i) The fundamental objective of the Manifesto is the establishment of an Islamic society in which the system of Government has great importance.
- (ii) The establishment of an economic system free of inequities and exploitation, and which provides opportunities to all persons without any discrimination, for self-development in order to lead a better life: a system in which no person may acquire or utilize wealth through unfair means.
- (iii) It is an article of faith with me (the President) that the basic principle of Islamic system is to be the "provider for all", in which the first condition is that of an equitable economic, social and just administrative framework.
- (iv) The judicial system should be based on the Islamic Principle of "justice and righteousness" and Islamic 'do's and don'ts' (Amar Bil Ma Roof and Nahi Al Munkir). It should be inexpensive, un-complicated, and ensure quick dispensation and should be available to all.
- (v) We do not intend to make Pakistan a retrogressive, theocratic State. Instead, all our efforts are aimed at making it a modern, Islamic, democratic State — truly an Islamic State in all respects.
- (vi) We are also striving hard to eradicate bribery, high cost of living and all socio-economic mal-practices. We want the givers and takers of bribe to realize that they devour Hell-fire.

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186-201

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APPENDIX D

Religious Maxims Relating to Environmental Protection

These maxims have their Latin and modern Western equivalents."

Immutability of *shari'a* texts:

'It is not permitted for lawyers to strive to arrive at the meaning of a point of law or religion, where there is a decisive text.' (Art. 14)

Presumption against change:

'The remaining of a thing in the state in which it was found is the presumption.' (Art. 5)

Custom:

'What is from time immemorial will be kept in its ancient state.' (Art. 6)

'Damage does not become of time immemorial.' (Art. 7)

Equitable relief (*taysir*):

'Hardship (*mashaqqah*) begets facility. That is to say, difficulty becomes a cause of facility, and in time of embarrassment it becomes necessary that latitude should be shown.' (Art. 17)

'Latitude should be afforded in the case of difficulty. That is to say, upon the appearance of hardship in any particular matter, latitude and indulgence must be shown.' (Art. 18)

Torts:

'Inquiry (*darar*) may not be met by injury.' (Art. 19)

'Injury (*darar*) is to be repaired.' (Art. 20)

Necessity (*darura*), an excuse:

'Necessity (*darura*) renders prohibited things permissible.' (Art. 21)

'Necessities are estimated according to their quantity.' (Art. 22)

Cessation of excuse:

'Whatever is permissible owing to some excuse ceases to be permissible with the disappearance of that excuse.' (Art. 23)

Cessation of prohibition:

'When a prohibition is removed, the thing to which such prohibition attaches reverts to its former status of legality.' (Art. 24)

Damage:

'An injury (*darar*) cannot be removed by the commission of a similar injury.' (Art. 25)

Choice between conflicting interests (*imihān*):

'A private injury (*darar*) is tolerated in order to ward off a public injury.' (Art. 26)

'Severe damage (*darar*) is made to disappear by a lighter damage.' (Art. 27)

'In the presence of two wrongful acts (sing. *fasd*), the one whose injury is greater is avoided by the commission of the lesser.' (Art. 28)

'The lesser of two evils (sing. *sharr*) is chosen.' (Art. 29)

'The repelling of mischief (pl. *mu'asid*) is preferred to the acquisition of benefits.' (Art. 30)

Damage, limits of relief:

'Injury (*darar*) is removed as far as possible.' (Art. 31)

'Whether a want (*hajah*) be general, or whether it be special [that is, whether of a public or private nature], it is reduced to the degree of necessity (*darura*).' (Art. 32)

Constraint (*iqfirar*):

'Constraint does not destroy the right of another.' (Art. 33)

Effect of prohibition:

'When it is forbidden to take a thing, it is also forbidden to give it.' (Art. 34)

'When it is forbidden to perform an act, it is also forbidden to request its performance.' (Art. 35)

APPENDIX D (Cont.)

Religious Maxims Relating to Environmental Protection

Custom:

'Custom is authoritative.' (Art. 36)

'Public usage is conclusive and action must be taken in accordance therewith.' (Art. 37)

'A thing which it is customary to regard as impossible is considered to be impossible in fact.' (Art. 38)

Change of Law:

'It is undeniable that rules of law vary with the change in times.' (Art. 39)

Custom:

'Effect is only given to custom where it is of regular occurrence or when universally prevailing.' (Art. 41)

'Effect is given to what is of common occurrence, not to what happens infrequently.' (Art. 42)

'A matter recognised by custom is regarded as if stipulated by agreement.' (Art. 43)

'A matter established by custom is like a matter established by a legal text.' (Art. 45)

Choice (*isnhsān*) between exigence and prohibition:

'When prohibition and exigence conflict, preference is given to prohibition.' (Art. 46)

Damages:

'When the original fails it is resorted to its substitute.' (Art. 53)

Public interest (*isnislāh*):

'Management of citizen's affairs is dependent upon public welfare.' (Art. 58)

Mistake of fact:

'No validity is attached to conjecture which is obviously tainted by error.' (Art. 72)

Liability accompanies benefit:

'The enjoyment of a thing is the compensating factor for any liability attaching thereto.' (Art. 85)

'Liability is an obligation accompanying gain. That is to say, a person who enjoys the benefits of a thing must submit to the disadvantage attaching thereto.' (Art. 87)

'The burden is in proportion to the benefit, and the benefit in proportion to the burden.' (Art. 88)

Freedom from liability to compensate:

'Permission by the canon law [*shari'a*] excludes the liability to make compensation.' (Art. 91)

Liability of wrongdoers:

'Liability lies on the direct author of an act, even though acting unintentionally.' (Art. 92)

'The person who does an act on one thing which leads naturally to the destruction of another thing, as long as he does not act intentionally, does not become responsible.' (Art. 93)

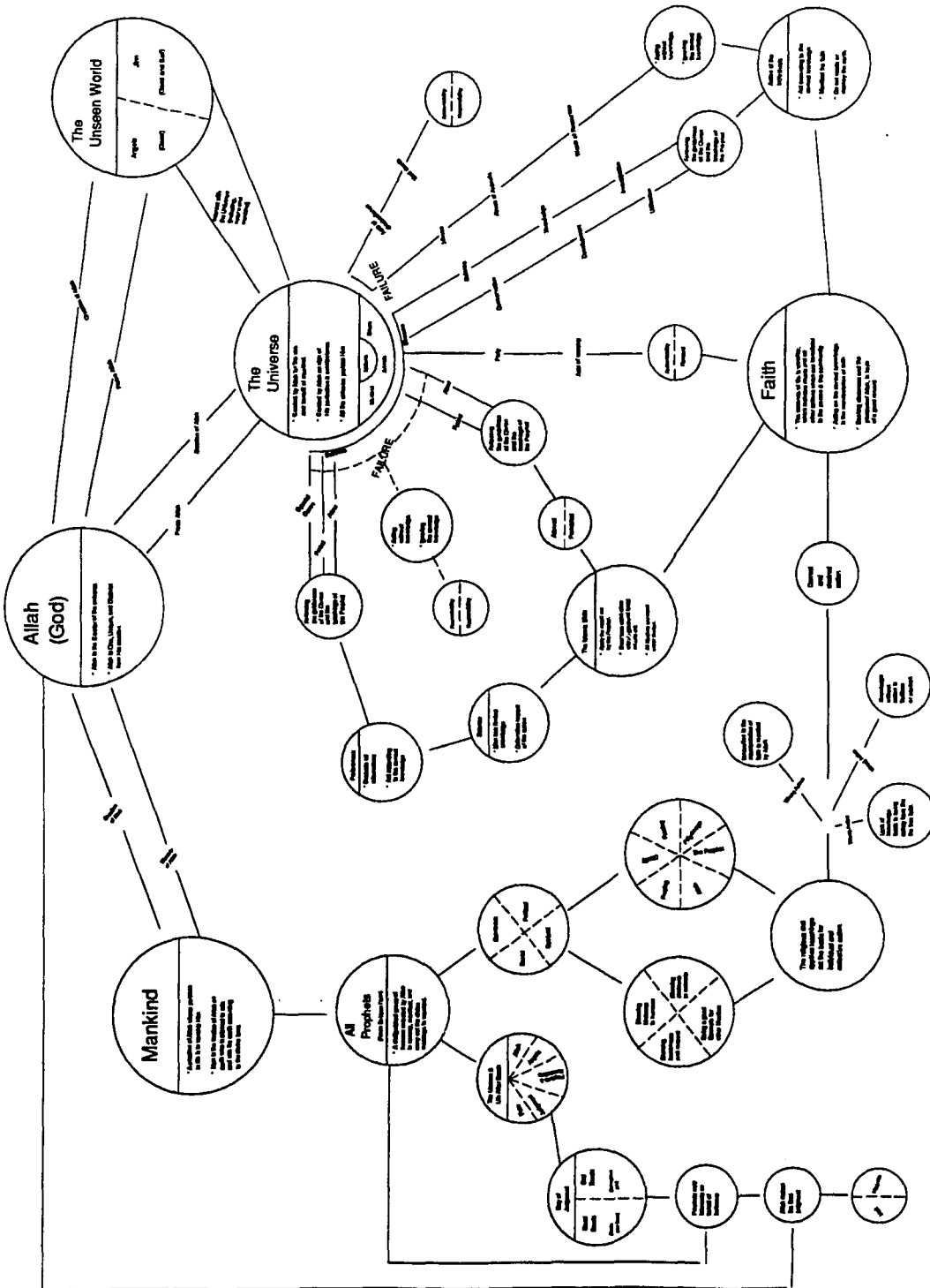
Property rights:

'The dealing by one person with the property of another, without his leave, is not lawful.' (Art. 96)

'Without legal cause it is not allowed for anyone to take the property of another.' (Art. 97)

APPENDIX E

The Islamic Environment Action Model



APPENDIX F

Articles from the Constitutions Relating Religion to the State**Afghanistan**

Article 5: "The sacred and true religion of Islam will be respected, observed and protected in the Democratic Republic of Afghanistan (DRA), and freedom to practice religious rites is guaranteed for all Muslims" (Constitution of Afghanistan, 1980)

Bangladesh

Article 2A: "The state religion of the Republic is Islam, but other religions may be practiced in peace and harmony in the Republic" (Constitution of Bangladesh, 1972)

Egypt

Article 2: "Islam is the religion of the State and Arabic is its official language. Islamic jurisprudence is the principal sources of legislation" (Constitution of Egypt, 1980)

Indonesia

Article 29, Section 1: "The State shall be based upon the belief in the One, Supreme God" &

Article 29, Section 2: "The State shall guarantee the freedom of the people to profess and to exercise their own religion" (Constitution of Indonesia, 1959)

Jordan

Article 2: "Islam shall be the religion of the State and the Arabic Language shall be its official language" (Constitution of the Hashemite Kingdom of Jordan).

Libya

Article 2: "The Holy Koran is the constitution of the Socialist People Libyan Arab Jamarhira" (Constitution of Libya).

Malaysia

Article 3, section 1: Islam is the religion of the Federation; but other religions may be practiced in peace and harmony in any part of the federation" (Constitution of Malaysia, 1987)

Morocco

Article 6: "Islam shall be the religion of the State, which shall guarantee freedom of worship for all" (Constitution of Morocco, 1970)

Pakistan

Part 1, Section 2 & 3: "Islam shall be the State religion of Pakistan. The State shall ensure the elimination of all forms of exploitation and the gradual fulfillment of fundamental principle, from each according to his ability to each according to his work" (Constitution of Pakistan, 1973)

APPENDIX F (Cont.)

Articles from the Constitutions Relating Religion to the State

Saudi Arabia

"In order to achieve a unified system of government based on the principle of Shariah, a Basic Law will be promulgated, drawn from the Quran, the Sunnah of the Prophet and the acts of the Orthodox Caliphs. I will set forth the fundamental principles of government and the relationship between the government in order to provide for the basic rights of the citizen" (Minister Faisal).

Sudan

Article 4: "The Islamic Sharia and custom shall be the main sources of legislation. Personal matters of non-Muslims shall be governed by their personal laws" (The Sudan Transitional Constitution, 1985)

Tunisia

Article 1: "Tunisia is a free State, independent and sovereign, its religion is Islam, its language is Arabic and its regime is the Republic"
(Constitution of Tunisia, 1957)

Turkey

Article 2: "The Republic of Turkey is a democratic, secular and state governed by the rule of law; mindful of the concepts of (Constitution of Turkey, 1980).

APPENDIX G

Environmental Conditions in Islamic Countries

This Appendix presents an overview of environmental and economic conditions in the Arabian Gulf area after the Gulf war.

Environmental Concerns: Before the Gulf War

Before the Gulf war, the main environmental concern in the region were related to the production and the day to day operation of oil facilities. To deal with such problems countries like Kuwait and Saudi Arabia developed environmental standards and production procedures to protect the environment. These countries have also established environmental agencies to oversee the implementation of these procedures. During the Iran-Iraq war and the Gulf War the environmental impact became more severe with the deliberate attacks on oil shipping terminals in Iran and Iraq and the intentional spilling of oil in the Arabian Gulf and the destruction of oil wells in Kuwait.

Environmental Concerns: After the Gulf War

Regardless of the justification for the war, people in the region have to live with consequences. The most important effect of the War is the estimation that "more than 150,000 people have died as a result of the war with Iraq and at least 5 million have lost their homes or jobs" (Greenpeace 1991, A9). The war also resulted in the displacement of hundreds of thousands of people from Kuwait and inside Iraq itself. The destruction of the basic infrastructure inside Iraq and Kuwait which will affect the ability of both governments to support the basic needs of the local population as well as recovering economically from the war. The possible environmental impacts of the war were part of the discussion in Congress during the debate to use force to implement the resolution of the United Nation. Congresswoman Pelosi of California suggested in her debate that "could result from exploding oil fields and large scale bombing of Kuwait, Iraq,

APPENDIX G (Cont.)

Saudi Arabia and other countries in the Middle East would doom the environment for years to come . . . the war could have an ecological disaster of the first order" (Pelosi 1991, H396). The following brief discussion will present an overview of the environmental effects of the Gulf War including (1) air pollution, (2) water pollution, (3) and, (4) destruction of desert ecology.

Air Pollution

Air pollution in the region is being caused by the burning of the more than five hundred oil wells in Kuwait. Although some experts have attempted to down-play the environmental effects of these fires, their regional and local effects are quite evident. "Enormous quantities of soot and sulfur dioxide, and a large array of toxic compounds, are being put out into the air - and ending in the human lungs" (Clouds over Kuwait 1991, 55). The health effects of the smoke are being documented in Saudi Arabia where the local authorities have already reported a 10 to 20 per cent rise in its incidences of upper respiratory tract infection. A final note regarding air pollution is that the last of the burning oil wells was put out on November 6, 1991.

Marine Pollution

Water pollution include is caused by the intentional spilling of crude oil into the Arabian Gulf, the acid rain caused by the oil fires, and the potential for pollution of ground water resources from the pools of oil inside Kuwait. In February of 1991, the American military estimated that the Iraqis deliberately pumped 460 million gallons of crude into the gulf from Kuwaiti oil platforms. This oil slick, was more the double the oil spilled by the Exxon Valdez, was reported to have moved 50 miles from its source. In addition to the effects on human life, the oil slick has resulted in the death of 25,000 birds.

APPENDIX G (Cont.)

The second type of water pollution is the increased incidences of acid rain over and beyond the Gulf region. Patches of clouds from the burning oil "are drifting beyond the Strait of Hormuz and into the Indian ocean towards Karachi" (Vidal 1991, 11). Some of the smoke has traveled as far as Japan. The Japanese Meteorological Agency obtained some air samples 7.5 kilometers above Tokyo and found that it contained soot from the oil wells. "An agency official said that the finding indicate that air pollution from the burning wells had been scattered widely by prevailing westerly winds and the high speed jet stream" (Oil Well 1991, 2).

Water pollution is also being caused by the acid rain within and outside the Gulf region. For example, "In western Iran, the toxic rain has left a greasy black film on the field" (Clouds over Kuwait 1991, 55). In neighboring Pakistan, "environmental groups . . . have also reported black rain, which they say could damage crops and grazing lands" (Environmentalists 1991, 2). Also in Kashmir, "the oil wells in Kuwait are leading to ecological disaster to the Kashmir valley with enormous amounts of acid and hydrocarbons being deposited along a well defined geographical gradient . . . occurrence of black snow had been reported in the upper reaches of the Himalayas during the month of March this year" (Spoiling Kashmir 1991, 2).

A third type of water pollution could be caused by the seepage of oil to underlying aquifers from the pool of oil which have collected on the surface in Kuwait. "Technicians from the US Corps of Engineers who have flown over the scene say there could be as much as 150 million barrels" (Pearce & Pain 1991, 14). Officials in Kuwait fear that ground water might be contaminated by the leaching oil and heavy metals. Efforts are being made to obtain equipment which will be used to suck the oil. None the less, there are doubts about where the collected oil should be dumped and the effect of the dumping site on ground water resources.

APPENDIX G (Cont.)

Destruction of Desert Ecology

A final environmental concern is the long term effect of the war on the ecology of the desert itself. Because of the fragile nature of the desert ecology the time which is needed to restore the vegetation could be longer than anticipated. If natural conditions in the Arabian desert are similar to those of southern Tunisia, the recovery time could be longer than thirty-five years. "In southern Tunisia, tracks made by the tanks and wheeled vehicles of Allied and Axis armies are still apparent on the ground and in the devastated and un-regenerated vegetation 35 years after the conclusion of the fighting. The perennial species have not re-established themselves in spite of several series of years with long-term, above average rainfall in the 1950s, the late 1960s, and the early 1970s, although in this area grazing pressure is very low due to the absence of permanent water" (Le Houerou 1977, 419).

Future Concerns

The immediate concern in the region is to mitigate the effects of war on the human population as well as restoring the environment. On a regional level, the governments in the region need to fund the clean up of the Gulf areas which will cost an estimated \$1 to \$5 billion. Another concern is the slowness of the governments in the region to formulate long term policies to deal with the permanent effects of the War.

APPENDIX H

Sample letter sent to Embassies

His Excellency Shaikh Saud Nasir Al-Sabah
Embassy of the State of Kuwait
2940 Tilden, N.W.
Washington, D. C. 20008

January 22, 1990

Your Excellency,

In an effort to enhance the understanding and appreciation of Islamic laws and ethics, I have chosen the subject of Islamic Environmental Ethics and their role in sustaining development in Islamic countries as the subject for my Doctoral degree at the State University of New York at Syracuse.

The completion of a sound and comprehensive study requires key input from an official from your government with expertise in the field of environmental law.

The information that is needed includes the following:

- 1- The name and address of your government's agency or department which deals with environmental regulations.
- 2- A copy of the basic environmental laws or a reference from which they can be obtained.
- 3- If the laws are still in the development process, please provide information about the basis for the resulting regulations.
- 4- Please include in your response any suggestions regarding the expression of Islamic law in environmental regulation and development. How can this problem be improved? Are there any specific areas your country would be interested in examining? Can you recommend any experts, scholars as well as references which might be helpful in enhancing the quality of the study.

Your cooperation and contribution to our study is greatly appreciated.

Sincerely,

Dr. James F. Palmer

Nader M. Soubra

APPENDIX H (Cont.)

Sample letter sent to local agencies

Mr. Ibrahim Hadi
Director General
Environmental Protection Council
P. O. Box 24395
Safat 13104
Kuwait, Arabian Gulf

February 19, 1990

Dear Mr. Hadi,

In an effort to enhance the understanding and appreciation of Islamic laws and ethics, I have chosen the subject of Islamic Environmental Ethics and their role in sustaining development in Islamic countries as the subject for my Doctoral degree at the State University of New York at Syracuse.

We initially contacted the embassy of Kuwait in Washington D.C. to obtain the needed information. The second secretary, Mr. Abdulhamid Ali, provided us with the name and address of the person to contact in Kuwait who would be able to provide us with the requested information.

Please review the list of the needed responses and to the best of your ability provide us with information which will enhance the quality of our study. The information that is needed includes:

- 1- A copy of the basic environmental laws or a reference from which they can be obtained.
- 2- If the laws are still in the development stage, please provide information about the basis and scope of the resulting regulations.
- 3- Can you recommend any experts, scholars who are knowledgeable in the field of Islamic environmental law?
- 4- Can you recommend any sources or references which express the view of the Islamic religion towards environmental preservation and development.
- 5- Are there any specific areas of environmental concern your department think that our study should address?

References, information and documentation written in English or Arabic are preferred. Thank you for your time and help. Your cooperation and contribution to our study is greatly appreciated.

Sincerely,

Dr. James F. Palmer

Nader M. Soubra

APPENDIX I

The National Environmental Management Act, 1987 (Gambia)

ISSN—0796—4288

National Environmental Management Act, 1987

1



THE GAMBIA

No. 4 of 1987.

Assented to by The President,

this Tenth day of March, 1987.

LS

D. K. JAWARA,
President.

AN ACT to make provision for the sustainable utilisation, rational development and conservation of natural resources; for the preservation of the national heritage; to give effect to the African Convention on the Conservation of Nature and Natural Resources; and for matters connected therewith.

APPENDIX I (Cont.)

No. 43
2*National Environmental Management Act, 1987*

1987.

P R E A M B L E

WHEREAS it is expedient that provision be made for the sustainable utilisation, rational development and conservation of the natural resources of The Gambia and for the preservation of the national heritage; and

WHEREAS the Banjul Declaration of 18th February, 1977 recognised the necessity for continuing efforts in this regard; and

WHEREAS The Gambia is a signatory to the United Nations Convention on the Law of the Sea which contains extensive provisions relating to natural resources; and

WHEREAS The Gambia had also signed the African Convention on the conservation of Nature and Natural Resources concluded by the Heads of State and Government of Independent African States, at Algiers on 15th September 1968; and

WHEREAS it is expedient that certain of the provisions of the African Convention be given the force of law in The Gambia and for this purpose it is necessary to establish a machinery for the coordination of all matters covered by the said African Convention;—

NOW THEREFORE BE IT ENACTED by the Parliament of The Gambia as follows:—

Short title. 1. THIS ACT may be cited as the National Environmental Management¹ Act, 1987.

APPENDIX I (Cont.)

No. 4]

*National Environmental Management Act, 1987*1987-
3

2. In this Act, unless the context otherwise requires— Interpretation.
- “Committee” means the Advisory Committee on the Management of the Natural Environment, established under section 11 of this Act;
- “Council” means the Natural Environment Management Council established under section 6 of this Act;
- “Minister” means the Minister for the time being responsible for the administration of this Act;
- “natural resources” means renewable and non-renewable resources;
- “non-renewable resources” means minerals and fossil fuels;
- “other Minister” means any Minister whose area of responsibility includes matters relating to the sustainable utilisation, rational development and conservation of natural resources;
- “person” includes any company or other body having legal personality; and
- “renewable resources” means soil, water, air, flora and fauna.
3. Every other Minister responsible for the administration of any other statute which contains provisions relating to the natural environment, shall take such steps as are necessary to ensure that such statute is administered in accordance with the principles set out in the Articles of the African Convention specified in the Schedule to this Act. Implementation of principles of this Act.
4. (1) Any person involved in any activities in respect of the natural environment of The Gambia, shall undertake such activities— General duty in respect of natural resources.
- (a) having regard to the necessity to promote the sustainable utilisation, rational development and conservation of these natural resources in accordance with currently recognised scientific principles and taking into account the need to maintain essential ecological processes and genetic diversity in the best interest of the people; and
- (b) in accordance with the principles of the African Convention specified in the Schedule to this Act.
- (2) Without prejudice to the generality of the foregoing, every officer shall, in the exercise of his functions under this Act or any other Statute which contains provisions relating to the natural environment, exercise such functions in such manner as shall promote the principles specified in subsection (1) of this section.
5. (1) Every other Minister responsible for the administration of any other Statute which contains provisions relating to the natural environment may, in consultation with the Minister, make regulations for the monitoring of the state of the natural resources and the impact upon them of development activities. Monitoring and assessment.

APPENDIX I (Cont.)

No. 4]
4*National Environmental Management Act, 1987*

[1987.

(2) The Minister may require that any activity or project proposed to be carried out in The Gambia which is likely to have a significant impact on natural resources shall be the subject of a formal statement setting out those impacts which shall be submitted to him prior to the commencement of that activity or project.

(3) The Minister and every other Minister referred to under this section shall submit to the Council an annual report on the exercise of his functions under this section.

Establishment of the Council.

6. There is hereby established a Natural Environment Management Council.

Membership of the Council.

7. (1) The Council shall consist of the following persons—

- (a) the Minister of Water Resources and the Environment;
- (b) the Minister of Agriculture;
- (c) the Minister for Local Government and Lands;
- (d) the Minister of Health, Labour and Social Welfare;
- (e) the Minister of Works and Communications; and
- (f) the Minister of Economic Planning and Industrial Development.

(2) The Chairman of the Council shall be the Minister of Water Resources and the Environment.

(3) The Permanent Secretary, Ministry of Water Resources and the Environment shall be the Secretary of the Council.

Meetings of the Council.

8. (1) The Council shall meet at least once in every three months at such times and places as it deems expedient for the despatch of its business.

(2) The Chairman shall preside at all meetings of the Council and in his absence such other member of the Council as the members present may appoint shall preside.

(3) The decisions of the Council shall be by majority vote and in the event of an equality of votes the Chairman shall have a casting vote.

(4) At every meeting of the Council, three members shall constitute a quorum.

(5) Subject to this section, the Council shall determine its rules of procedure.

Annual report.

9. The Council shall, at the beginning of every financial year, submit a full report of its activities during the previous year to the House of Representatives.

APPENDIX I (Cont.)

No. 4]

National Environmental Management Act, 1987[1987
5

- | | |
|---|--------------------------------------|
| 10. (1) The functions of the Council are— | Functions of
the Council |
| (a) to co-ordinate the responses of public bodies to the environmental effects of activities which affect the sustainable utilisation, rational development and conservation of natural resources; | |
| (b) to examine the extent to which such activities may be integrated with one another so as to attain most effectively the sustainable utilisation, rational development and conservation of natural resources; | |
| (c) to identify areas in which such activities being conducted by different public bodies are, or appear to be, likely to conflict with one another and to resolve such conflicts; | |
| (d) to identify aspects of such activities in respect of which it is desirable that further activities should be undertaken and to determine which Minister should assume responsibility for those activities; | |
| (e) to review and, if appropriate, to direct the progress of activities undertaken in pursuance of section 3 of this Act; | |
| (f) to determine all matters arising from any environmental impact statement produced in pursuance of subsection 2 of section 5 of this Act; | |
| (g) to review the reports made by any Minister under subsection 3 of section 5 of this Act; and | |
| (h) to discharge such other functions as the Committee shall from time to time determine to be necessary or expedient for the purposes of this Act. | |
| 11. There is hereby established an Advisory Committee on the Management of the Natural Environment. | Establishment of the
Committee. |
| 12. The Committee shall consist of the following persons— | Membership
of the Com-
mittee. |
| (a) the permanent secretary, Ministry of Water Resources and the Environment who shall be the Chairman; and | |
| (b) not more than ten members who shall be appointed by the Minister, after consultation with the Council, from among persons who appear to be qualified by virtue of their scientific or technical expertise or their professional experience in the management of the natural environment, or such other qualifications in respect of the management of the natural resources as the Committee shall think fit. | |
| (2) The Permanent Secretary, Ministry of Water Resources and the Environment shall appoint one of his officers to be the Secretary to the Committee. | |

APPENDIX I (Cont.)

No. 4]
6*National Environmental Management Act, 1987*

[1987.

Meetings of
the Com-
mittee.

13. (1) The Committee shall meet at such times and places as it deems expedient for the transaction of its business.

(2) Special meetings of the Committee may be summoned—

(a) at the request of the Council; or

(b) at the request of any five members of the Committee, on any matter of urgency.

(3) The Chairman of the Committee may invite any person to attend and participate in the discussions of the Committee if in his opinion, that person possesses expert knowledge which could be useful to the Committee.

(4) The Committee shall submit a quarterly report of its activities to the Council.

(5) Subject to this section, the Committee shall determine its own rules of procedure.

Functions
of the Com-
mittee.

14. (1) The functions of the Committee shall be—

(a) to advise the Council on scientific and technical matters;

(b) to make proposals to the Council with regard to activities relating to the sustainable utilisation, rational development and conservation of natural resources to be undertaken by public bodies; and

(c) generally to assist the Council in the discharge of its functions.

(2) The Committee may initiate studies or enquiries relating to the sustainable utilisation, rational development and conservation of natural resources and may recommend measures in support of such work to the Council.

(3) The Committee may set up working groups entrusted with specific duties with respect to the Committee's considerations and performance of its functions.

Regulations.

15. The Minister may, on the advice of the Council, make regulations for the better carrying out of the purposes of this Act.

APPENDIX I (Cont.)

No. 41

National Environmental Management Act, 1987

(1987.

7

SCHEDULE

Article II

FUNDAMENTAL PRINCIPLE

The Contracting States shall undertake to adopt the measures to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interests of the people.

Article III

DEFINITIONS

For purposes of the present Convention, the meaning of the following expressions shall be as defined below.

1. "Natural Resources" means renewable resources, that is soil, water, flora and fauna.
2. "Specimen" means an individual example of a species of wild animals or wild plant or part of a wild plant.
3. "Trophy" means any dead animal specimen or part thereof whether included in a manufactured or processed object or otherwise dealt with, unless it has lost its original identity; also nests, eggs and eggshells.
4. "Conservation area" means any protected natural resources area whether it be a strict natural reserve, a national park or a special reserve;
 - (a) "strict nature reserve" means an area:
 - (i) under State control and the boundaries of which may not be altered nor any portion alienated except by the competent legislative authority;
 - (ii) throughout which any form of hunting or fishing, any undertaking connected with forestry, agriculture or mining, any grazing, any excavation or prospecting, drillings, levelling of the ground or construction, any work tending to alter the configuration of the soil or the character of the vegetation, any water pollution and, generally, any act likely to harm or disturb the fauna or flora, including introduction of zoological or botanical species, whether indigenous or imported, wild or domesticated, are strictly forbidden;

APPENDIX I (Cont.)

No. 41
5

National Environmental Management Act, 1987

[1987.

(ii) where it shall be forbidden to reside, enter, traverse or camp and where it shall be forbidden to fly over at low altitude, without a special written permit from the competent authority, and in which scientific investigations (including removal of animals and plants in order to maintain an ecosystem) may only be undertaken by permission of the competent authority;

(b) "national park" means an area:

(i) under State control and the boundaries of which may not be altered or any portion alienated except by the competent legislative authority;

(ii) exclusively set aside for the propagation, protection, conservation and management of vegetation and wild animals as well as for the protection of sites, land-scapes or geological formations of particular scientific or aesthetic value, for the benefit and enjoyment of the general public; and

(iii) in which the killing, hunting and capture of animals and the destruction or collection of plants are prohibited except for scientific and management purposes and on the condition that such measures are taken under the direction or control of the competent authority,

(iv) covering any aquatic environment to which all of the provisions of section (b) (i)—(iii) above are applicable.

The activities prohibited in "strict nature reserve" under the provisions of section (a)(ii) of paragraph 4 of this article are equally prohibited in national parks except in so far as they are necessary to enable the park authorities to implement the provisions of section (ii) of this paragraph, by applying, for example, appropriate management practices; and to enable the public to visit these parks; however, sport fishing may be practised with the authorization and under the control of the competent authority;

(c) "special reserve" means other protected areas such as:

(i) "game reserve" which shall denote an area—

(a) set aside for the conservation, management and propagation of wild animal life and the protection and management of its habitats;

(b) within which the hunting, killing, or capture of fauna shall be prohibited except by or under the direction or control of the reserve authorities;

APPENDIX I (Cont.)

No. 4]

*National Environmental Management Act, 1987.*1987
9

- (c) where settlement and other human activities shall be controlled or prohibited.
- (ii) "partial reserve" or "sanctuary" which shall denote an area-
- (a) set aside to protect characteristic wildlife and especially bird communities, or to protect particularly threatened animal or plant species and especially those listed in the Annex to this Convention, together with the biotopes essential for their survival;
- (b) in which all other interests and activities shall be subordinated to this end
- (iii) "soil" "water" or "forest reserve" shall denote areas set aside to protect such resources.

*Article IV***SOIL**

The Contracting States shall take effective measures for conservation and improvement of the soil and shall in particular combat erosion and misuse of the soil. To this end:

- (a) they shall establish land-use plans based on scientific investigation (ecological, pedological, economic, and sociological) and, in particular, classification and land-use capability;
- (b) they shall, when implementing agricultural practices and agrarian reforms
- (i) improve soil conservation and introduce improved farming methods, which ensure long-term productivity of the land;
- (ii) control erosion caused by various forms of land-use which may lead to loss of vegetation cover.

*Article V***WATER**

1. The Contracting States shall establish policies for conservation, utilization and development of underground and surface water, and shall endeavour to guarantee for their population a sufficient and contiguous supply of suitable water, taking appropriate measures with due regard to:

- (i) the study of water cycles and the investigation of each catchment area;
- (ii) the co-ordination and planning of water resources development projects;
- (iii) the administration and control of all water utilization; and

APPENDIX I (Cont.)

No. 4]
10*National Environmental Management Act, 1987.*

[1987-

2. Where surface or underground water resources are shared by two or more of the Contracting States, the latter shall act, in consultation, and if the need arises, set up inter-state Commissions to study and resolve problems arising from the joint use of these resources, and for the joint development and conservation thereof.

Article VI

FLORA

1. The Contracting States shall take all necessary measures for the protection of flora and to ensure its best utilization and development. To this end the Contracting States shall:

- (a) adopt scientifically-based conservation, utilization and plans of forests and range land, taking into account the social and economic needs of the States concerned, the importance of the vegetation cover for the maintenance of the water balance of any area, the productivity of soils and the habitat requirements of the fauna;
- (b) observe section (a) above by paying particular attention to controlling bush fires, forest exploitation, land clearing for cultivation, and over-grazing by domestic and wild animals;
- (c) set aside areas for forest reserves and carry out afforestation programmes where necessary;
- (d) limitation of forest grazing to season and intensities that will not prevent forest regeneration; and
- (e) establish botanical gardens to perpetuate plant species of particular interest.

2. The Contracting States also shall undertake the conservation of plant species (or communities, which are threatened and/or special scientific or aesthetic value by ensuring that they are included in conservation areas.

Article VII

FAUNAL RESOURCES

1. The Contracting States shall ensure conservation, wise use and development of faunal resources and their environmental, within the framework of land-use planning and of economic and social development. Management shall be carried out in accordance with plans based on scientific principles and to that end the Contracting States shall:

APPENDIX I (Cont.)

No. 4]

National Environmental Management Act, 1987.[1987
11

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- (a) manage wildlife populations inside designated areas according to the objectives of such areas and also manage exploitable wildlife populations outside such areas for an optimum sustained yield, compatible with the complementary to other land uses; and
- (b) manage aquatic environments, whether in fresh, brackish or coastal water, with a view to minimise deleterious effects of any water and land use practice which might adversely affect aquatic habitats.
2. The Contracting States shall adopt adequate legislation on hunting, capture and fishing, under which:
- (a) the issue of permits is properly regulated;
- (b) unauthorized methods are prohibited;
- (c) the following methods of hunting, capture and fishing are prohibited:
- (i) any method liable to causes a mass destruction of wild animals,
- (ii) the use of drugs, poisons, poisoned weapons or poisoned baits;
- (iii) the use of explosives;
- (iv) the following methods of hunting and capture are particularly prohibited:
1. the use of mechanically propelled vehicles;
 2. the use of fire;
 3. the use of fire arms capable of firing more than one round at each pull of the trigger;
 4. hunting or capture at night;
 5. the use of missiles containing detonators
- (d) the following methods of hunting or capture are as far as possible prohibited:
- (i) the use of nets and stockades;
- (ii) the use of concealed traps, pits, snares setqua traps, deadfalls, and hunting from a blind or hide;
- (iii) with a view to as rational a use as possible of game meat, the abandonment by hunters of carcasses of animals, which represent a food resource, is prohibited.

APPENDIX I (Cont.)

No. 4]
12*National Environmental Management Act, 1967.*

[1967.

Capture of animals with the aid of drugs or mechanically propelled vehicles, or hunting or capture by night if carried out by, or under the control of, the competent authority shall nevertheless be exempted from the prohibitions under (c) above.

Article VIII

PROTECTED SPECIES

1. The Contracting States recognize that it is important and urgent to accord a special protection to those animal and plant species that are threatened with extinction, or which may become so, and to the habitat necessary to their survival. Where such a species is represented only in the territory of one Contracting State, that State has a particular responsibility for its protection. These species which are, or may be listed, according to the degree of protection that shall be given to them are placed in Class A or B of the Annex to this Convention, and shall be protected by Contracting States as follows:

(i) species in Class A shall be totally protected throughout the entire territory of the Contracting States: the hunting, killing, capture or collection of specimens shall be permitted only on the authorization in each case of the highest competent authority and only if required in the national interest or for scientific purposes; and

(ii) species in Class B shall be totally protected, but may be hunted, killed, captured or collected under special authorization granted by the competent authority.

2. The competent authority of each Contracting State shall examine the necessity of applying the provisions of this article to species not listed in the Annex, in order to conserve the indigenous flora and fauna of their respective countries. Such additional species shall be placed in Class A or B by the State concerned, according to its specific requirements.

Article IX

TRAFFIC IN SPECIMENS AND TROPHIES

1. In the case of animal species to which article VIII does not apply the Contracting States shall:

- (a) regulate trade in and transport of specimens and trophies
- (b) control the application of these regulations in such a way as to prevent trade in specimens and trophies which have been illegally captured or killed or obtained.

APPENDIX I (Cont.)

Para. 4]

*National Environmental Management Act, 1987.*1987,
12.

2. In the case of plant and animal species to which Article VIII paragraph (1) applies, the Contracting States shall:

- (a) take all measures similar to those in paragraph (1);
- (b) make the export of such specimens and trophies subject to an authorization:
 - (i) additional to that required for their capture killing or collection by Article VII;
 - (ii) which indicates their destination;
 - (iii) which shall not be given unless the specimens or trophies have been obtained legally;
 - (iv) which shall be examined prior to exportation;
 - (v) which shall be on a standard form, as may be arranged under Article XVI;
- (c) make the import and transit of such specimens and trophies subject to the presentation of the authorization required under section (b) above with due provision for the confiscation of specimens and trophies exported illegally, without prejudice to the application of other penalties.

Article X**CONSERVATION AREAS**

1. The Contracting States shall maintain and extend where appropriate, within their territory and where applicable in their Territorial waters, the Conservation areas existing at the time of entry into force of the present Convention and, preferably within the framework of land-use planning programmes, assess the necessity of establishing additional conservation areas in order to:

- (i) protect those ecosystems which are most representative of and particularly those which are in any respect peculiar to their territories;
- (ii) ensure conservation of all species and more particularly of those listed or which may be listed in the annex to this Convention.

2. The Contracting States shall establish, where necessary, around the borders of conservation areas, zones within which the competent authorities shall control activities detrimental to the protected natural resources.

APPENDIX I (Cont.)

No. 41
14*National Environmental Management Act, 1987.*

1987.

CUSTOMARY RIGHTS*Article XI*

The Contracting States shall take all necessary legislative measures to reconcile customary rights with the provisions of this Convention.

*Article XII***RESEARCH**

The Contracting States shall encourage and promote research in conservation, utilization and management of natural resources and shall pay particular attention to ecological and sociological factors.

*Article XIII***CONSERVATION EDUCATION**

1. (a) The Contracting States shall ensure that their peoples appreciate their close dependence on natural resources and that they understand the need, and rules for, the rational utilization of these resources.

(b) For this purpose they shall ensure that the principles indicated in paragraph (1):

- (i) are included in educational programmes at all levels;
- (ii) form the object of information campaigns capable of acquainting the public with, and the winning it over to, the idea of conservation.

2. In order to put into effect paragraph (1) above, the Contracting States shall make maximum use of the educational value of conservation areas.

*Article XIV***DEVELOPMENT PLANS**

1. The Contracting States shall ensure that conservation and management of natural resources are treated as an integral part of national and/or regional development plans.

2. In the formulation of all development plans, full consideration shall be given to ecological, as well as to economic and social factors.

3. Where any development plan is likely to affect the natural resources of another State, the latter shall be consulted.

APPENDIX I (Cont.)

No. 4]

*National Environmental Management Act, 1987.*1987.
15*Article XV*

INTER-STATE CO-OPERATION

1. The Contracting States shall co-operate:

(a) whenever such co-operation is necessary to give effect to the provisions of this Convention; and

(b) whenever any national measure is likely to affect the natural resources of any other State

2. The Contracting States shall supply the Organization of African Unity with:

(a) the text of laws, decrees, regulations and instructions in force in their territories, which are intended to ensure the implementation of this Convention.

(b) reports on the results achieved in applying the provisions of this Convention; and

(c) all the information necessary for the complete documentation of matters dealt with by this Convention if requested.

3. If so, requested by Contracting States, the Organization of African Unity shall organize any meeting which may be necessary to dispose of any matters covered by this Convention. Requests for such meetings must be made by at least three of the Contracting States and be approved by two-thirds of the States which it is proposed should participate in such meetings.

4. Any expenditure arising from this Convention, which devolves upon the Organization of African Unity shall be included in its regular budget, unless shared by the Contracting States or otherwise defrayed.

APPENDIX I (Cont.)

No. 4)
16*National Environmental Management Act, 1987.*

[1987.

PASSED in the House of Representatives this Sixteenth day of January, in the year of Our Lord One Thousand Nine Hundred and Eighty-seven

E. O. BRIGHT,
Clerk of the House of Representatives.

THIS PRINTED IMPRESSION has been carefully compared by me with the Bill which has passed the House of Representatives and found by me to be a true and correct copy of the said Bill.

E. O. BRIGHT,
Clerk of the House of Representatives.

APPENDIX J

**Translation of the
Environmental Protection and Pollution Control Law
of Oman dated August 17, 1985.**

by:
Nader M. Soubra

State University of New York at Syracuse
College of Environmental Science and Forestry

January 25, 1992

APPENDIX J (Cont.)

Decree Number 86/63

Kabous Bin Saeed

Sultan of Oman

Upon review of Decree number 75/63, concerning the organization of governmental agencies and Decree number 82/10 declaring environmental protection and pollution control law and the Decree number 84/47 concerning the establishment of governmental agencies and to protect the health and welfare of our citizen

we declare the following

Article 1: The amendments of this law shall apply to the above mentioned environmental protection and pollution control law.

Article 2: This Decree shall be published in a governmental newspaper and shall be applied thereafter

August 17, 1985

APPENDIX J (Cont.)**Environmental Protection and Pollution Control Law****Index****Section One General Regulations****Article 1: Goals****Article 2: Powers and Duties of the Council****Article 3: Complementary Laws****Section Two Definitions****Article 4: Definition of Terms****Section Three Environmental Protection and Pollution Control.****Article 5: Safeguarding the Environment of Oman****Article 6: Utilizing the Environment in Oman****Article 7: Utilizing Reserved Areas****Article 8: Needed Precautions.****Article 9: Pollution Levels****Article 10: Discharge Specifications****Article 11: Reporting Unlawful Discharges****Article 12: Agency Responsibilities****a- Permitting****b- New Development****Article 13: Permit Requirements****Article 14: Environmental Impact Statement Requirements****Article 15: Owners Responsibilities****Article 16: Obligations of Owners of Source and Work
Areas****Article 17: Recording Environmental Information**

APPENDIX J (Cont.)

Section Four Application of the Law

Article 18: The powers to set regulation to enforce this law

Article 19: Responsibilities of the Technical Assistance
Division

Article 20: Guidelines for setting Discharge Specifications

Article 21: Updating Pollution Discharge Specifications

Article 22: The powers to supervise the application of these
regulations under this law

Article 23: Controlling Violations

Article 24: Establishing Branch Offices for the Technical
Assistance Division

Article 25: The Powers to Set Fees

Section Five Penalties and Fines

Article 26: Penalties for Submitting False or Misleading
Information

Article 27: Environmental Restorations and Compensation
Costs

Article 28: Penalties for Non-conforming Discharges

Article 29: Penalties for Avoiding Proper Procedures

Article 30: Penalties for Damaging Designates National
Sanctuaries

Article 31: Appealing Convictions of Violations

Appendix Environmental Pollutants

Physical Pollutants

Living Pollutants

Chemical Pollutants

APPENDIX J (Cont.)

SECTION ONE

General Regulations

Article 1: Goals and Objectives.

- 1- This law sets the basic environmental protection and pollution control laws in Oman and Its territorial waters.

- 2- This law affirms the need to provide maximum protection of the health and welfare of the citizens of Oman as well as the country's natural and environmental resources, its heritage and culture. The laws also affirms the need to prevent any negative direct or indirect impacts which may occur in the short or long term by industrial, agricultural or developmental activity or any other activity which seeks to improves the quality of life and diversity of national income sources.

- 3- The objectives of this law are to: protect and develop the nation's natural resources in the best possible manner without damaging ecological systems on land or in the countries territorial waters; specially in matters which may damage the basic environmental elements such as air, water, soil as well as aquatic, vegetative and land life or resources.

Article 2: Powers and Duties of the Council.

- 1- In addition to the powers provided for the Council under the Decree No. 79/68, the Council has the power to: enact laws and regulations to apply this law, establish and operate a central facility to conduct environmental studies and establish environmental monitoring stations throughout Oman. The Council is also authorized to fulfill environmental obligations undertaken by Oman on regional and international levels.

APPENDIX J (Cont.)

Article 3: Complementary Laws.

All other regulations dealing with environmental protection and pollution control on national, regional and international levels complement the regulation under this law.

APPENDIX J (Cont.)

SECTION TWO

Definitions

Article 4: Definition of Terms.

All terms used in this law shall be interpreted according to the definitions provided in this section.

- 1- The Council: means the Environmental Protection Council established the Decree of 79/68.
- 2- Technical Assistance: means the technical assistance division established to protect the environment and control pollution.
- 3- Environmental Expert: means any person(s) permanently appointed by the Vice President of the Council in the technical assistance division or any consultant hired on a part time basis to undertake specific tasks relating to the implementation of this law and any regulations thereof.
- 4- Environmental Monitoring Person: means any person or persons permanently appointed by the Vice President of the Council in the technical assistance division or in other offices and stations around the country to monitor and prepare detailed reports about the sources of pollutant or for the protection of natural land and aquatic resources, water sources, designated natural sanctuaries and culturally significant areas.

APPENDIX J (Cont.)

5- The Environment: means the collective natural systems with which man interacts in his work, living and recreational areas where man affects and is affected by these systems. These systems included, but are not limited to: air, water, soil, water and land resources, various food, mineral and chemical resources, energy sources and various environmental factors.

6- Air: means

(A)The atmospheric air to which man and animals are exposed to constantly.

Or the air to which man is exposed to outside his work area or r recreational and recuperative areas.

(B)The "working atmosphere" to which workers and employers are exposed in their various working locations.

7- Water: means

(A)Inland waters which includes fresh and semi-saline surface and ground water in Oman.

(B)Territorial Waters surrounding Oman for a distance of 200 nautical miles from the central point from which territorial waters are measured. These waters take into consideration the provision of the Decree of 81/15 concerning he continental drift which exceed 200 nautical miles and its adjustment.

8- Terrestrial Life: means form or forms of vegetation, animals or birds living on the Omani land or any migrating birds which use this land or its shores as resting, breeding or settling grounds.

APPENDIX J (Cont.)

9- Aquatic Life: means any vegetation or animal living in the coastal waters or any deep sea creatures including oysters and corals.

10- Energy Sources: means

(A) Traditional or conventional sources of energy including wood, coal and oil.

(B) Unconventional Sources of Energy mainly, solar, wind, water and nuclear source of energy.

11- Social Factors: means the educational, health, human services, income and other factors which affect human behavior.

12- Environmental Pollution: means any change or damage, short high impact or low long term which affects the previously mentioned environmental systems or which may affect environmental quality rendering its original functions useless, or a change or damage which make the environmental potentially harmful to the health and welfare of Oman now or in the future.

13- Environmental Pollutants: means any physical, chemical or living factors resulting from human activity which cause environmental pollution based on the statement in the appendix.

APPENDIX J (Cont.)

14- **Source:** means any operation or activity which if misused results in being a direct or an indirect source of pollutants. These sources include and are not limited to :

- (A) Industrial activity including mining and rock processing.
- (B) Land, sea and air transportation.
- (C) Agricultural or land reclamation activities in addition to animal and bird farms.
- (D) Commercial and residential activities which includes solid waste treatment plants.
- (E) Radioactive material in its different applications.

15- **Current Source:** means any source area which has been completed and have been operational for at least two months before the date in which this law is passed.

16- **New Source:** means any source of pollutants which has not been operational for two months before the enactment of this law. These sources include current sources which are being improved or increased in capacity in excess of 30% at or after the date in which this law is passed.

17- **Work Area:** means any land or sea location in the harbor or territorial waters of Oman containing a source or sources of pollutants or which discharge or may discharge pollutants or that the activity which is carried out causes noise or discomfort to the workers or resident in the surrounding areas or which may expose them to diseases or health hazards or which may cause decay or potential destruction or collapse of new old or new building as well as other property.

APPENDIX J (Cont.)

18- The Owner: means any person or persons, public or private, be it nationally internationally owned, renting or responsible for managing a work area.

19- Discharge: means dumping, leakage, flow, pumping or pouring, unloading or drowning in a direct or indirect manner of any pollutants to the environment in the air, land or inland and territorial waters of Oman.

20- End-point of Discharge: means the point at which the pollutants are discharged from the work area where the owner has no control over his activity.

21- Designated Sanctuaries: means national parks, archaeological areas, or areas designated for the protection of a type or types of vegetation, animal or bird and sea life which are protected under this law.

22- Source Areas: means any area designated by the laws and regulations of Oman or the Council as "pollution free areas" or an area surrounding a work area where economic and environmental activities are protected because it may be affected by the pollutant produced in the work area.

23- Necessary Precautions: means the best scientific and technical means possible, applied internationally for the controlling non-conforming discharges as designated by the Council for every source or work area separately. so that the collective discharge from these sources or work areas do not lead to an increase in the degree of environmental pollution in a manner which exceeds the amount specified by the Council.

APPENDIX J (Cont.)

24- **Discharge Specifications**: means the quality and concentration or percentage in a total amount or any pollutant on a daily or monthly average which can not be exceeded at any time without exceeding the daily or monthly average.

25- **Pollutant Scale**: means the maximum concentration of any pollutant in different environment as an annual average and a maximum concentration which can not be exceeded within a period of time without exceeding the annual average.

26- **Environmental Pollution Documentation**: means any detailed study of the quality and quantity of expected discharge from any source or work area which the owner must comply with and expected levels of environmental pollution and the extent to which these discharges comply with the specifications for sources and work areas specified by the Council.

27- **Consulting Committee**: means any committee facilitating the activities of different agencies or other technical assistant bodies created by the Council.

APPENDIX J (Cont.)

SECTION THREE

Environmental Protection and Pollution Control

Article 5: Safeguarding the Environment of Oman.

The Council has the authority of taking all the necessary measures to protect the environment of Oman as well as improving and protecting the natural resources for future generations. This action concerns the social and economic aspects. It also involves the variety of land and water resources specially found in Oman particularly the endangered ones.

Article 6: Using Oman's Environment.

No person or persons, private or public entity, or source area or work area is allowed to use the environment in Oman to discharge pollutants in amounts which cause an imbalance in the environment or the natural resources or the protection or the heritage or cultural history of Oman.

Article 7: Using Protected Areas.

No person or persons, private or public entity, or source area or work area is allowed to use protected areas designated by the council in any fashion which violates the regulations enacted by this law.

Article 8: Necessary Precautions.

All owners are required to take all necessary precautions to prevent environmental pollution and to protect sea and aquatic life as well as designated sanctuaries.

APPENDIX J (Cont.)

Article 9: Pollution Levels.

It is prohibited to increase the degree of environmental pollution in the ecological systems or protected areas beyond the specifications designated by the Council.

Article 10: Discharge Specifications.

All owners are prohibited from undertaking, requesting or allowing the discharge of any pollutants from source areas, end points of sources or work areas for which he is responsible except in the discharge limits set by the regulations of this law or the discharge limits which are less than or equal to the specifications approved for the owner in their permits to establish the source or work area which required discharge specifications. Exceptions for these discharge specifications include instances when discharging substances is needed to safeguard the work area and protect human life; or where a discharge occurred in case of an emergency malfunction in the equipment in the work area, provided that the owner taken immediate action to repair the damage, and has informed the technical assistance division of the discharge and complied with environmental experts' decisions. The exception can only be authorized by the vice president of the Council.

Article 11: Reporting Unlawful Discharges.

All owners are required to notify technical assistance division in writing of any unlawful discharges within 48 hours or any accident which may lead to environmental pollution or which may endanger the environment or any occurrence or condition designated by the technical assistance division under this law, or the approved permit. The owners must specify the cause and the nature of the accident or unlawful discharge or condition or occurrence and the precautions undertaken to remedy the situation in an

APPENDIX J (Cont.)

manner which complies with the appropriate laws and regulations within the designated time frame.

Article 12: Responsibilities of the ministries and agencies to issue permit for source areas and work areas.

All ministries and agencies responsible for issuing permits for source areas or work areas shall require applicants to submit a statement to the vice president of the Council verifying the safety of the proposed project from the environmental standpoint.

Article 13: Permit requirements for establishing source and work areas.

All persons applying for permits regarding source or work areas are required to present to the technical assistance division environmental impact statements with their applications. The vice president of the Council shall evaluate these applications within 60 days after they have been received and processed. If a permit is denied, the applicant shall be informed of the reasons for the rejection and of the legal concentrations and specifications needed to obtain a permit. The applicant can re-evaluate his application within one month after the first notification. The Council shall make a decision regarding the new application in a time period which may not exceed 60 days after the application is received again.

Article 14: Environmental Impact Statement Requirements.

All person or persons preparing environmental impact statements regarding industrial, developmental or other projects which may have environmental effects should include detailed information about the possible impact of these projects on the environment.

APPENDIX J (Cont.)

Article 15: Responsibilities of owners of source or work areas. All owners of sources and current work areas are required to submit to the Council, within 6 months of enacting this law, impact statements regarding the activities which will be carried out in those areas. The vice president of the Council shall evaluate these impact statements within 3 months after receiving these applications. The vice president shall define new quantities, specifications and time period by which the owner will comply.

Article 16: Obligations of Owners of Source and Work Areas. Owners of source and work areas designated by the vice president of the Council are required to: 1) acquire and operate the equipment needed to monitor discharge specifications and possible environmental pollution resulting from source and work areas for which they are responsible; 2) maintain a complete record of discharge reports; 3) send copies of these reports to the technical assistance division every three months. The technical assistance division shall specify the types of environmental monitoring systems needed for every source and work area in a manner which results in a uniform use of equipment and testing procedures.

Article 17: Recording Environmental Information.

(A) The technical assistance division shall keep a permanent record of the following: names and locations of source areas, work areas, designated national sanctuaries, land use information, environmental information, changes in the environmental systems in Oman and making this information available to planners and developers.

(B) The technical assistance division shall maintain a separate record of owners of source and work areas based on the conditions and means supplied by the vice president of the Council.

APPENDIX J (Cont.)

SECTION FOUR

Application of the Law

Article 18: The authority to issue regulations to implement this law. After consultation with the Council, the Vice President of the Council shall issue resolutions, and regulations as well as set standards to facilitate the implementation of the law.

Article 19: Responsibilities of the Technical Assistance Division.

In addition to the responsibilities and authorities given to the technical assistance division under this law, the technical assistance division shall prepare reports in consultation with ministries and agencies regarding the following:

- 1) Set environmental standards suitable to the environment of Oman.
- 2) Set adequate specifications for sources and work areas.
- 3) The number, types and locations of national sanctuaries needed in Oman.
- 4) The location of historically and culturally significant areas in Oman.
- 5) Provide suggestions regarding the determinations, laws and standards set in accordance with this and other related laws to ensure the protection of the environment and pollution control.

Article 20: Guidelines for setting Discharge Specifications.

In setting discharge specifications, care should be taken to consider on a case by case basis, the technical capacities, economic and actual cost so that these specifications do not conflict with environmental requirements.

APPENDIX J (Cont.)

Article 21: Updating Pollution Discharge Specifications.

After consulting with other governmental agencies, the technical assistance division shall update discharge specifications based on the findings of local and international studies. The technical assistance division has the right to request the assistance of consulting committees. If discharge specifications are updated, the vice president of the Council shall on order restating it under section 18 of this law and all parties shall abide by the new specifications.

Article 22: The powers to supervise the application of these regulations under this law.

Governmental agencies, owners of source and work areas are required to oversee the application of this law in cooperation and consultation with the technical assistance division. The above mentioned are to submit to the Council reports every three months describing the results of the monitoring operations in a manner which does interfere with the Council's right to oversee the application of this law.

Article 23: Controlling Violations.

All environmental experts and monitoring personnel have the right to inspect and seize any source areas, work areas, designated sanctuaries or records describing discharge specifications and environmental conditions or other records used in conjunction with this law to. These experts and personnel also have the right to collect samples from any area at any time. They also have the right to issue citations.

APPENDIX J (Cont.)

Article 24: Establishing Branch Offices for the Technical Assistance Division and environmental Monitoring System.

After obtaining the approval of the vice president of the Council, the technical assistance division, has the right to establish new branch offices and environment monitoring stations in any area of Oman (land or water); in a manner which does not conflict with national security.

Article 25: The Powers to Set Fees.

The Council has the right to set service fees regarding the following:

- 1) Applications for establishing source and work areas.
- 2) Applications for obtaining proclamations and environmental information and studies prepared by the Council.
- 3) Applications to obtain copies of Council's publications.

The type and amount of these fees shall be determined by an Decree from the vice president of the Council.

APPENDIX J (Cont.)

SECTION FIVE

Penalties and Fines

Article 26: Penalties for Submitting False or Misleading Information.

Owners can be subjected to a maximum of six month of imprisonment or fined the equivalence of 10% of the money invested the sources or work area or can have their licenses revoked if they are found guilty of submitting false or misleading environmental impact statements.

Article 27: Environmental Restorations and Compensation Costs.

All violators of this laws shall be accountable for the cost restoring environmental damage and compensation injured parties. The vice president of the Council has the right to appoint person or persons to repair the damage at the owner's expense if the owner fails to repair the damage himself.

Article 28: Penalties for Non-conforming Discharges.

With more severe penalties under the laws of Oman and article 28 of this law notwithstanding, the government considers any discharge which does not meet the designated specifications a non-conforming discharge. The non-conforming discharge is punishable by a fine of 100 Omany Riyal [\$30] for the first day and is increased by 10% for each day after that. If the violation continues for thirty days, the government has the right to seize operation of the area until the violation and its consequences are corrected according to the issued permit. In cases where the discharge may endanger the health and welfare of citizens the vice president of the Council has the right to undertake the necessary precautions to prevent any damage from the discharge.

APPENDIX J (Cont.)

Article 29: Penalties for Avoiding Proper Procedures.

Any person or persons convicted of causing environmental damage due to negligence or non-conforming activities, shall be fined 3 times the cost of repairing the negative impacts; or three times the cost of repairing the damage which ever is greater.

Article 30: Penalties for Damaging Designates National Sanctuaries.

All persons convicted of damaging or destroying designated nation sanctuaries areas including, property, vegetation; or unauthorized hunting or killing shall be fined 50 to 500 Omany Ryials for the first offense. A written notice shall be giving for this offense. If the offense is repeated, the penalty will be doubled. If a person or persons are convicted of the same offense a third time, they can be fined 2,000 Omany Ryials with the possibility of being sentenced to a maximum of 3 months in prison.

Article 31: Appealing Violations Convictions.

All convictions of such violations shall be issued by a committee with assistance from the vice president of the Council and a member of the council appointed by the vice president and environmental expert investigating the violation. The decision shall be based upon the majority of the votes of the committee. If the vote are equal, the vice president's party shall prevail. If the vice president is not present, the appointed member of the committee shall oversee the proceedings. Any person has the right to appeal the committee's decision within two weeks from it issuance. The vice president of the Council shall review the appeal within two weeks from its submission.

APPENDIX J (Cont.)

APPENDIX

Environmental Pollutants

Physical Pollutants: include, noise, visible and invisible radiation, unsuitable change in color, taste, smell, temperature and relative humidity of the air, water or food supplies.

Living Pollutants: includes rodents, insects, disease causing or food spoiling microorganisms, mainly pollen, germs, fungus, bacteria, viruses and various microbes.

Chemical Pollutants: Include any organic or inorganic material in its solid or liquid state which include and not limited to:

- A) Oil, which includes crude or processed hydrocarbons generated by drilling, refining, transporting, manufacturing or combustion operations for the purpose of generating or dissipating energy. These material include crude oil, processed oil, motor oil, fuel oil, heavy oil, diesel oil, asphalt, and other solid and gaseous hydrocarbons; and oil mixtures which have concentration greater than or equal to 100 parts per million.
- (B) All types of insecticides and fertilizers.
- (C) Other chemicals including all soil and gas types; of which we mention cancer causing chemicals, other which cause respiratory diseases or other chemicals which are poisonous or which can diseases in humans and other living creatures.
- (D) Solid and liquid wastes generated by residential, industrial, agricultural and commercial activities.

APPENDIX K

**LAW NO. 62 FOR THE YEAR 1980
REGARDING THE PROTECTION OF THE
ENVIRONMENT & THE GENERAL
POLICY FOR THE ENVIRONMENT
PROTECTION**

**KUWAIT A-YOUM
EDITION NO. 1316 - Twenty Six Year**

IN THE NAME OF GOD THE COMPASSIONATE
THE MERCIFUL

**LAW NO. 62 FOR THE YEAR 1980
REGARDING PROTECTION OF THE
ENVIRONMENT**

After review of the Amiri Order of the 4th of Ramadhan, the Hijrah Year 1396, corresponding to 29 August of 1976 A.D. amending the constitution and Articles 15, 16 and 21 of the constitution and without prejudice to

- Law No. 12 for the year 1964 regarding protection of navigable waters from oil pollution, and the amending laws.
- Law No. 32 for the year 1965 regarding the promulgation of the Industry.
- Law No. 32 for the year 1969 regarding licensing commercial stores.
- Law No. 15 for the year 1972 regarding Municipality and the amending laws.
- Law No. 19 for the year 1973 regarding conservation of the oil resources.

APPENDIX K (Cont.)

- Law No. 131 for the year 1977 regulating the use of ionizing radiation and protection from its hazards.

Based on the recommendation by the Minister of Public Health, and after the approval of the Council of Ministers, we promulgated this Law, the text of which reads as follows:

In applying the provisions of this Law and the decrees and orders putting it into force, the following terms shall bear the meaning explained thereunder:

1. Environment

(Means) the biosphere including man, animal, and plant together with all the surroundings, air, water, soil, and what they contain in the form of solid, liquid, gas or radiation plus fixed or mobile structures built by man.

2. Polluting materials and factors.

(Means) any solids, liquids, gases, fumes, vapours, odours, noise, radiation, heat, glare and vibrations made by man, which may directly or indirectly cause pollution of the environment.

3. Environment Pollution

(Means) the presence in the environment of any polluting material or factor in a concentration or a level for a period of time, that might lead directly or indirectly, either alone, in combination or through interaction with other fac-

tors, to threaten public health or in any way interfere with healthy life and making good use of property.

4. Environment Protection

(Means) prevent pollution or minimise its effect, or combat it and take whatever measures for the protection of the environment.

ARTICLE 2

A council for environment protection shall be formed chaired by the Minister of Public Health and with membership of representatives of the following ministries and organisations:

1. Ministry of Public Works
2. Ministry of Commerce and Industry
3. Ministry of Planning
4. Ministry of Interior
5. Ministry of Public Health
6. Ministry of Electricity and Water
7. Ministry of Communications
8. Ministry of Oil
9. Kuwait Municipality
10. The Directorate General of Shuaib Industrial Area
11. Kuwait Institute for Scientific Research.

The Minister or the Head of the Department concerned shall nominate the representative of the Ministry or Depart-

ment, the rank of the member will not be lower than Assistant Under-Secretary or the equivalent.

The Council shall have the right to add other members.

The Council shall make the necessary regulations for the organization of its work and decision making procedures.

The Council shall have the right to form permanent sub-committees or specialized task forces to study subjects falling within its jurisdiction, or seek appropriate advice from local and international experts.

The Council shall have the right to delegate some of its authorities to sub-committees or to any other party.

ARTICLE 3

The Environment Protection Council shall have the following duties:

1. Suggest a general policy for the protection of the environment, including appropriate scientific and health standards for residential areas, industrial and urban developments and exploitation of natural resources in a way that insures the safety of all premises and working population and the protection of the environment in general.
2. Suggest short and long term integrated work plans

concerning all activities related to protection of the environment, train domestic groups from various state institutions and private sector in ways and means of protecting the environment and supervise the implementation of the work plan by the executive bodies concerned.

3. Coordination of the activities of the different departments concerned with the protection of the environment, supervise and evaluate their activities in this field, and prepare an annual report about the state of the environment in the country.
4. Study problems resulting from pollution or deterioration of the environment and suggest the appropriate control measure.
5. Participate in formulating the research policy in the field of environment protection in coordination with concerned organizations.
6. Prepare bills, regulations, and orders for protection of the environment and supervise their enforcement.
7. Study regional or international agreements or conventions related to environmental affairs and decide in coordination with the departments concerned whether or not to ratify them.

- 8 Advise on the relations between Kuwait and the regional and international organizations concerned with the protection of the environment.
- 9 Set the general framework for environment education and programs aiming at public education and encouraging citizens as groups or individuals, to take part in protecting the environment.
10. Suggest an annual budget to cover its expenses.

ARTICLE 4

The Chairman of the Environment Protection Council shall establish a department within his Ministry to assist the Council in carrying out its task and follow up the enforcement of its orders and recommendations.

The department chosen shall discharge whatever environmental protection duties assigned to it, in cooperation with the other departments concerned. The department may set up monitoring stations or check points at selected sites as required for protection of the environment. It may also cooperate in this task with the departments concerned.

ARTICLE 5

Upon the recommendations of the Environment Protection Council decrees shall be issued regarding whatever regulations and conditions required for the construction of any

factory or establishment, production of material, carrying out any activity or running an operation that may pollute the environment.

In case of violations of these regulations and conditions, the council may request the withdrawal of the licenses issued for the violating installations or activities without prejudice to the penalties specified in Article 11 of this Law.

ARTICLE 6

The implementation of this law shall not interfere with the provisions of the Law No. 12 for the year 1964 regarding the prevention of polluting navigable waters by oil, or Law No. 19 for the year 1973 regarding the conservation of the oil resources, or Law No. 131 for the year 1977 regulating the use of ionizing radiation and protection from its hazards, or any other law concerned with the protection of specific aspects of the environment.

However, authorities enforcing the above mentioned laws, or any other departments authorized to issue regulations, orders or conditions related to environment protection, shall consult the Environment Protection Council before issuing such regulations, orders or conditions.

The department referred to in Article 4 shall under the supervision of the Environment Protection Council, take the necessary steps to coordinate the work of the departments

concerned with protection of the environment and ensure their cooperation in the fields of work.

ARTICLE 8

The Environment Protection Council shall order the suspension of work in any institution or ban the use of any tool, machine or material either partially or totally, if they involve any hazard to the environment. The suspension will be for a week and may be extended for another week if absolutely necessary.

The Council shall have the right to authorize its chairman to issue such an order in case of an emergency and for a period no longer than three days, after which the case shall be presented to the Council.

The administrative departments and authorities concerned shall be obliged to carry out the suspension order and the council may order certain procedures to be carried out during the suspension period.

Should the Council consider it necessary to extend the suspension beyond the period described in Para (1) it may request the supreme court to issue an order enforcing the suspension permanently or temporarily. The institution affected may appeal the decision before the Supreme Court, and pursue its case through legal channel.

ARTICLE 8

In exemption from the provisions of Article 7, violations by governmental establishments or companies in which the government has a share of more than 50% shall be considered by a special committee comprising the Chairman of the Environment Protection Council and the Ministers of Oil, Commerce and Industry, and Electricity and Water. This committee shall decide what measures to be taken.

ARTICLE 9

The Chairman of the Environment Protection Council shall nominate a number of Environment Protection Inspectors required by this law. They will be given the responsibility of enforcing the provisions of this law and report any violations there of. The Inspectors shall have the right to enter into any violating institutions, make legal suits, take specimens, and conduct studies and measurements to specify the extent of environmental pollution, identify the sources of pollution and ensure the application of regulations and conditions regarding environmental protection. They may seek assistance of the police if necessary.

ARTICLE 10

The Environment Protection Council shall have the right to request any information it may deem necessary from any institution carrying out activities that may pollute the environment.

ARTICLE 11

Without prejudice to any harsh penalty specified by any other law, any violation of regulations and conditions as described in Article 5 or of suspension orders as specified by Article 7 of this law, shall be punished by imprisonment for a term no longer than three years and a fine of not more than KD. 10,000/- (Kuwaiti Dinars Ten Thousand). The court may also order confiscation of material or closure of places to prevent pollution for a maximum period of three months. Any further violation may be punished by a court order declaring the license void.

Whoever obstructs authorized personnel from discharging their duties as specified in this law shall be punished by imprisonment for a maximum term of one year, and a fine of not more than One Thousand Dinars, or either one of these penalties.

Violation of Article 10 of this law shall be punished by imprisonment for a maximum term of six months and maximum fine of Five Hundred Dinars or either one of these penalties.

ARTICLE 12

The Minister of Public Health shall issue the necessary orders putting this law into effect.

ARTICLE 13

Ministers, each within his jurisdiction, shall carry out this

Law as of the date of its publication in the official gazette.

JABER AHMED AL-SABAH
AMIR OF KUWAIT

SAAD ABDELMUHAMMAD AL-SABAH
PRIME MINISTER

ABDULRAHMAN AL-AWADI
MINISTER OF PUBLIC HEALTH
MINISTER OF PLANNING

Explanation Note to the Environment Protection Law (2/1981)

Protection of the environment and its conservation was among the serious problems that attracted the attention of many States in the recent years. This is increasingly important in view of the large number of sources and the multitude of pollutants being discharged, the progressive deterioration of the environment and serious health impacts and the adverse effects on the wild life and natural resources resulting thereof.

Many States and international organisations took the initiative to pass law and sign agreements organising the cooperation in the field of the protection of the environment. Kuwait have participated in various international and regional conferences held to discuss these problems. Also several laws have been passed. These include the Law 12/1964 for the Protection of Navigable Waters Against Pollution by Oil and the Law 13/1977 for Protection Against Ionising Radiation.

Past experience have made it clear that there should be a central body empowered to supervise all the activities related to the protection of the environment. This body should organise the activity of the various organisations. This was underlined by the rapid developments and urban-

sation and the great industrial, economic and municipal developments going on.

Before 1978, Article 20 of the Law 15/1972 for Kuwait Municipality empowered the Municipal Council to pass regulations and orders for the protection of the environment. This action was deleted by the passage of the Law 43/1978 and the power suspended in anticipation of the nomination of another body to be charged with the responsibility of the protection of the environment. The Council of Ministers had by 1/2/1976 established a Supreme Committee for the Protection of the Environment. The Committee found out the need for establishing a central body authorised to look after the environment and supervise all the activities pertinent to the protection of the environment including monitoring and inspection and take the necessary measures in that effect.

To realise all the previous ideas, the present law was drafted, establishing the Environment Protection Council and empowering it with the necessary capabilities.

The first Article of the Law states the definitions for the terms that were mentioned in the Law. This was deemed necessary to provide uniform understanding of the exact meaning of each.

The second Article contained the provisions of the establishment of the Environment Protection Council. The Coun-

cial will be chaired by a minister. The membership will be given to all the interested and relevant Ministries and institutions. The degree of the member will not be lower than an Under Secretary of State. This was meant to enable the Council to carry out its responsibility. Other members may be added to the Council if it is seen that it is to the best of the interest of the Council. The Council was also empowered to make the necessary regulations for the organisation of its work and decision making procedure. It will also have the right to delegate some of its authorities to subcommittees or any other party. This was meant to include the necessary flexibility for the extension of the various activities with which the Council is charged.

The third Article states the various duties of the Council stressing its supervisory role.

Article 4 empowers the Chairman of the Council to establish within his Ministry a Department that will assist the Council in carrying out the tasks and follow up the enforcement of its orders and recommendations. This organisation will enable the Minister chairing the Council to have close supervision on the body charged with the execution of the orders of the Council. The department may set up monitoring stations or check points at selected sites as required for the protection of the environment.

Article 5 states that at the proposal of the Council, Amiri Decrees shall be issued stating whatever regulations and

conditions required for the establishment of any facility or its use, also the conditions for production of any material or running any type of facility or operation that may pollute the environment.

Article 6 states that the implementation of this Law will not interfere with the enforcement of other Laws that regulate protection of certain aspects of the environment. These provisions are in line with the general rules, however, it was stated that the authorities enforcing any special law will consult the Environment Protection Council before issuing any regulations or orders enforcing these laws. This was meant to secure the coordination and cooperation between the various organisations and the Environment Protection Council which was also stressed in the last paragraph of that Article.

Article 7 gave to the Council the right to suspend the work in any institution or ban the use of any tool, machine or material partially or totally if they involve a hazard to the environment. The suspension shall be for a week and may be extended for another week. The Council shall have the right to authorise its Chairman to issue such orders in case of an emergency and for a period of not longer than 3 days.

Should the Council consider it necessary to extend the suspension beyond 2 weeks, it may request the Chairman of the Supreme Court to issue an order enforcing the suspen-

sion. The institution or person affected may appeal the decision before the Supreme Court and pursue the case through the normal judicial channels.

Violation committed by the government institutions or companies in which the government has a share of more than 50% shall be -according to the provisions of Article 8- considered by a special ministerial committee. This committee shall decide what measures are to be taken to protect the environment.

Article 9 empowers the Chairman of the Council to nominate the Environment Protection Inspectors required by the Law. The responsibilities and duties of these Inspectors were specified by that Article.

Article 10 specified that the Council has the right to ask for any information it deems necessary from any institution carrying out activities that may pollute the environment.

Article 11 states the punishment specified for violating the provisions of this Law or any orders enforcing its provisions.

APPENDIX L

The Pakistan Environmental Protection Ordinance, 1983

REGISTERED No $\frac{S-1033}{L-7646}$



The Gazette of Pakistan

EXTRAORDINARY
PUBLISHED BY AUTHORITY

ISLAMABAD, SATURDAY, DECEMBER 31, 1983

PART I

Acts, Ordinances, President's Orders and Regulations including Martial Law
Orders and Regulations

GOVERNMENT OF PAKISTAN

MINISTRY OF LAW AND PARLIAMENTARY AFFAIRS

(Law Division)

Islamabad, the 31st December, 1983

No. F. 17(1)/83-Pub.—The following Ordinance made by the President is hereby published for general information:—

ORDINANCE No. XXXVII of 1983

AN

ORDINANCE

to provide for the control of pollution and preservation of living environment

WHEREAS it is expedient to provide for the control of pollution and preservation of living environment and for matters connected therewith or ancillary thereto:

AND WHEREAS the President is satisfied that circumstances exist which render it necessary to take immediate action:

NOW, THEREFORE, in pursuance of the Proclamation of the fifth day of July, 1977, and in exercise of all powers enabling him in that behalf, the President is pleased to make and promulgate the following Ordinance:—

1. Short title, extent and commencement.—(1) This Ordinance may be called the Pakistan Environmental Protection Ordinance, 1983.

(2) It extends to the whole of Pakistan and its territorial waters, Exclusive Economic Zone and historic waters.

(245)

Price : Ps. 60

[4757 Ex. Gaz.]

APPENDIX L (Cont.)

246 THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 **PART I**

(3) It shall come into force on such day as the Federal Government may, by notification in the official Gazette, specify in this behalf.

2. **Definitions.**—In this Ordinance, unless there is anything repugnant in the subject or context,—

- (a) "Agency" means the Pakistan Environmental Protection Agency (PEPA) established under section 5;
- (b) "Air pollutant" means any substance that causes alteration in chemical, physical, biological or radiological integrity of air and includes soot, smoke particulates, combustion exhaust, exhaust gases, obnoxious gases and radioactive substances;
- (c) "Council" means the Pakistan Environmental Protection Council established under section 3;
- (d) "discharge" means spilling, leaking, pumping, pouring, emitting, emptying or dumping;
- (e) "effluent" includes any material in solid, slurry, suspension, liquid, vapour, fumes or gaseous form coming out as or from any industrial activity or any other source;
- (f) "effluent standards" means the permissible limits prescribed by the Agency regarding the quality and quantity of effluents and wastes;
- (g) "emission standards" means the permissible standards for emission of air pollutants prescribed by the Agency;
- (h) "Exclusive Economic Zone" shall have the same meaning as in the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976);
- (i) "Government agency" includes a division, department, bureau, section, commission, board, office or unit of the Federal Government or a Provincial Government;
- (j) "historic waters" means such limits of the waters adjacent to the land territory of Pakistan as are for the time being specified by notification under section 7 of the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976);
- (k) "industrial activity" means any process for manufacturing, making, altering, repairing, ornamenting, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal or for pumping oil, water or sewage or for generating, transforming or transmitting power;
- (l) "industrial waste" means waste resulting from an industrial activity;
- (m) "local authority" includes any agency set up or designated by the Federal Government or a Provincial Government to be a local authority for the purposes of this Ordinance;
- (n) "local council" means a local council constituted or established under a law relating to local government;
- (o) "municipal waste" includes sewage, refuse sludge and human excreta and the like;
- (p) "pollution" means any matter which, on being discharged into the air, soil or public waters, alters unfavourably the chemical, physical, biological or radiological integrity of the air, soil or public waters

APPENDIX L (Cont.)

PART I] THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 247

or, by itself or in combination with other discharges, is likely to make the air, soil or public waters unclean, noxious or impure or injurious or disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to aquatic life, animals, birds, fish, plants or other forms of life :

- (q) "prescribed" means prescribed by rules or regulations ;
- (r) "public waters" means water areas in public use and includes streams, nullahs, canals, seepage drains, natural or artificial water courses, rivers, wells, ponds, ditches, lakes reservoirs, underground or artesian water, territorial waters, the Exclusive Economic Zone and historic waters ;
- (s) "regulations" means regulations made under this Ordinance ;
- (t) "rules" means rules made under this Ordinance ;
- (u) "sewage" means liquid wastes from sanitary conveniences, kitchens, laundries, washing and the like ;
- (v) "standards" means effluent standards and emission standards ;
- (w) "territorial waters" shall have the same meaning as in the Territorial Waters and Maritime Zones Act, 1976 (LXXXI of 1976) ;
- (x) "treatment works" means the various processes and devices used in the treatment of wastes ; and
- (y) "wastes" includes liquid wastes, suspended wastes, industrial wastes, municipal wastes, wastes from mining processes and wastes from farm and agricultural activities such as poultry, cattle, animal husbandry, abattoirs and the use of fertilizers and pesticides.

3. Establishment of the Council.—(1) The Federal Government shall, by notification in the official Gazette, establish a Council to be known as the Pakistan Environmental Protection Council and consisting of :

- | | | |
|--|--------|-----------------------|
| (i) the President of Pakistan | | <i>Chairman.</i> |
| (ii) the Minister incharge of the subject of Environment | | <i>Vice-Chairman.</i> |
| (iii) Ministers incharge of the subject of Environment in the Provinces | | <i>Members</i> |
| (iv) such other persons as the Federal Government may appoint | | <i>Members.</i> |
| (v) the Secretary to the Government of Pakistan dealing with the subject | | <i>Secretary.</i> |

(2) The members of the Council, other than *ex-officio* members, shall hold office for a term of three years.

(3) The Council shall frame its own rules of procedure.

(4) The Council shall hold meetings as and when necessary :

Provided that not less than two meetings shall be held in a year.

(5) The Council may, by general or special order and subject to such conditions as it may consider fit, delegate any of its functions under this Ordinance to a Committee or any member of the Council.

APPENDIX L (Cont.)

248 THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 [PART I**4. Functions of the Council.—(1) The functions of the Council shall be to—**

- (a) ensure enforcement of this Ordinance ;
- (b) establish comprehensive national environmental policy ;
- (c) give appropriate direction to conserve the renewable and expendable resources ;
- (d) ensure that environmental considerations are interweaved into National Development Plans and Policies ;
- (e) ensure enforcement of the National Environment Quality Standards ; and
- (f) give directions to any Government agency, a body or a person requiring it or him to take measures to control pollution being caused by such agency, body or person or to refrain from carrying out any particular activity prejudicial to public interest or the purposes of this Ordinance.

(2) The Council may, or if so required by the Government of any Government agency shall, direct the Agency to prepare, submit and promote projects for the prevention of environmental pollution or to undertake research in any specified aspect of environment.

5. Establishment of the Agency.—(1) The Federal Government shall, by notification in the official Gazette, establish an Agency to be called the Pakistan Environmental Protection Agency to exercise the powers and perform the functions assigned to it under the provisions of this Ordinance or the rules and regulations—

(2) The Agency shall be headed by a Director General who shall be appointed by the Federal Government on such terms and conditions as it may determine.

(3) The powers and functions of the Agency shall be exercised and performed by the Director-General.

(4) The Agency shall have such administrative, technical and legal staff as the Federal Government may appoint.

(5) To assist him in the discharge of his functions, the Director-General may establish such Advisory Committees as he may deem fit and appoint as members thereof eminent representatives of universities, research institutes, the business community and other professions and fields of knowledge.

6. Functions of the Agency.—(1) The Agency shall—

- (a) administer this Ordinance and the rules and regulations ;
- (b) prepare national environmental policy for approval of the Council ;
- (c) publish an annual report on the state of environment ;
- (d) establish National Environmental Quality Standards with the approval of the Council ;
- (e) revise the National Environmental Quality Standards as and when deemed necessary ;
- (f) coordinate environmental policies and programmes nationally and internationally ;

APPENDIX L (Cont.)

PART I] THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 243

- (g) establish systems for surveys, surveillance, monitoring, measurement, examination and inspection to combat environmental pollution;
- (h) take measures to promote the development of science and technology which will contribute to the prevention of environmental pollution, such as the consolidation of survey and research system, the promotion of research and development, the dissemination of the results of such research work and development work, and the education and training of research experts and other governmental functionaries;
- (i) provide information and education to the public on environmental matters and to recommend to the Council the introduction of environmental information in the syllabi of educational institutions; and
- (j) coordinate and consolidate implementation of measures to control pollution with Provincial Governments and other Government agencies.

(2) The Agency may—

- (a) request any Government agency to furnish any information or data relevant to the functions of the Agency;
- (b) with the approval of the Federal Government, initiate requests for foreign assistance in support of the objectives of this Ordinance and enter into arrangements with foreign agencies or organisations for the exchange of material or information and participate in international seminars or meetings;
- (c) establish and maintain laboratories to conduct research in various aspects of environment and provide grants to institutions for specific projects;
- (d) delegate any of its powers under this Ordinance and the regulations to any Government agency;
- (e) identify the needs for legislation in the environmental field;
- (f) at the request of the Federal Government or a Provincial Government or any Government agency, provide advice and assistance in environmental matters; and
- (g) perform any other function which the Council may assign to it.

7. Powers of the Agency.—Subject to the provisions of this Ordinance, the Agency may—

- (a) lease, purchase, acquire, own, hold, improve, use or otherwise deal in and with any property, both movable and immovable;
- (b) sell, convey, mortgage, pledge, exchange or otherwise dispose of its property and assets;
- (c) execute instruments, incur liabilities and do all acts or things necessary for proper management and conduct of its business; and
- (d) appoint such advisers and consultants as it considers necessary for efficient performance of its functions on such terms and conditions as may be prescribed by regulations.

APPENDIX L (Cont.)

250 THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 PART I

8. Environmental impact statement, etc., to be submitted to the Agency.—

(1) The provisions of this section shall apply to such —

- (a) persons or class of persons, or
- (b) industrial activity or class of industrial activity, or
- (c) category, type or volume of discharges of air pollutants or wastes, or
- (d) area or class of areas, or
- (e) classes of public waters.

as may be prescribed by regulations.

(2) Every proponent of a project the construction or completion of which is likely to adversely affect the environment shall file with the Agency, at the time of planning the project, a detailed environmental impact statement including information on :

- (a) the impact on the environment of the proposed industrial activity ;
- (b) the treatment works of the proposed project ;
- (c) the unavoidable adverse environmental effects of the proposed project ; and
- (d) the steps proposed to be taken by the project proponent to minimise adverse environmental effects.

(3) The Agency may prescribe guidelines for the preparation of environmental impact statements and, where such guidelines have been prescribed, the proponents of projects shall prepare environmental impact statements according to the said guidelines.

(4) The Agency may itself or through the appropriate Government agency review the environmental impact statement and, where it deems appropriate, it may also involve public participation in the assessment of the environmental impact statement.

(5) After the review under sub-section (4), the Agency may either approve the environmental impact assessment or recommend to the Federal Government that the project be modified or rejected in the interest of environmental objectives.

9. Agency to assist local councils, etc., in disposal of wastes.—The Agency shall assist the local councils, local authorities or other Government agencies and persons to implement schemes for the proper disposal of wastes in line with the standards and procedures prescribed by the Agency.

10. Funds of the Agency.—The funds of the Agency shall be derived from the following sources, namely :—

- (a) grants made and loans advanced by the Federal Government or the Provincial Government ;
- (b) grants, loans, advances and other moneys received from local or international agencies ;
- (c) fees, rates and charges received by the Agency under the provisions of this Ordinance ; and
- (d) all other sums received by the Agency.

APPENDIX L (Cont.)

PART I] THE GAZETTE OF PAKISTAN, EXTRA., DEC. 31, 1983 25

11. **Audit and accounts.**—(1) The Agency shall submit its annual budget estimates for approval of the Federal Government through the Council.

(2) The Agency shall maintain proper accounts and other relevant records and prepare annual statement of accounts in such form as may be prescribed by rules.

(3) The accounts of the Agency shall be audited in such manner as may be directed by the Federal Government.

12. **Penalty.**—(1) Whoever contravenes or fails to comply with any provision of this Ordinance or of any rule or regulation or any direction issued by the Agency thereunder, shall be punishable with imprisonment for a term which may extend to two years, or with fine which may extend to one hundred thousand rupees, or with both, and in the case of a continuing contravention or failure, with an additional fine which may extend to ten thousand rupees for every day after the first during which such contravention or failure continues.

(2) The Director General or an officer generally or specially authorised by him in this behalf may compound any offence under this Ordinance.

13. **Indemnity.**—No suit, prosecution or other legal proceeding shall lie against the Council, the Agency, the Director General, or the members, officers, employees, experts or consultants of the Agency for anything in good faith done or intended to be done under this Ordinance or any rule or regulation.

14. **Bar of jurisdiction.**—No Court shall take cognizance of any offence punishable under this Ordinance except on a complaint in writing made by the Agency.

15. **Dues of Agency recoverable as an arrear of land revenue.**—Any dues recoverable by the Agency under the provisions of this Ordinance or any rules or regulations shall be recoverable as an arrear of land revenue.

16. **Power to make rules.**—The Federal Government may by notification in the official Gazette, make rules for carrying out the purposes of this Ordinance.

17. **Power to make regulations.**—(1) The Agency may, by notification in the official Gazette, with the approval of the Federal Government, make regulations, not inconsistent with the provisions of this Ordinance or the rules, for carrying out the purposes of this Ordinance.

(2) In particular and without prejudice to the generality of the foregoing power, such regulations may provide for the levy of fees, rates and charges in respect of services rendered, actions taken and schemes implemented by the Agency.

GENERAL
M. ZIA-UL-HAQ
President.

C. A. RAHMAN
Secretary.

APPENDIX M

Examples of Classical & Current Environmental Laws in the Sudan

1. The Diseases of Animals Ordinance, 1902
2. The Plant Diseases Ordinance, 1913
3. The Harbours and Shipping Ordinance, 1916
4. The Land Settlement and Registration Act, 1925
5. The Taxation of Land and Date Trees Ordinance, 1925
6. The Arms, Ammunition and Explosives Ordinance, 1932
7. The Central Forests Ordinance, 1932
8. The Provincial Forest Ordinance, 1932
9. The Sulphur Ordinance, 1932
10. The Game Regulations, 1935
11. The Preservation of Wild Animals Ordinance, 1935 as amended and regulations made thereunder.
12. The Marine Fisheries Ordinance, 1937
13. The Nile Pumps Control Ordinance, 1939
14. National Parks, Sanctuaries and Reserves Regulations, 1939
15. The Royalties Ordinance, 1939
16. The Road Traffic Ordinance, 1942
17. The Bate Shoots Requisition Ordinance, 1944
18. The River Transport Ordinance, 1950
19. The Nile Pumps Control (General Regulations) 1951
20. The Freshwater Fisheries Ordinance, 1952
21. The Nile Pumps Control (Stand-by) Regulations, 1953
22. The Hides and Skins Ordinance, 1954
23. Petroleum Resources Development Act, 1958
24. Petroleum Resources Development Regulations, 1959
25. The Gazira Scheme Act, 1960
26. The Water Hyacinth Control Act, 1960
27. The General Regulation and Control of Merchant Shipping Act, 1961
28. The Town and Village Planning Act, 1961
29. The Central Electricity and Water Corporation Act, 1966
30. The Rural Water and Development Corporation Act, 1967
31. The Nile Pumps Control (General Amendment No. 2) Regulations, 1968
32. The Allotment of Lands for Development of the Mechanised Farming Corporation Order, under the Mechanised Farming Corporation Act, 1969
33. The Nile Pumps Control (Tennancies) Regulations, 1969
34. The Acquisition Act, 1970
35. Convention on the Continental Shelf (Ratification) Act, 1970
36. The Convention on the (TMO) (Ratification) Act, 1970
37. The Unregistered Land Act, 1970
38. The Peoples Local Government Act, 1971, as amended
39. The Mines and Quarries Act, 1972
40. Southern Provinces Regional Self-Government Act, 1972
41. The Development and Promotion of Industrial Investment Act, 1972
42. Wildlife and National Parks Act, 1973
43. The Food Control Act, 1973
44. The National Council for Research Act, 1973

APPENDIX N

Other Environmental Laws in Gambia

18 Supplement "C" to The Gambia Gazette No. 40 of 13th August, 1983.

Pesticides Control and Management Act, 1983.



THE GAMBIA

No. 5 OF 1983

Assented to by The President,
this Twenty-seventh day of July, 1983.



D. K. JAWARA,
President.

AN ACT to provide for the control and management of the use of all pesticides imported or produced in The Gambia and for other matters related thereto.

Date of
commence-
ment.

[13th August, 1983.]

Enactment

ENACTED by the Parliament of The Gambia.

PART I — PRELIMINARY

Short title.

1. THIS ACT may be cited as the Pesticides Control and Management Act, 1983.

APPENDIX N (CONT.)

Other Environmental Laws in Gambia

ISSN 0796—0298

The Environmental Protection (Prevention of Dumping) Act, 1988. 107

No. 15 OF 1988.

Assented to by The President,

this Twenty-sixth day of August, 1988.

LS

D. K. JAWARA,
President.

AN ACT to make provision for the prevention of the dumping of industrial waste for the protection of the environment and for matters connected therewith.

[6th September, 1988.]

ENACTED by the Parliament of The Gambia.

1. This Act may be cited as the Environmental Protection (Prevention of Dumping) Act, 1988.

APPENDIX N (CONT.)

Other Environmental Laws in Gambia

The Wildlife Conservation Act, 1977



THE GAMBIA

No 1 of 1977

Assented to by The President
this Fourteenth day of February,
1977.



D. K. JAWARA
President.

AN ACT to provide for the conservation and rational management of
wildlife in The Gambia and for matters connected therewith and
incidental thereto.

APPENDIX O

Summary of Environmental Laws

WORKING DRAFT DOCUMENT

SECTORAL LIBRARY
INTERNATIONAL BANK
FOR
RECONSTRUCTION AND DEVELOPMENT

AUG 19 1987

ENVIRONMENTAL LEGISLATION AND ADMINISTRATION: BRIEFING PROFILES
OF SELECTED DEVELOPING MEMBER COUNTRIES
OF THE ASIAN DEVELOPMENT BANK

Environment Specialists
Asian Development Bank
March 1987

APPENDIX O (Cont.)

Summary of Environmental Laws (Pakistan)

PAKISTANPAKISTAN
ENVIRONMENTAL IMPACT ANALYSISLegislation

Pakistan Environmental Protection Ordinance 1983
 Guidelines and procedures yet to be established
 Instructions by Environment and Urban Affairs Division (EUA)
 Pakistan Environmental Protection Agency Environment and Urban Affairs Division (EUA), Ministry of Housing and Works

LAND USELegislation

NFP Urban Planning Ordinance 1978
 Land Reforms Act 1973-75
 Land Acquisition Act 1894
 Provincial Local Government Ordinance 1979
 The Punjab Development of Cities Act 1976
 Punjab Land Preservation Act 1990

Implementing Agency

District Administration and Local Governments

WATER QUALITYLegislation

Pakistan Environmental Protection Ordinance
 Territorial Waters and Maritime Zones Act
 Criminal Procedure Code 1898
 Ports Act 1908
 Canal and Drainage Act 1873 and Amendments 1952, 1965, 1968, 1970
 Municipal Laws

Implementing Agency

Pakistan Environmental Protection Agency
 Port Authorities
 Local Governments

AIR QUALITY/NOISELegislation

Pakistan Environmental Protection Ordinance 1983
 Motor Vehicles Act 1938
 Municipal Laws
 West Pakistan Regulation on Control of Loudspeakers and Sound Amplifiers Ordinance (II) 1965

Implementing Agency

Pakistan Environmental Protection Agency
 District Administration and Local Governments

TOXIC OR HAZARDOUS SUBSTANCE/SOLIDWASTELegislation

Agricultural Pesticides Ordinance 1961
 Destructive Insect and Pests Act 1964
 Provincial Local Governments Ordinance 1979
 Municipal Laws

Implementing Agency

Ministry of Agriculture
 Ministry of Housing and Works
 Local Governments

COSTAL ZONE MANAGEMENT

Legislation Territorial Waters and Maritime Zones Act 1976

APPENDIX O (Cont.)

Summary of Environmental Laws (Pakistan)

State Authority Department of Wildlife
and National Parks

MINERAL DEVELOPMENTLegislation

Petroleum Development Act 1974
Petroleum Mining Act 1966
State of Mining Enactment (PMS) Cap. 147
(1929)

Implementing Agency

Department of Mines
Forestry, Timber and Mineral Division,
Ministry of Primary Industries

CULTURAL DEVELOPMENTLegislation

National Museum Act

Implementing Agency

National Museum

APPENDIX O (Cont.)

Summary of Environmental Laws (Bangladesh)

B A N G L A D E S HENVIRONMENTAL IMPACT ANALYSISLegislation

No provision in the Constitution
EIA done on selected projects

Implementing Agency

Environmental Pollution Control Board,
Department of Environmental Pollution
Control, Ministry of Local Government,
Rural Development and Cooperatives

LAND USELegislation

Local Government (Upazila Parishad and
Upazila Administration Reorganization)
Ordinance 1982
Pourashava Ordinance 1977
Town Improvement Act 1953

Implementing Agency

Directorate of Urban Development,
Ministry of Public Works, Housing and
Urban Development
Ministry of Local Government, Rural
Development and Cooperatives

WATER QUALITYLegislation

Environmental Pollution Control Ordinance
1977
Factories Act 1965

Implementing Agency

Environmental Pollution Control Dept.,
Ministry of Local Government, Rural
Development and Cooperatives
Flood control, Water Resources and
Irrigation Division, Ministry of
Agriculture
Directorate of Inspection of Factories,
Ministry of Labour and Manpower

AIR QUALITY/NOISELegislation

Environmental Pollution Control
Ordinance 1977
Factories Act 1965
Bengal Motor Vehicles Act 1939

Implementing Agency

Environmental Control Dept., Ministry of
Local Government, Rural Development
and Cooperatives
Inspection of Factories, Ministry of
Labour and Manpower
Transport Department

TOXIC OR HAZARDOUS SUBSTANCES/SOLID
WASTESLegislation

Pesticides Ordinance 1971 (Amended 1980
and 1983)
Environmental Pollution Control
Ordinance 1977
Pourashava Ordinance 1977

Implementing Agency

Ministry of Agriculture
Local Government Institutions
Ministry of Local Government, Rural
Development and Cooperatives

COASTAL ZONE MANAGEMENTLegislation

Environmental Pollution Control
Ordinance 1977
Territorial Water and Marine Zones Act
1974
Factories Act 1965
The Town Improvement Act 1953
Marine Pollution Control Law (proposed)

Implementing Agency

Ministry of Port, Shipping and Inland
Water Transport

APPENDIX O (Cont.)

Summary of Environmental Laws (Bangladesh)

Port Act 1908
Municipal and Land Use Laws

Implementing Agency
Ministry of Communications and Port
Authorities
Local Governments

FOREST CONSERVATION/PARKS AND WILDLIFE

Legislation
Forests Act 1927
Firewood and Charcoal (Restriction) Act
1964
Wild Birds and Animal Protection Act 1912
Punjab Wildlife (Protection,
Preservation, Conservation and
Management) Act 1975
Punjab Wild Birds and Wild Animals
Protection Act 1955
West Pakistan Wildlife Protection
Ordinance 1959
WFP Wildlife (Protection, Preservation
and Management) Act 1975
West Pakistan Fisheries Ordinance 1961
Northern Areas Wildlife Preservation Act
1975
Soil Reclamation Act 1952 amended 1964,
1965

Implementing Agency
Federal Ministry of Food and Agriculture
Provincial Governments and Conservators
of Forests

MINERAL DEVELOPMENT

Legislation
Mines Act 1926
Mines, Oil Fields and Mineral Development
(Government Control) Act 1948
Pakistan Mining Concession Rules 1960

CULTURAL ENVIRONMENT

Legislation
Antiquities Act 1976
Archaeological Excavation Rules 1969

APPENDIX O (Cont.)

Summary of Environmental Laws (Indonesia)

I N D O N E S I AENVIRONMENTAL IMPACT ANALYSISLegislation

Act No. 4 of 1982 concerning Basic Provisions for the Management of the Living Environment (Article 16)

Implementing Agency

Ministry of Population and Environment in Consultation with relevant Ministries

Jakarta Capital Governor's Decision No. 587 of 1980

Implementing Agency

Ministry of Population and Environment
Ministry of Industry/Commerce (for Factory and Public Enterprises Permit)
Ministry of Transport and Communication
Ministry of Telecommunication and Tourism

LAND USELegislation

Administration in the Village No. 5 of 1979
Basic Principles on Administration in the Region No. 5 of 1974
Fundamentals of Agrarian Law, No. 5 of 1960
Town Building Ordinance No. 168 of 1948

Implementing Agency

Ministry of Transmigration
Ministry of Public Works

TOXIC OR HAZARDOUS SUBSTANCES/SOLID WASTESLegislation

Act No. 31 1964
Regulation No. 33 1965, No. 9 1969 and Nos. 12 and 13, 1975 (radioactive substances)
Government Regulation No. 7 of 1973 (pesticides)
Ministerial Decree No. 429/Kpts/Ua/6/1973 and No. 125/Kpts/Ua/4/1975 (pesticides)
Act Number 9 Basic Principles of Public Health
Nuisance Ord. 1926
Act No. 5, 1974 Basic Provisions on Administration in the Region
Act No. 5, 1979 concerning Administration in the Village
Act No. 4, 1982 Basic Provisions for Management of the Environment

Implementing Agency

Ministry of Public Health (Pesticides)
National Atomic Energy Agency
Provincial and Local Administrations
Ministry of Agriculture

WATER QUALITYLegislation

Water Resources Development Act No. 11 1974
Decree No. 01/BIRWAKAS/1975 of Ministry of Health

Implementing Agency

Ministry of Public Works
Ministry of Transport and Communications

AIR QUALITY/NOISELegislation

No specific regulation
Provisions under Nuisance Act 1976, Mining Law 1967, etc.
Act 11 of 1962 concerning Hygiene of Public Enterprises
Act 14 1969 concerning Basic Provisions on Labor Forces
Jakarta Capital Regulation No. 12 of 1971
Jakarta Capital Governor's Decision No. 587 of 1980
Traffic Ordinance 1936

COASTAL ZONE MANAGEMENTLegislation

Act No. 5 1983 concerning Indonesia EEZ
Water Mgt. Act No. 11 1974
Government Regulation 17 of 1974 on Control of Offshore Exploitation and Exploration
Indonesian Continental Shelf Act 1973
Territorial Water and Maritime Zones Act No. 33 of 1970
Territorial Sea and Maritime Zones Act No. 129 of 1961

APPENDIX O (Cont.)

Summary of Environmental Laws (Indonesia)

FOREST CONSERVATION/PARKS AND WILDLIFELegislation

Forest Act 1927 (modified 1973)
Environmental Pollution Control Ordinance
1977
Wildlife (Preservation) Order 1973
Rules to Regulate Hunting, Shooting and
Fishing

Implementing Agency

Forest Department, Ministry of
Agriculture and Forest

MINERAL DEVELOPMENTLegislation

Mines Act 1923

CULTURAL DEVELOPMENTLegislation

Antiquities (Amendment) Ordinance 1976
Antiquities Act 1968

Implementing Agency

Archaeology Department, Ministry of Sports
and Culture
Ministry of Public Works

APPENDIX O (Cont.)

Summary of Environmental Laws (Malaysia)

MALAYSIAENVIRONMENTAL IMPACT ANALYSISLegislation

Environmental Quality Act 1974

Implementing Agency

Department of Environment

LAND USELegislation

Town and Country Planning Act 1976

Land (Group Settlement) Act (No. 13 of 1960)

Housing Developers (Control and Licensing) Act 1966, Rev. 1973

Land Conservation Act 1960

National Land Code 1960

Implementing Agency

Ministry of Land and Regional Development

Department of Rural and Urban Planning

Local Planning Authorities

Federal Land Consolidation and Rehabilitation Authority

WATER QUALITYLegislation

Local Government Act 1976 (L.M. Act 171)

Street, Drainage and Building Act 1974

(L.M. Act 133)

Water (Amendment) Enactment 1970

Environmental Quality Act and Regulations

Implementing Agency

Department of Environment

AIR QUALITY/NOISELegislation

Environmental Quality Act 1974 and

Regulations

Motor Vehicle (Construction and Use)

Rules) 1959

Road Traffic Ordinance 1958

Implementing Agency

Department of Environment

TOXIC OR HAZARDOUS SUBSTANCES/SOLID WASTESLegislation

Control of Drugs and Cosmetics

Regulations 1984

Pesticides Act 1974

Radioactive Substances Act (No. 17 of 1968)

Hydrogen Cyanide (Purification) Act 1953

Factories and Machinery Act 1967

Regulations 1970, Revised February 1983

Local Government Act 1976 (Secs. 69 & 70)

Environmental Quality Act 1974

Street Drainage and Building Act 1974

Implementing Agency

Ministry of Agriculture

Ministry of Health

Local Authority

COASTAL ZONE MANAGEMENTLegislation

Environmental Quality Act 1974

Water (Amendments) Enactment 1970

Petroleum Mining Act 1966

Continental Shelf Act 1966

Implementing Agency

Department of Environment and

Conservation

Lead Authority

FOREST CONSERVATION/PARKS AND WILDLIFELegislation

National Parks Act 1980

Protection of Wildlife Act 1972

Protected Places Ordinance

Wildlife and Birds Protection Ordinance 1955

National Forestry Act 1984

Forest Enactment of States

Implementing Agency

National Forestry Council

Forestry, Timber and Mineral Division,

Minister of Primary Industries

APPENDIX O (Cont.)

Summary of Environmental Laws (Malaysia)

Mining Law 1967

Act No. 4 1960 concerning Indonesian Waters

Petroleum Transport Ordinance 1927

Nuisance Ordinance 1926

Harbour Regulation 1925

Sponge Fishery Ordinance 1916

Coastal Fishery Ordinance 1920

Whaling Ordinance 1920

Implementing Agency

Ministry of Public Works

Ministry of Transport and Communication

Ministry of Research and Technology

Ministry of Agriculture

CULTURAL ENVIRONMENTLegislation

Monument Ordinance 1931 complemented by ministerial decrees and government regulations

Implementing Agency

Ministry of Education and Culture

FOREST CONSERVATION/PARKS AND WILDLIFELegislation

Basic Law on Forestry 1967

Nature Protection Ordinance 1941

Hunting Ordinance of Java and Madura 1940

Wildlife Protection Ordinance 1931

Ordinance on Coastal Fishery 1927

Ordinance on Fishery 1920

Ordinance on Sponge Fisheries 1916

Implementing Agency

Directorate General of Forestry, Ministry of Forestry

Ministry of Agriculture

Provincial Governments

MINERAL DEVELOPMENTLegislation

Continental Shelf Act

Mining Law No. 11 1967 complemented by Government Regulations No. 33 of 1969, 19 of 1973 and 17 of 1974

Mining Ordinance 1930

Ministerial Decrees

No. 3-4/Kpts/M/ Pertamb/1973

No. 04/P/M/Pertamb 1973

No. 09/P/11/Pertamb/1974

No. 209/Kpts/01/Pertamb/1974

Oil and Natural Gas Mining Act 44 of 1960

Implementing Agency

Ministry of Mining and Energy

State Enterprise for Oil and Natural Gas

Mining

VITA

NAME: Nader Musbah Soubra

DATE AND PLACE OF BIRTH: September 13, 1961. Beirut, Lebanon.

EDUCATION:

	<u>Name and Location</u>	<u>Dates</u>	<u>Degree</u>
High School:	International College Beirut, Lebanon	1973 - 1982	Lebanese Baccalaureate II, Philosophy
College:	University of Nebraska, Lincoln	1982 - 1985	Bachelor of Science in Agriculture
	Southwest Texas State University, San Marcos	1986 - 1988	Master of Applied Geography
	State University of New York, Syracuse	1989 - 1992	Doctorate of Philosophy in Environmental Science

EMPLOYMENT:

<u>Employer</u>	<u>Dates</u>	<u>Position</u>
Hays County San Marcos, Texas	6/1987-9/1987	Principal Cartographer
SUNY-ESF, Syracuse	8/1989-12/1989	Graduate Assistant
Town of Elbridge, New York	5/1990-8/1990	Graduate Intern
Prof. John Felleman SUNY-ESF, Syracuse	1/1991-4/1991	Graduate Assistant

الحمد لله رب العالمين

Praise be to Allah, Lord of the Universe