

**AN ANALYSIS OF ISLAMIC
ENVIRONMENTAL ETHICS WITH SPECIAL
REFERENCE TO MALAYSIA**

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Abstract

The general term 'environment' has a very wide connotations and concern for this issue has increased, particularly in the last three decades. The environmental crisis has become a widespread matter, the implications of which are global rather than merely international, national or local. Consequently, mankind is attempting to find solutions to this extensive problem and discussion of environmental ethics is expressed through a variety of backgrounds, such as, religious, political and economic ideologies etc.

Therefore, as the concern of environmental ethics has become one of the important contemporary topics, it is important for Muslims to contribute such ethical debates. What does Islam offer to solve environmental problems, particularly in Islamic states? To realise this objective, Malaysia has been cited in this research as one of the Islamic states, which is developing and thus dependent on its natural resources. Malaysia is facing a real challenge to strike the balance between the environment and development, particularly in the case study of the Bakun Hydro Electrical Project, Sarawak, Malaysia.

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Notes on Transliteration

This work adopts the rules of transliteration used by the Encyclopaedia of Islam, with slight variations

Consonants

ء	(hamza)	'	ض	(ḍād)	ḍ
ب	(bā')	B	ط	(ṭā')	ṭ
ت	(tā')	T	ظ	(ẓā')	ẓ
ث	(thā')	th	ع	(ʿayn)	c
ج	(jīm)	j	غ	(ghayn)	gh
ح	(ḥā')	ḥ	ف	(fā')	f
خ	(khā')	kh	ق	(qāf)	q
د	(dāl)	d	ك	(kāf)	k
ذ	(dhāl)	dh	ل	(lām)	l
ر	(rā')	r	م	(mīm)	m
ز	(zay)	z	ن	(nūn)	n
س	(sīn)	s	و	(wāw)	w
ش	(shīn)	sh	ه	(hā')	h
ص	(ṣād)	ṣ	ي	(yā')	y

Vowels

—	(fathah)	a	long <i>fathah</i>	ā
.	(kasrah)	i	long <i>kasrah</i>	ī
—	(ḍammah)	u	long <i>ḍammah</i>	ū

Notes:

1. *Tanwīn* is represented by *an*, *in* and *un* respectively.
2. Transliteration will involve only Arabic words. Others will be written in *italics*.

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List of Abbreviations

ABB	Asea Brown Boveri
AC/DC	Alternating Current/Direct Current
a/k	anak
ASEAN	Association of South East Asian Nations
asl	above sea level
CFRD	Concrete Faced Rockfill Dam
CO ²	carbon dioxide
CTTC	Centre For Technology Transfer and Consultancy
cumecs	cubic metres per second
DC/AC	Direct Current/Alternating Current
DOE	Department of Environment
ECRD	Earth core rockfill dam
EIA	Environmental Impact Assessment
EPU	Economic Planning Unit
EQA	Environmental Quality Act
EQC	Environmental Quality Council
FoE	Friends of the Earth
GDP	Gross Domestic Product
ha	hectare
HEP	Hydro Electrical Project
HVAC	High Voltage Alternating Current

HVDC	High Voltage Direct Current
IPP	Independent Power Producer
IRN	International Rivers Network
KEHMA-S	The European Committee for Human Rights in Malaysia and Singapore
km	kilometre
kV AC	kilo Voltan Alternating Current
kV DC	kilo Voltan Direct Current
KWh	Kilowatt-hour
LA 21	Local Agenda 21
GBP	Great Britain Pound
Gwh	Gigawatt-hour
MOSTE	Ministry of Science, Technology and Environment
mcm	million cubic metres
MDF	Mixed Dipterocarp
mg/L	miligram per litre
MHLG	Ministry of Housing and Local Government
ml	mile
MNS	Malaysian Nature Society
MW	Mega Watt
NCL	Native Customary Land
NGO	Non-Government Organisation
NREB	Natural Resources and Environment Board
OSA	Official Secrets Act

PPA	Power Purchasing Agreements
RM	Ringgit Malaysia
SAM	Sahabat Alam Malaysia
SAMA	Joint venture of consultants include Lahmeyer International, Fichtner, Dorsch and Motor Columbus
SEB	Sabah Electricity Board
SESCO	Sarawak Electricity Supply Company
TNB	Tenaga Nasional Berhad
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNIMAS	Universiti Malaysia Sarawak
UTM	Universiti Teknologi Malaysia
WWF	World Wide Fund for Nature

INTRODUCTION

1.0 Introduction

The discussion of environmental crisis has become a widespread issue. An attempt by the United Nations to tackle this issue from and through governments is evident in the proclamation of the declaration on human environment, made in Stockholm from 5 to 16 June 1972¹. To quote parts of these proclamations, 'the natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate'.² The issue of the environment was highlighted again in Agenda 21, Rio Summit at Rio De Janeiro, Brazil, from 3 to 14 June 1992.³ Entitled the Rio Declaration on the Environment and Development this contains 27 principles, while the main focus was, 'working towards international agreements, which respect the interests of all and protect the integrity of the global environmental and development system'.⁴

¹ This was the United Nation's first major conference on international environmental issues. The meeting agreed upon: a Declaration containing 26 principles, an Action Plan with 109 recommendations, and a Resolution on various institutional and financial arrangements.

² The United Nations on Stockholm 1972, Annex 1.

³ The main outcome of Rio Summit is Agenda 21. It is a 400-page document with 40 chapters aiming to provide a programme of action for sustainable development.

⁴ The United Nations on Rio Declaration on Environment and Development, 1992.

The issue of the environment was recently mentioned in the resolution of the United Nations Millennium Declaration from 6 to 8 September 2000. On the topic of protecting our common environment, 'We must spare no effort to free all of humanity, and above all our children and grandchildren, from the threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs'.⁵

Another important concept concerning the environment is that of globalisation. Many scholars, such as, Owen Green, who used the term global environmental issues, have pinpointed this.⁶ However, there are several senses in which the environment can be said to have become a global issue. Firstly, some environmental problems are inherently global. For instance, chlorofluorocarbons (CFCs) released into the atmosphere contribute to the global problem of stratospheric ozone depletion irrespective of where they are emitted, just as carbon dioxide emissions contribute to global climate change. Secondly, some problems relate to the exploitation of global commons. The resources shared by all members of the international community, such as the oceans, deep-sea bed, atmosphere and outer space. Thirdly, many environmental problems are intrinsically transnational, in that by their nature they cross state boundaries. For example, emissions of sulphur dioxide by one state will be carried by winds and deposited as acid rain on downwind countries. Fourthly, many processes of

⁵ The United Nations Millennium Declaration, 2000.

⁶ Greene, Owen, Environmental Issues in *The Globalization of World Politics An Introduction to International Relations*, second edition, John Baylis and Steve Smith (ed.) Oxford; Great Britain: Oxford University Press, 2001, p. 388.

over-exploitation or environmental degradation are relatively local or national in scale, and yet they are experienced in such a large number of localities around the world that they can be considered to be global problems. Examples include unsustainable agricultural practices, soil degradation and erosion, deforestation, river pollution, and the many environmental problems associated with urbanisation and industrial practices. And finally, the processes leading to over-exploitation and environmental degradation are intimately linked to broader political and socio-economic processes, which themselves are part of a global political economy.⁷

In Malaysia, the government announced the *Langkawi Declaration* on the Environment on 21 October 1989.⁸ The main objective of this declaration was to give full support to Agenda 21, Rio Summit in 1992. However, after eight years of this declaration, the environmental pollution is still to be seen clearly in Malaysia; a heavy haze occurred in 1997. According to the 1997 annual report on environment, the air quality worsened dramatically in several places in the country to such an extent that between 19-28 September 1997, a state of emergency had to be declared in Sarawak when the Air Pollutant Index (API) (the dominant pollutant is PM10) hovered above the 500 level. The air quality returned to normal in November coinciding with the monsoon season. Throughout 1997, the level of gaseous pollutants and lead in ambient air remained below the Recommended Malaysian Guidelines.⁹

⁷ Ibid.

⁸ *The Langkawi Declaration*, Malaysia 1989.

⁹ *The Annual report of Malaysia Environmental Quality, 1997*. Malaysia: Department of Environment.

The prolonged drought and hot spell due to the *El-Nino* effect and the consequential significant low flow in most rivers also took its toll on the river water quality monitored at 908 stations along 117 rivers. The number of clean rivers decreased from 42 in 1996 to 24 rivers in 1997 and the number of polluted rivers increased from 13 in 1996 to 25 in 1997, in terms of water quality index classification based on biochemical oxygen demand, chemical oxygen demand, dissolved oxygen, ammonia cal nitrogen, suspended solids and pH.¹⁰

Consequently the year after, the main task of the Department of Environment in Malaysia was to keep the air quality good and healthy. Therefore, the authorities have launched a programme '*Ops Bakar*' to prevent open burning activities in April 1998. They also enforced a law under the Malaysia Environmental Quality Act, 1974. For example, up until 31 December 1998, a total of 495 cases of open burning were detected and investigated, and follow-up action was taken including imposition of fines and prosecution.¹¹

2.0 Statement of the problem

Solution of the environmental crisis has therefore become a vital issue. Scholars have addressed the environmental problems in a number of ways; conferences,

¹⁰ Ibid.

¹¹ *The Annual Report of Malaysia Environmental Quality*, 1998. Malaysia: Department of Environment.

seminars, researches, books and so on have explored various methodologies to overcome this crisis. For instance, some scholars have begun to look to sciences and technology as a way to solve this problem. Others scholars have looked back to the root of the ecological crisis to analyse the environmental problems. This research may be divided into ideological and religious perspectives.

Because of what is taking place in Islamic countries, Western scholars ask how Islam proposes to provide a methodology to solve the environmental problems. As a way of addressing this question, Martin Palmer, commenting that Islam probably has the best worked out system of environmental checks and balances of any faith, suggests drawing up an Islamic environment programme based on the *Shari'ah*.¹² This is because, as Jeffery Kaplan argues, "...Islam teaches an inherent respect for nature, while the *Qur'anic* imperative against the misuse of natural resources may provide the basis for legislation aimed at the protection of these resources on the one hand, and of nature for its own sake on the other".¹³

In my opinion, to understand the basics of the Islamic view on the care of the environment we need to look at a way forward from the spiritual and physical aspect. In other words, we need to look at the relationship between God, human beings and non-human beings. The researcher will therefore examine various perspectives of the

¹² Martin Palmer in his comment on Izzi Dien's book *The Environmental Dimensions in Islam*.

¹³ Jeffrey Kaplan in his comment on Izzi Dien's book *The Environmental Dimensions in Islam*.

Shari'ah, which provides the practical methodology to tackle environmental problems, such as, the practice of *himā*, *harīm* and *hisbā* in the Islamic environmental programme.

As noted by Lloyd Timberlake in his article, the wealthy Muslim states have failed across the environment spectrum; from holding back the deserts, which many of their nations contain, to building functional and aesthetically pleasing modern buildings, whereby western patterns of development are simply overpowering the environment. He added that the leaders of many wealthy Muslim nations have become completely separated from both their religion and their roots in the land.¹⁴

3.0 Research objectives

To achieve and gain the purpose of this research, these are some of the research objectives;

- a. To explore the understanding of the concept of environmental ethics. This will identify the historical and fundamental principles of environmental ethics. In addition, the researcher will explain and identify various ideologies and religious aspects of environmental ethics. It will discuss the relevant definitions, principles, roles and methods of addressing the environmental crisis.

¹⁴ Timberlake, Lloyd, The Emergence of Environment Awareness in the West in *The Touch of Midas* ed. by Sardar, Ziauddin, Malaysia: Pelanduk Publications, 1988, p 130.

- b. Before the researcher defines and sets out the nature of environmental ethics in Islam, it is pertinent to discuss the 'world view' of the environment in Islam. This may distinguish between various ideologies and religious perspectives and the Islamic view on the environment. There will be discussion of several sub topics, such as the sources on environment, the concept of '*Khilāfah*' or stewardship and other notions within the Islamic perspective.
- c. The researcher will analyse environmental ethics from the Islamic perspective. To explain and investigate the three roles of *Tawhīd* (spiritual), *Sharī'ah* (Islamic Law) and *Akhlāq* in the environmental ethics of Islam. To achieve this objective, the researcher will examine the implementation and practice of the *Sharī'ah* methodology in addressing the environmental crisis. The practice of *harīm* (inviolable zone), *ḥimā* (a reserved land) and *ḥisbā* (office of public inspection) are important in relation to how the *Sharī'ah* methodology can be applied in Islamic environmental ethics.
- d. To evaluate the role of Islamic environmental ethics, the researcher will analyse one case study as an example that is relevant to the environmental crisis. This study aims to highlight how the neglect of environmental ethics may affect environmental issues. This analysis of a case study is crucial, as it intends to go some way in the establishing of the standpoint of Islamic environmental ethics.

4.0 Scope and limitation

The scopes of this study are:

- a. The concept and practice of environmental ethics from the Islamic perspective.
- b. The manifestation of Islamic environmental ethics regarding the Bakun Hydro Electrical Project (HEP) in Sarawak, Malaysia.

5.0 Research Methodology

The researcher will mostly utilise secondary data gleaned from libraries. The main methodology is thus descriptive and analytical, citing historical facts related to the environment and linking them to the current issues pertinent to environmental problems. Also, the sources from the Qur'ān and *Sunna* are very useful to aid in the understanding of the environment from the Islamic perspective. The following material will be researched;

- a. books
- b. encyclopaedias
- c. theses and dissertations
- d. journals
- e. papers news and articles
- f. internet

g. other

Hence, the focus of this research will be on two aspects.

1. A study of the concept and theory of environmental ethics.
2. An analysis of the manifestation of Islamic environmental ethics.

The main approach to a study of environmental ethics is a philosophy based one that includes the theory, the concept, the principles and the fundamentals. As stated above, the study will attempt to relate environmental issues to the roles played by several of the main religious perspectives.

The collection of data through field work is also unavoidable, particularly when the present researcher is dealing with the current general understanding of environmental ethics from an Islamic perspective. The field work is associated with a case study of the Bakun Hydro Electrical Project (HEP) in Sarawak, Malaysia. The researcher will analyse the relevant aspects of *Shari'ah* and discuss the concepts of *himā*, *harīm* and *hisbā* , with a view to how each could be implemented in this case.

6.0 Literature Review

Undoubtedly, awareness of environmental issues has become important among scholars and researchers throughout the world. In my opinion, this may be classified into several categories. Firstly, Western scholars such as Lyn White Jr., Arnold

Toynbee and others; secondly, science and technology scholars who produce books on environmental engineering in various sub topics; and thirdly, from the religious perspective, an example of which is the statement by the representatives of the religious community in the United States of America, who gathered in June 1991 to deliberate and plan action in response to the environmental crisis.¹⁵ However, unfortunately the list of participants showed no Islamic representatives.

Other views are from a religious perspective, as stated by the Duke of Edinburgh on the World Wild Fund (WWF) 25th Anniversary in 29th September 1986 at the Religion and Nature Interfaith Ceremony held at Basilica St. Francesco Assisi, Italy, "...I am convinced that secular conservation has learnt to see the problems of the natural world from a different perspective, and I hope and believe, that the spiritual leaders have learnt that the natural world of creation cannot be saved without their active involvement. Neither can ever be quite the same again". He added, "These declarations, Buddhist, Christian, Hindu, Jewish and Muslim, are each designed to speak to the believers in the faith and call upon them to commit themselves to the common struggle for the conservation of nature".¹⁶

The discussion on the topic of the environment has become widespread and established upon several categories. Firstly, the discussion of environmental ethics as a

¹⁵ Gottlieb, Roger S., *This Sacred Earth Religion, Nature, Environment*. London: Routledge, 1996, p. 636.

¹⁶ *Religion and Nature Interfaith Ceremony*. Assisi, Italy: WWF 25th Anniversary, 1986, p. 42.

new discipline of knowledge. Joseph R. Des Jardins, *Environmental Ethics An Invitation to Environmental Philosophy* has examined the basic concept and relationship of science, ethics and the environment. The other main points in this work are related to how environmental ethics (both applied and theoretical). Louis P. Pojman wrote *Environmental Ethics Reading in Theory and Application* and Donald Van De Veer and Christine Pierce edited and wrote *The Environmental Ethics and Policy Book Philosophy, Ecology and Economics*.

The awareness of the issue of environmental problems has been highlighted in the book *Silent Spring* by Rachel Carson 1962, which debates the dangers of DDT. This poison is hazardous right from the farmer who uses it on his crops, to every household in the chain of consumption. *The Limits to Growth* 1972 was composed by groups of scientist as a report to The Club of Rome. This book examines the increase of the following five elements: population, food production, industrialisation, pollution, and consumption of non-renewable natural resources.

Secondly, the debate on environmental ethics may not be separated from inherent philosophy and various scholars have addressed this relationship. For example, Don Mannison, Michele McRobbie and Richard Routley in *Environmental Philosophy*; M.E. Zimmerman in *Environmental Philosophy from Animal Rights to Radical Ecology*; and Robin Attfield and Andrew Belsey in *Philosophy and the Natural Environment*. Beside these books, the scholar Seyyed Hossein Nasr composed *Man and Nature*, a work that discusses the several and different 'world views' of nature.

Thirdly, discussion of environmentalism as a new ideology from various perspectives has become extensive. T. O'Riordan wrote *Environmentalism* and David Pepper *Modern Environmentalism: An Introduction and Roots of Modern Environmentalism*. The latter author highlights a variety of ideologies pertaining to environmental ethics from Western perspectives; one such example being the scholar John E. Lovelock who wrote *Gaia, a New Look at Life on Earth*. In this vein, David Pepper also wrote *Eco-Socialism from Deep Ecology to Social Justice*. Vandana Shiva and Maria Mies wrote *Ecofeminism*, a work that explores environmentalism from a feminist perspective.

Fourthly, scholars have discussed the issue of environment from religious perspectives. For instance, an effort by some publishers such as the Cassell Publisher in London has produced the series of Religions and Ecology. The book on *Buddhism and Ecology* was edited by Martine Batchelor and Kerry Brown, *Christianity and Ecology* was edited by Elizabeth Breuilly and Martin Palmer, *Hinduism and Ecology: Seeds of Truth* by Ranchor Prime, *Islam and Ecology* edited by Fazlun Khalid and Joanne O'Brien; and *Judaism and Ecology* edited by Aubrey Rose. Michael S. Northcott also contributed to the discussion on the environment and ethics from the religious perspective. His book is *The Environment and Christian Ethics*.

There are some books written by Islamic scholars concerning the Islamic environment. For instance, S. Waqar Ahmed Husaini in his book *Islamic*

Environmental Systems Engineering studied the whole general view and concept of Islamic aspects towards the system of environment¹⁷. Mawil Izzi Dien wrote the very valuable book *The Environmental Dimension of Islam*¹⁸. The author discussed and related his idea towards the worldview of the Islamic environment. He also suggested to Islamic governments a blueprint for an Islamic legislation for the environment, which no Muslim government has yet attempted. It called the Islamic Principles for the Conservation of the Natural Environment (IPCNE). Other scholars include Ali Ahmad in his book *Cosmopolitan Orientation Process of International Environmental Lawmaking An Islamic Law Genre*¹⁹. He also urged the important role of the Organisation of Islamic Conference towards an implementation of the Islamic International Environment. Then the latest is a book of *Islam and Ecology*, edited by several authors²⁰. This book is a compilation of articles on various topics from the Islamic perspective, such as God, humans and nature; the challenge of (Re) Interpretation; environment and social justice; toward a sustainable society; and the Islamic garden as metaphor for paradise.

In addition, there are also books written in Arabic such as Majid Raghieb in his book *Qanun Ḥimāyāt al-Bīat fī Ḍaw' al-Sharī'ah* and *Qanun Ḥimāyāt al-Bīat*. Khatib

¹⁷ Husaini, S. Waqar Ahmed, *Islamic Environmental Systems Engineering*. London: The Macmillan Press Ltd, 1980.

¹⁸ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Cambridge; England: The Lutterworth Press, 2000.

¹⁹ Ahmad, Ali, *Cosmopolitan Orientation of the Process of International Environmental Law Making An Islamic Genre*. Maryland; USA: The University Press of America, 2001.

²⁰ Foltz, Richard C. (et. al.), *Islam and Ecology*. Massachusetts; USA: The President and Fellows of Harvard College, 2003.

In Malaysia, Zaini Ujang has written two books concerning the environment: *Environmentalisme Dalam Tata Baru Dunia* (Environmentalism in World New Order) and *Islam dan Alam Sekitar* (Islam and Environment). However, both books discuss the relation between Islam and environment, which focused on historical aspect and the view of general concept of environment. He also concluded that environmental awareness in Muslim countries especially Malaysia is far from the Western perspective. Others such as Azizan Baharuddin have edited a book on *Environment and Development, Ethical and Educational Consideration*.

The role of non-governmental organisations in Malaysia, such as the Consumer Association of Penang (CAP) and Sahabat Alam Malaysia (SAM) has produced some books on the issue of the awareness of environment. The books include *State of The Environment in Malaysia*, which is a compilation of selected papers on the conference in 1996; and *Malaysian Environment Alert 2001*.

From the researcher's point of view, the environmental crisis is divided into two aspects namely the internal and external human crises. So the researcher will integrate the problems, issues and ideas through the case study. Hopefully, this integration will bring a rapprochement to solve the environmental problems from the Islamic perspective.

7.0 Significance of the Study

As argued by Seyyed Hossein Nasr in his article “When one looks at the Islamic world today, one sees blatant signs of the environmental crisis in nearly every country from the air pollution of Cairo and Tehran to the erosion of the hills of Yemen, to the deforestation of many areas of Malaysia and Bangladesh”.²¹ Since this article was published in 1990, the reputation of the environment in Islamic countries has worsened. Nasr goes on to discuss the philosophical and theological points of the Islamic environment and concludes that the Islamic world must act in the face of the devastating environmental crisis, leaving the agenda of the west to others who speak for it and who are specifically concerned with it. Finally, he suggests two programmes of corrective action: formulating and making clearly known (in a contemporary language) the perennial wisdom of Islam concerning the natural order, its religious significance and intimate relation to every phase of man’s life in this world. Secondly, he suggests a programme to expand the awareness of *Shari’ah* teachings concerning ethical treatment of the natural environment and expanding their field of application whenever necessary according to the principle of the *Shari’ah* itself.²²

²¹ Nasr, Seyyed Hossein, ‘Islam and the Environmental Crisis’ in *Islam and the Environment*, ed. by Agwan, A.R. Kuala Lumpur; Malaysia: Synergy Book International, 1997, p. 15.

²² Ibid, p. 33.

The researcher believes that a combination of modern technology and the methodology of the *Shari'ah* will best achieve solutions to the problems relating to environmental crises.

8.0 Synopsis

In general, this research is divided into two parts. Part A contains the concept and theory of environmental ethics; and Part B is the manifestation of Islamic environmentalism and ethics. Chapter one discusses the concept of environmental ethics. There are three main sub-topics; the environmental crisis, the meaning and framework of environment and ethics. Then, chapter two examines environmental ethics from ideological and religious perspectives. This chapter explores the background to the growth of environmental ethics, its relevant ideologies and its spiritual aspects. Finally, there is a discussion of environmental ethics in relation to sustainable development.

Both chapters are the gateway for the remaining chapters, which focus on the Islamic perspective. In chapter three, the researcher examines the environment from the Islamic perspective in general, such as the influence of Islam on the environment. It covers the important elements and framework of environment in Islam. In chapter four, the researcher focuses on environmental ethics in Islam and classifies three main sub

topics, namely a framework of ethics; exploring environmental ethics and the Islamic system in environmental ethics. In chapter five, the researcher analyses the application of the *Sharī'ah* in Islamic environmental ethics. It focuses on three main sub topics, namely as the *harīm* (an inviolable zone), the *ḥimā* (a reserved land) and *ḥisbā* (the office of public inspection).

Part B is crucial to this thesis, particularly chapter seven. Before that, chapter six explains the environment in Malaysia. The need to explore the environmental ethics from the Islamic perspective is vital to the researcher. This chapter clarifies two main sub topics, namely the environmental consequences of development and the environmental ethics in Malaysia.

Finally chapter seven is entitled the Bakun Hydro Electrical Project (HEP), Sarawak, Malaysia. This case study has been chosen because it is a good example to cite in the clarification of Islamic environmental ethics. Although this project is disputed between two factions; one supporting the development and one opposing it, Islam has a vital role to play in the solution of the problem. It is important to discover that Islam has offered outlines and principles to justify the policy that this project should proceed until complete.

9.0 Conclusion

The study of environmental ethics from the Islamic perspective is a new area of concern, which relates to the practice and implementation of environmental awareness. In particular, the researcher will study the current issue of environmental problems from the Islamic perspective.

PART A

THE CONCEPT AND THEORY OF ENVIRONMENTAL ETHICS

CHAPTER ONE: CONCEPT OF ENVIRONMENTAL ETHICS

1.1 Introduction

Currently, the development of discussion on the subject of the environment may be studied within several fields of knowledge. The study of environmental ethics has become increasingly important and it is taught at higher levels in the education system. This particular topic is inextricably linked to other subjects, such as geography and ecology etc. The discipline of environmental ethics embraces an integrated knowledge, which covers all human activities that impact on the environment.

In this chapter, the researcher will examine some vital points to analyse the concept of environmental ethics and also explore the concern of current environmental crises. Therefore, there is a need to define the meaning of both environment and ethics from Western and Islamic perspectives. In conjunction, the researcher will identify the framework of fundamental sources and principles of environmental ethics. In the contemporary world, the latter has gained import as a philosophical study and the researcher aims to explore this aspect and identify the groups whose objective is the finding of solutions to the earth's environmental crises.

This chapter will discuss the emergence of environmental ethics as an academic discipline; from the historical point of view (in particular from the beginning of the creation of man) until the modern period. The interpretation of the concept of environmental ethics varies between scholars, communities, states, and countries. This chapter aims to clarify the emergence of the environmental crisis and also to define key terminology relevant to the topic.

1.2 The Emergence of the Environmental Crisis

1.2.1 The Environmental Crisis in General

Chris Park outlines seven symptoms of the environmental crisis.¹ Population increase has meant that the number of people on Earth has enlarged eight-fold since the start of the Industrial Revolution. The use of resources for industrial production has risen by more than 100 times during the twentieth century. The effect of habitat clearance has resulted in the fact that in less than 200 years, more than 6 million km² of forest have been decimated. Consequently, the sediment loads from soil erosion have risen threefold in large rivers and eight-fold in smaller, more intensively used river basins over the last two centuries. Thus, the use of water resources has increased from 100 to 3 600 km³ a year over the past two centuries. Furthermore, he also outlines the effect of air pollution.

¹ Park, Chris, *The Environment Principles and Applications*. London: Routledge, 1997, p. 5.

wherein human activity since the middle of the eighteenth century has more than doubled the methane in the atmosphere, increased the carbon dioxide concentration by 27 percent and significantly damaged the stratospheric ozone layer. The last symptom is that of water pollution; human activity causing a doubling of natural emission rates of arsenic, mercury, nickel and vanadium, a tripling of zinc emissions, a fivefold increase in cadmium and an eight-fold increase in lead.²

These symptoms reflect the desperate nature of the world today and raise questions as to whether quality of life for present and future generations can be restored. The researcher intends to outline such questions and discuss possible environmental solutions.

The Brandt Commission, one official witness, has highlighted the environmental crisis³:

“Few threats to the peace and survival of the human community are greater than those posed by the prospect of cumulative and irreversible degradation of the biosphere on which human life depends”.

The Global 2000 Report to the President USA in 1980:

“If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the

² Ibid.

³ As quote by Des Wilson, *The Environmental Crisis A Handbook For All Friends Of The Earth*. London: Heinemann Educational Books Ltd, 1984, p. 2.

world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today. For hundreds of millions of the desperately poor, the outlook for food and other necessities of life will be no better. For many it will be worse. Barring revolutionary advances in technology, life for most people on earth will be more precarious in 2000 than it is now – unless the nations of the world act decisively to alter that trend”.

The World Conservation Strategy:

“Two features characterise our time. The first is the almost limitless capacity of human beings for building and creation, matched by equally great powers of destruction and annihilation. The escalating needs of soaring numbers have often driven people to take a short-sighted approach when exploiting natural resources. The toll of this approach has now become glaringly apparent; a list of hazards and disasters, including soil erosion, desertification, loss of cropland, pollution, deforestation, ecosystem degradation and destruction, and extinction of species and varieties”.

Scientists, engineers, policy-makers, technocrats, theologians and other concerned citizens must consider the important environmental factor that questions the extent to which any natural variability in an ecosystem will be affected by human activities. Many areas of the natural environment are at considerable risk due to recent human-induced

environmental disasters⁴ and academics have listed some of these⁵ that threaten to cause irreversible damage to the components and outer layers of the earth. Scientists have divided the outer layers of the earth into four main spheres. The first layer is *lithosphere*, which comprises the outer layers of the more solid earth, as rocks, sediments and soils. The second layer, namely *atmosphere*, comprises the gaseous layers that extend from the earth's surface up to about 100 km. The third layer is *hydrosphere*, the aqueous component that covers large parts of the planet, from a maximum depth of more than 11 km in the oceans. to shallower and less extensive bodies of water, such as shelf seas, lakes and rivers. The last layer is *biosphere*, which is the thinnest layer, comprising organic matter up to a few meters thick and covering much of the land surface, such as rainforest. Human beings are situated in this last layer and interact naturally with the other three layers. This is the relationship between lithosphere, hydrosphere, atmosphere, biosphere and ecosphere.⁶

According to Miller, there are seven major causes of the environmental crisis.⁷ Firstly, the crisis of overpopulation means more people need food in developing countries and in developed countries it is related to resource consumption and pollution. Secondly, the crisis of population distribution has resulted in the population 'implosion', or urban crisis. Thirdly, is the over-consumption and wasteful patterns of consumerism.

⁴ Pickering, Kevin T. and Owen, Lewis A., *An Introduction to Global Environmental Issues*, second edition. London: Routledge, 1997, pp. 2-4.

⁵ Ibid.

⁶ Ibid, pp. 6-7.

⁷ Miller, G. Tyler, *Living in the Environment*, second edition. Belmont; California: Wadsworth Publishing Company, 1979. pp. 463-464.

Then come the unwise use of technology, the crisis in management, the simplification of ecosystems and finally what he terms 'me-first behaviour'.

1.2.2 The Environmental Crisis from the Religious Perspective

From the religious perspective, particularly Christianity, according to Northcott there are five major factors regarding the origins of the environmental crisis.⁸ The first arose during the period of agricultural revolution when man was a hunter-gatherer, living directly off the land, in the forest or the jungle, intervening minimally in the lives of other species and the balance of ecosystems. The second major factor is the development of the market economy and the rise of a world economic system, its evolution into European industrialism and its eventual diffusion to every region on the planet. The third factor is the application of the technological fruits of modern scientific method through industrialism. The fourth factor is the philosophy of utilitarianism, which is the primary moral framework for decision-making in modern societies. The last factor is the changes in the material conditions of human life, including land tenure, economic exchange, industrial production and consumption. The last factor relates to the religious perspective because Northcott stresses environmental crisis to be in direct correlation to the removal of God from the human vision of the cosmos, of time and space, of exchange relations, of persons in community, and of the end of human life itself.⁹

⁸ Northcott, Michael S., *The Environment and Christian Ethics*, London: Cambridge University Press, 1966, pp. 40-85.

⁹ Ibid.

According to Gottlieb, there are eight indicators on his overview of the environmental crisis. These are: global climate or atmosphere change, toxic wastes, loss of land, loss of species, loss of wilderness, devastation of indigenous peoples, human patterns and quantities of consumption, and genetic engineering.¹⁰ He believes that the religions have important roles to play in addressing the environmental crisis and he outlines three. Firstly, he defines that the meaning of 'religion' is the system of belief, ritual, institutional life, spiritual aspiration, and ethical orientation which are premised on an understanding of human beings as other or more than simply their purely social or physical identities. Secondly, religions provide norms of conduct for the familiar interpersonal settings of family, community and world. Finally, he believes that religions provide rituals, such as acts of prayer, meditation, collective contrition or celebration, to awaken and reinforce a personal and communal sense of human connections to the Ultimate Truth(s).¹¹

Seyyed Hossein Nasr in his article 'The spiritual and religious dimensions of the environmental crisis' discusses some main points of this issue.¹² He believes that religion is significant to environmental crisis because the vast majority of the people in the world still live according to a creed. He adds that faith is important in the solution of the environmental crisis and stresses that the latter is driven by the modern economic system

¹⁰ Gottlieb, Roger S., *This Sacred Earth*, ed. by Gottlieb, Roger S. London: Routledge, 1996, pp. 6-7.

¹¹ Ibid, p. 8.

¹² Nasr, Seyyed Hossein, *The Spiritual and Religious Dimensions of the Environmental Crisis*. London: The Temenos Academy, 1999, p. 7.

appealing to human passions, especially the passion of greed, which is intensified by the creation of false needs, which are in reality merely desires.¹³

Some environmental crises have no geographical frontiers.¹⁴ For instance, the atomic accident of Chernobyl in Russia in the last two decades did not kill or maim many of the Russian people, but affected the health, food, vegetation, animal life, water and plant life of western Europe. Similarly, the case of heavy hazardous (explained later in chapter six) in the South East Asian region, which included Malaysia, Singapore, Indonesia, Thailand and Brunei. The effect of deforestation not only adversely affects their own peoples and environments but also other peoples and the climates of other continents.

1.2.3 Islam and the Environmental Crisis

The environmental crisis from an Islamic perspective begins with man himself who is God's *khalīfah* or steward on earth and possesses a nature that is a reflection of God's wisdom. The Qur'ān states,

'And it is He Who has made you generations coming after generations, replacing each other on the earth. And He has raised you in ranks, some above others that He may try you in that which He has bestowed on you. Surely your Lord is Swift

¹³ Ibid, p. 9.

¹⁴ Ahmad, Akhtaruddin, *Islam And The Environmental Crisis*. London: Ta-Ha Publishers Ltd, 1997, p. 10.

in retribution, and certainly He is Oft-Forgiving, Most Merciful'. (Al-A'rāf, 7: 165)

Based on the Qur'ān

'Evil (sins and disobedience of Allah etc.) has appeared on land and sea because of what the hands of men have earned (by oppression and evil deeds, etc.), that Allah may make them taste a part of that which they have done, in order that they may return (by repenting to Allah, and begging His Pardon)'. (Ar-Rūm, 30: 41)

Both verses stress that the crisis of environment is perceived as the direct result of man's activities. The fact is that human beings have neglected their responsibilities as *khalīfah*, because such remiss behaviour is destroying the natural world i.e. God's creation (*See appendix 1*).

According to Seyyed Hossein Nasr in his article 'Islam and the environmental crisis'¹⁵, the most important environmental crisis in the Islamic world today is due to the attitude of secular science based upon power and domination over nature and a technology, which devours the natural world with no respect for the equilibrium of nature. This refers to the effect of secularisation in Islam.¹⁶ A further reason for the environmental crisis in the Islamic world is due to the effect of the global domination of the West, which refers to the Muslim world as 'Third World Countries'.¹⁷ As a result, he suggests some ideas to solve the environmental crisis from the Islamic perspective. The

¹⁵ Nasr, Seyyed Hossein, Islam and the Environmental Crisis in *Islam and the Environment*, by Agwan, A.R. (ed.). Malaysia: Genuine Publications & Media Pvt. Ltd., 1997, pp. 15-35.

¹⁶ Ibid, p. 16.

¹⁷ Ibid, p. 29.

foremost is the need to formulate and clarify the perennial wisdom of Islam concerning the natural order, its religious significance and intimate relation to every phase of man's life in this world. Then, the awareness of *sharī'ah* teachings, which are contained in the Qur'ān and *Sunna*, concerning ethical treatment of the natural environment and the need to extend their field of application, whenever necessary, according to the principle of the *sharī'ah* itself.¹⁸

1.3 Definitions

1.3.1 Definition of Ethics

'*Ethische*' in Germany, '*morale*' in France, '*morali* or '*morale*' in Italy, '*etika*' in Malay; ethics was termed by Aristotle to signify 'the sense of character and disposition'.¹⁹ This word was originally from the Greek word *Ethos* meaning 'custom'. The meaning of ethics is the science of the ideal in human character and conduct.²⁰ According to Des Jardins, ethics refers to the general beliefs, attitudes, or standards that guide customary behaviour.²¹

¹⁸ Ibid, p. 33.

¹⁹ Sorley, W.R, "Ethics" in *Dictionary of Philosophy and Psychology*, vol. 1, ed. by Baldwin, James Mark, New York: The Macmillan Company, 1925, p. 346.

²⁰ Ibid.

²¹ Jardins, Joseph R. Des, *Environmental Ethics An Introduction to Environmental Philosophy*, third edition. Belmont; California: Wadsworth Publishing Company, 2001, p. 17.

In modern usage, the Collins Cobuild dictionary definition is threefold. Firstly, ethics are moral beliefs and rules about right and wrong; for example, its members are bound by a rigid code of ethics. Secondly, ethics is the study of questions about what is morally right and wrong. Lastly, an ethic of a particular kind is moral belief that influences the behaviour and attitudes of a group of people.²² In the context of this research, the researcher prefers the second meaning, particularly in relation to the environment.

Synonymous with ethics is moral philosophy.²³ Its definition is the discipline concerned with what is morally good and bad, right and wrong. This term also applies to any system a theory of moral values or principles. Generally, the term ethics may be divided into three major sub-disciplines. Firstly, meta-ethics, which explain questions relating to the nature of moral concepts and judgements. Secondly, named normative ethics, which are primarily concerned with establishing standards or norms for conduct and commonly associated with general theories about how one ought to live. The theory includes teleology, consequentialism and deontology. Thirdly is applied ethics. This is the application of normative theories to practical moral problems.

²² *The Collins Cobuild Learner's Dictionary*, Concise Edition. London: HarperCollins Publisher, 2003, p. 373.

²³ *The New Encyclopaedia Britannica*, vol. 4, 15th edition. Chicago: Encyclopaedia Britannica Inc., 1991, pp. 578-579.

In addition, Roger Crisp further defines the meaning of ethics. He categorises it into four aspects.²⁴ Firstly, ethics is the system of value and custom instantiated in the lives of particular groups of human beings described as the ethics of these groups. Secondly, the term is used to refer to one in particular of these systems, called morality, which involves notions such as rightness and wrongness, guilt and shame, and so on. Thirdly, 'ethics' can, within this system of morality itself, refer to actual moral principles. For instance, why did you return the book? It was the only ethical thing to do in the circumstances. Fourthly, ethics is that area of philosophy concerned with the study of ethics in its other senses. He also agrees that ethics are divided into three aspects. There are meta-ethics, ethical concepts and ethical theories and applied ethics.²⁵ Therefore, the term environmental ethics is ethics as applied to real life. He argues that Aristotle believed there was no point in studying ethics unless it would have some beneficial effect on the way one lived one's life. The combination of ethics with applied knowledge has been given a growth development as part of a wider movement involving research into the ethical requirements of those with particular occupations. The combinations, such as, in medicine on issues involving life and death as bioethics, medical ethics and others. In science and technology as genetics and ethics, reproduction and ethics, and so on. In medical practice as nursing ethics. In relation to scientific advance and its implications such as information technology and ethics, technology and ethics, and so on. In occupations such as business ethics, professional ethics, sport and

²⁴ Crisp, Roger, "Ethics" in *Routledge Encyclopedia of Philosophy*, vol. 3, by Craig, Edward (ed.). London: Routledge, 1998, p. 435.

²⁵ Ibid, pp. 435-437.

ethics, and so on. In human relationships, whether personal or between society, state and individual, such as, economics and ethics, ethics of the family, and so on. Undoubtedly, the discussion of the planet, and those who live and will live on it, has in recent times become the focus of much political concern, and this has had its effect on philosophy, such as, agricultural ethics, animal ethics, environmental ethics, population and ethics, and so on.²⁶

Therefore, ethics is a statement of the most fundamental principles of conduct. It is an attempt to answer the question of what is right and wrong in a systematic way.²⁷ In order to know the character of systematic ethics, there are two principles. For instance, one could compare the merits of two different actions by comparing how much pleasure and pain each is likely to produce. Firstly, they seem to provide reasons (or justification) for courses of action. Secondly, they have the intuitive feel of geometric axioms, so that while they can serve as reasons, no further reasons seem needed to justify them.

1.3.2 Definition of Environment

The origin word of environment is 'environ'.²⁸ It is defined as the outskirts, surrounding districts, of a town. So, the combined word *environ* + *ment* becomes environment. The meaning is the action of environing; the state of being environed.

²⁶ Ibid, p. 437.

²⁷ Scherer, Donald and Attig, Thomas, *Ethics and the Environment*. London: Prentice-Hall Inc., 1983. p. 2.

²⁸ *The Oxford English Dictionary*, 2nd edition, vol. V. Oxford: Clarendon Press. 1989, pp. 314-315.

In other words, environment is that which environ, the objects or the region surrounding anything. This word also developed other terms, such as environmental, environmentalism and environmentalist. The word environmental is defined as of or pertaining to environments or the environment; it is used also in special collocations such as environmental engineer, one who specialises in controlling damage to the environment caused by pollution and other hazards²⁹. So, the combination word environmental and ethics becomes environmental ethics as used in a special collocations. Then the word environmentalism is defined as the theory of the primary influence of environment on the development of a person or group. Furthermore the word environmentalist is defined as a person who believes in or promotes the principles or precepts of environmentalism. In other words a person who is concerned with the preservation of the environment from pollution and so on.³⁰

To a lesser extent it is reported that Einstein defined the word environment as 'everything that isn't me'.³¹ Another definition of environment is the aggregate of all the external conditions and influences affecting the life and development of an organism.³²

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The key term of environment is the surroundings which means - physical, chemical and biological – of any living thing. The term covers an immensely broad

²⁹ Ibid, p. 315.

³⁰ Ibid.

³¹ O'Riordan, Timothy, *The Social Science Encyclopaedia*, 2nd edition. London: Routledge, 1996, p. 251.

³² Bates, Marston in *International Encyclopedia of the Social Sciences*, vol. 5, by Sills, David L. (ed.). New York: The Macmillan Company, 1968, p. 91.

spectrum of factors.³³ For example, the human environment includes the geography and buildings, air and earth, plants, animals, micro-organisms, climatic conditions, pollutants, friends, enemies and social systems in which the human lives. Synonym words for environment are niche, ecosystem, ecology and habitat.

According to a contemporary dictionary Collins Cobuild, the word environment means, firstly, someone's environment is all the circumstances, people, things, and events around them that influence their life. Secondly, it consists of the particular natural surroundings in which humans live or exist. Lastly, the environment is the natural world of land, sea, air, plants and animals.³⁴ The word environment has derivatives such as 'environmental', which means concerned with the protection of the natural world of land, sea, air, plants and animals; or it means relating to or caused by the surroundings in which someone lives or something exists, as well as the word 'environmentalism', which is used to describe actions and policies which show a concern with protecting and preserving the natural environment, and the word 'environmentalist' a person who is concerned with protecting and preserving the natural environment.³⁵

A synonym of environment is ecology and habitat. The word 'ecology' is the study of the relationships between plants, animals, people and their environment.³⁶ Then,

³³ Pope, Stephen; Appleton, Mike and Wheal, Elizabeth-Anne, *The Green Book*. London: Hodder and Stoughton, 1991, p. 93.

³⁴ *The Collins Cobuild Learner's Dictionary*, Concise Edition, Op. cit., p. 367.

³⁵ Ibid.

³⁶ Ibid, p. 347.

the word 'habitat', which describes the habitat of an animal or plant as the natural environment in which it normally lives or grows.³⁷

1.3.3 Definition of Environmental Ethics

There are two words 'environmental' and 'ethics'. If ethics is the answer on 'How ought we to live?' An environmental ethic refers to our natural surroundings in giving the answer.³⁸

The simple understanding of environmental ethics is as an ordinary ethic applied to situations in which facts about the environment are important. But this meaning is more than a specialised ethic. It is emerging not simply as a field in which traditional principles are applied to a situation of resources depletion and pollution, but rather as one in which the dominating question is whether an enhanced understanding of ecosystems will entail the transformation of fundamental ethical principles, not just new applications.³⁹

In the words of Des Jardins, environmental ethics presents and defends a systematic and comprehensive account of the moral relations between human beings and

³⁷ Ibid, p. 492.

³⁸ Brennan, Andres, 'Environmental Ethics' in *Routledge Encyclopedia of Philosophy*, vol. 3, by Craig, Edward (ed.). London: Routledge, 1998, p. 333.

³⁹ Scherer, Donald and Attig, Thomas (eds.), *Ethics and the Environment*, London: Prentice-Hall, 1983, p. 2.

their natural environment.⁴⁰ He adds that human behaviour toward the natural world can be and is governed by moral norms. He classifies a theory of environmental ethics into three aspects. Firstly, what are the norms on environmental ethics? Secondly, to whom or to what do humans have responsibilities. Lastly, how are these responsibilities justified.

⁴¹ In the third edition of his book, he stresses that environmental ethics is a systematic account of the moral relations between human beings and their natural environment.⁴²

In his classification that environmental ethics may be divided into three categories in terms of the responsibilities of human beings towards the natural environment and also, to preserve resources. Firstly, anthropocentric (human-centred) ethics holds that only human beings have moral value. Thus, although human beings may be said to have responsibilities regarding the natural world, but they do not have direct responsibilities to the natural world. Secondly, non-anthropocentric ethics grants moral standing to such natural objects as animals and plants. Because human beings have direct responsibilities to natural objects other than human beings. Thirdly, is so-called holistic ethics in which the impact of the development of environmental ethics occurs by shifting the focus from individual living things – for example, spotted owls or redwood trees – to a focus on collections or wholes such as species, populations, or ecosystems. This means that human

⁴⁰ DesJardins, Joseph R., *Environmental Ethics An Introduction to Environmental Philosophy*, second edition. California: Wadsworth Publishing Company, 1993, p. 13.

⁴¹ Ibid.

⁴² Des Jardins, Joseph R., *Environmental Ethics An Introduction to Environmental Philosophy*, third edition. Belmont; California: Wadsworth Publishing Company, 2001, p. 11.

beings have moral responsibilities to collections of (or relationships between) individuals rather than (or in addition to) those individuals who constitute the whole.⁴³

As agreed by Robert Elliot, there are several types of the environmental ethics⁴⁴. Firstly, the focus on human-centred environmental ethics. Secondly, the focus on animal-centred ethics or non-human ethics. Thirdly, the focus on life-centred ethics in which the class of living things includes more than humans and non-human animals. It includes plants, algae, single-celled organisms such as viruses, ecosystems and the whole biosphere itself. Lastly is ecological holism.

Furthermore Wenz has introduced so-called synergistic environmental ethics, which respects human beings and has respect for non-human nature.⁴⁵ Environmental synergists believe that overall, and in the long run, outcomes for both people and nature are better when both people and nature are considered valuable in themselves.

1.3.4 Ethics and Environment in Islam

1.3.4.1 Ethics in Islam

⁴³ Ibid, p. 12.

⁴⁴ Elliot, Robert. Environmental Ethics in *A Companion to Ethics* by Singer, Peter (ed.). Oxford: Blackwell Publisher, 1993. pp. 285-288.

⁴⁵ Wenz, Peter S., *Environmental Ethics Today*. Oxford: Oxford University Press, 2001. p. 14.

Islamic ethics are termed ‘*akhlāq*’ or ‘*khulūq*’ (the plural form) or ‘innate disposition’.⁴⁶ This word is derived from *kh l q*. The focus of *akhlāk* is human in itself; ‘he’ or ‘she’ being integral within the term ‘creatures’. According to Izzi Dien, ethics is a state, *hay’a*, which resides in human souls.⁴⁷ All voluntary actions, be they good or bad, beautiful or ugly, are based upon it. This state is influenced by upbringing, which can infuse the perception and admiration of virtue. The continuation of a beneficial upbringing usually leads this *hay’a* to the love of good and the hatred of evil. The Arabic terminology for this is *khulūq ḥasan* or good ethics. Bad upbringing or bad ethics, *akhlāq sayī’a*, would result in the converse. Indeed, Islam strongly recommends good ethics just as it denounces the bad.⁴⁸ Furthermore, Allah describes the Prophet Muhammad as a person who exhibited exemplary ethics:

And verily, (you O Muhammad) are on an exalted standard of character. (Al-Qalam, 68: 4)

Izzi Dien adds that Islamic ethics are founded on two principles: firstly human nature, and secondly religious and legal grounds.⁴⁹ The former principle refers to the natural instinct, also called *fiṭrah*, which was imprinted in the human soul by God at the time of creation. The Qur’ān states,

⁴⁶ Walzer, R., “Akhlak” in *The Encyclopaedia of Islam New Edition*, vol 1 by H.A.R. Gibb (et.al.). Leiden: E.J. Brill, 1960, p. 325.

⁴⁷ Izzi Dien, Mawil, Islamic Ethics and the Environment in *Islam and Ecology* by Khalid, Fazlun and O’Brien, Joanne (ed.). London: Cassell Publishers Limited, 1992, p. 25.

⁴⁸ Ibid.

⁴⁹ Izzi Dien, Mawil, ‘Islamic Environmental Ethics: Law and Society’ in *Ethics of Environment and Development*, ed. by Engel, J. Ronald and Engel, Joan Gibb. London: Belhaven Press, 1990, p. 191.

‘And by *Nafs* (Adam or a person or a soul etc.), and Him Who perfected him in proportion; Then He showed him what is wrong for him and what is right for him.’ (Ash-Shams, 91: 7-8)

The verse clearly indicates that by having innate instinct, man can differentiate not only between good and bad, but also between these and that which is neutral, neither good nor bad. However, natural instinct may be affected by external influences such as customs and personal interests, which can cloud the ability to choose between good and evil. Therefore the second principle, based on religious and legal grounds, has a vital role to play in ensuring that the individual is disposed towards Islamic ethics.

According to Ansari, there are four tasks related to the comprehension of Islamic ethics.⁵⁰ The first is to understand and expound the ethos of Islam as conceived in the Qur’ān and elaborated in the *Sunna* of the Prophet. The second entails discussion of the general terms used in respect of Islamic morality, such as:- good, bad, right, wrong, meritorious, non-meritorious, responsibility and obligation. The third task is to examine exactly how Islamic ethics are related to and influenced by the faith itself. The ultimate task is the pronouncing of judgements on problems that face Islamic society and the establishment of what is right or wrong.

⁵⁰ Ansari, Abdul Haq, ‘Islamic Ethics: Concept and Prospect’ in *The American Journal of Islamic Social Sciences*, vol 6., no. 1, 1989, pp. 82-84.

1.3.4.2 Environment in Islam

In Islam the environment is termed '*bi'ah*' or '*muhīt*',⁵¹ words that literally mean domicile, living place, or residence. Within this usage, the Qur'ān states,

'And those who, before them, had homes (in Medina) and had adopted the Faith,'
(Al-Hashr, 59: 9)

Here, the term '*bi'ah*' refers to the home of those who resided in Medina from the time of the migration of the Prophet. Terminologically, it indicates the surrounding elements in which man exists, including water sources, climate, atmosphere, soil and all organic creations, in addition to all the constructions erected in the course of satisfying human needs and desires.

The essence of the term environment in its widest connotation indicates both natural and manmade surroundings; hence the environment in Islam may be divided into two categories. The natural environment incorporates every creation bestowed by the Almighty Allah to humanity. It consists of all phenomena that emerge on the surface of the earth such as mountains, valleys, plains, oases, rocks, dusts etc. and also the diverse atmospheric and climatic elements. It comprises all organic creations, be they vegetable or animal, aquatic or land living and all water sources both fresh and salty. The second category indicates the constructed environment, which includes the numerous edifices

⁵¹ Ba'albaki, Munir, *Al-Mawrid*. Beirut: Dār El-Ilm Lil Malayen, 1991, p. 315.

formed by man during his interaction with the natural environment in the fulfilment of requirements and desires, whether basic or otherwise.

According to Izzi Dien, the concept of the environment in Islam is best portrayed by the Qur'ān, which utilises a series of consistent terms in describing its various forms.⁵² He relates the term environment to three meanings. Firstly, as a living place *ma'ayish*, where food is found and active life takes place. The root of this word is derived from *'ayish*, (for life) and *ma'ayish*, (the cause of life). This term appears to be utilised for human abodes rather than animal ones. The Qur'ān states;

‘It is We Who have placed you with authority on earth, and provided you therein with means for the fulfilment of your life [*ma'ayish*]: Little give you thanks!’ (Al-‘Arāf 7: 10)

Here the plural form of the word, *ma'ayish* is employed and it may be observed that the Qur'ān is linking God's gift of the environment to humanity with the gift of power, in order that man may thank God.

Secondly, the word *masakīn* is used in the Qur'ān; its meaning being ‘the place of stillness’. The essence of this definition appears to accord with the concept of habitat. Thirdly, the term *kifātā* describes the earth as a container, which covers the dead and supports the living. The Qur'ān states:

⁵² Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Cambridge: The Lutterworth Press, 2000, p. 24.

‘Have We not made the earth [a] receptacle [*kifātā*] [To draw together] the living and the dead.’ (Al-Mursalāt, 77: 25-26)

1.3.4.3 Environmental Ethics in Islam

From the point of view of the researcher, there is little disparity between the definitions of ‘environment’ and ‘ethics’ within Islam. However, in combination the term ‘environmental ethics’ reflects a concept that is different in the context of an Islamic perspective. In order to explore this concept, a number of scholars have focused on several main areas. For instance, ‘Abd Al-Ḥamid outlines various topics relevant to environmental ethics in Islam.⁵³ These include *khalīfah*, fruits and development. Sardar also maintains the following:

Combine the concepts of *tawḥīd*, *khilafah*, ‘*amānah*, *ḥalāl* and *ḥarām* with the words for justice (‘*adl*) and moderation, temperance, balance, equilibrium, harmony (‘*ʿtidāl*) and the concept of *istiḥsān* (preference for the better) and *iṣṭislāḥ* (public welfare) and one has the most sophisticated framework for an environmental ethics that one can possibly desire.⁵⁴

Izzi Dien’s article ‘Islamic Environmental Ethics, Law and Society’ introduces some fundamentals of ethics in relation to the environment, whilst his article ‘Islamic

⁵³ Al Ḥamid, ‘Abd, Exploring The Islamic Environmental Ethics in *Islam and the Environment* by Agwan, A.R. (ed.), Kuala Lumpur: Synergy Book International, 1997, pp. 39-69.

⁵⁴ Sardar, Ziauddin, *Islamic Futures The Shape of Ideas to Come*. London: Mansell Publishing Limited, 1985, p. 227.

Ethics and the Environment' further indicates the relationship between man, ethics and the environment. His work 'The Environmental Dimensions of Islam' incorporates the topic 'Towards Islamic Environmental Ethics' in chapter four, which focuses on the need for Islamic environmental ethics in the contemporary world.

Consequently, there is apparent consensus amongst scholars that it is not feasible to compartmentalise the dimensions of Islamic ethics, because Islam is not only concerned with the relationship between human beings and God or human beings and themselves, but it also embodies man's inextricable relationship with the environment and all that is inherent therein. Each of these interactions is referred to repeatedly in both the Qur'ān and the *Sunna* of the Prophet Muhammad. An omission of any of these associations would imply the lack of a comprehensive grasp of ethics; these being crucial to the quest for understanding of the environment within the framework of Islam.

In conjunction, there will follow an analysis of environmental ethics from the Islamic perspective in chapters three, four and five. The researcher will analyse and examine both the theory and implementation of Islamic environmental ethics.

1.4 Framework of Environmental Ethics

According to Sorley, they are two fundamental concepts of ethics.⁵⁵ Firstly, the ideal or end, which is the standard of goodness in character and conduct. These include the terms of right, duty, virtue and value. Secondly is freedom, or the power of conforming to the law or realising the ideal belonging to human conscious activity. In relation with these concepts, the researcher will explore the theories of ethics briefly. It is important to explore and identify some of the principles that relate to the concept of environmental ethics. This section will focus on two aspects; namely ethical theory and the environment, and the principles of environmental ethics.

1.4.1 Ethical Theory and The Environment

The study of ethical theories is important. It is relevant to understand the ground of the theory of environmental ethics and there are several considerations to be taken into account.⁵⁶ Firstly, ethical theories provide a common language for discussing and understanding ethical issues. Secondly, these ethical theories have impact on the tradition, especially the way of thinking. Thirdly, the function of ethical theory is to offer

⁵⁵ Sorley, W.R., "Ethics" in *Dictionary of Philosophy and Psychology*, vol. 1, by Baldwin, James Mark (ed.). Op. cit., p. 347.

⁵⁶ DesJardins, Joseph R., *Environmental Ethics An Introduction to Environmental Philosophy*, Op. cit., pp. 19-20.

guidance and evaluation. It is important that the theories can apply to specific situations and be utilised to generate specific recommendations.

1.4.1.1 The Natural Law or The Tradition of Teleology

The natural law is one of the oldest ethical traditions relevant to environmental ethics. It was associated with Aristotle (fourth century B.C.) and Thomas Aquinas (thirteenth century A.D.).⁵⁷ Aristotle did not distinguish between ethics and science. He thought that the study of biology and psychology was an essential part of ethics because this required, at a minimum, knowledge of basic human needs, common capabilities and potentials, and motivation. This interesting blend of biology and ethics is one reason that this ethical tradition can be relevant to environmental issues.⁵⁸ Furthermore, he believed that all things do have a natural and distinctive activity. The goal of this activity was identified in the Greek as the object's *telos*, often called teleological, its natural function or activity.⁵⁹ In addition, the teleological framework could be applied to all natural objects, including humans. All things have a natural activity or function. Things are good when they fulfil this function or, in terms more common to this tradition, when they actualise their potential.⁶⁰

⁵⁷ Ibid, p. 22.

⁵⁸ Ibid.

⁵⁹ Ibid, p. 23.

⁶⁰ Ibid, p. 24.

In conjunction with that, Thomas Aquinas further developed the teleological system in the thirteenth century. It is perhaps through Aquinas's writings that these views have had the greatest influence on Western thought.⁶¹ He attempted to synthesise Christian theology and Aristotle's science and ethics. He interpreted the scientific and ethical teleology of Aristotle as evidence that a divine plan operates in nature. The characteristic activity of all natural objects results from God's plan and God's purposes. Because God is assumed to be supremely good and because the purposes discovered in nature are God's purposes, the natural order can be equated with the moral order. Nature itself has a purpose, and the harmonious functioning of nature reveals the goodness of God's plan.⁶²

1.4.1.2 The Utilitarian Tradition

The theory of utilitarianism was the work of Jeremy Bentham and this was expounded in his *Introduction to the Principles of Morals and Legislation* in 1789.⁶³ In general terms, utilitarianism means to maximise the overall good or to produce the greatest good for the greatest number. Thus, it focus on two elements which offer an account of the good and a rule for judging all acts and decisions in terms of that good.⁶⁴ Moreover, Des Jardins argues that utilitarian reasoning is especially influential in the

⁶¹ Ibid, p. 24.

⁶² Ibid, p. 24.

⁶³ VanDe Veer, Donald and Pierce, Christine, *The Environmental Ethics and Policy Book*, second edition. Belmont; California: Wadsworth Publishing Company, 1998, p. 23.

⁶⁴ Des Jardins, Joseph R., *Environmental Ethics An Introduction to Environmental Philosophy*, Op. Cit., p. 26.

areas of economics, public policy and government regulation, and has a significant role in environmental policy.⁶⁵

1.4.1.3 Deontology: An ethics of duty and rights

The word ‘deontology’ comes from the Greek word for duty. It emphasises the notion of acting on principle rather than consequences. The central concepts of ethics involve duties and rights. This view was found in the writings of the eighteenth century German philosopher Immanuel Kant.⁶⁶ Kantian ethics begins with the claim that humans can be held responsible only for those things that humans can control. This, argued Kant, means that the focus of ethics should be on those principles on which humans choose to act.

1.4.2 The Principles of Environmental Ethics

To continue the above discussion, this part explains the continuity between environment and ethics. The aim is to clarify the theory of ethics in environment. Therefore, the researcher intends to explore the principles of environmental ethics, which may be classified into four categories, as follows;

⁶⁵ Ibid. p. 26.

⁶⁶ Ibid, p. 29.

1.4.2.1 Anthropocentric

Anthropocentrism is a world-view placing human at the centre of all creations. It sees humans as the source of all value, since the concept of value itself is a human creation. The term comes from the ancient Greek '*anthropos*' which means human being. Anthropocentric means centred on human beings. Anthropocentrists adopt a perspective that includes only anthropocentric concern.⁶⁷ The opposite of anthropocentric is non-anthropocentric which means not centred on human beings. Its means concern for non-human lives and life forms for their own sake rather than for human sake.⁶⁸

1.4.2.2 Bio-centric

Sometime this is called bioethic. It is an ethical principle, which holds that the biosphere has intrinsic value. It therefore has a right to existence for itself, regardless of its usefulness or otherwise to humans.⁶⁹ According to Paul Taylor, there are four main components of the bio-centric outlook on nature.⁷⁰ Firstly, humans are thought of as members of the Earth's community of life, holding that membership on the same terms as apply to all the non-human members. Secondly, the Earth's natural ecosystems as a totality are seen as a complex web of interconnected elements, with the sound biological

⁶⁷ Wenz, Peter S., *Environmental Ethics Today*. Op. cit., p. 12.

⁶⁸ Ibid, p. 13.

⁶⁹ Pepper, David, *Modern Environmentalism; An Introduction*. London: Routledge. 1997, p. 328.

⁷⁰ Taylor, Paul, The Ethics of Respect for Nature in *The Environmental Ethics and Policy Book*. VanDeVeer, Donald and Pierce, Christine (ed. al.). Belmont; California: Wadsworth Publishing Company, 1994, p. 130.

functioning of each being dependent on the sound biological functioning of the others. Thirdly, each individual organism is conceived of as a teleological centre of life, pursuing its own good in its own way. Lastly, the human claim that they are superior to other species is groundless. It must be rejected as nothing more than an irrational bias in their own favour.

1.4.2.3 Eco-centric

This is classified as a 'mode of thought', which regards humans as subject to ecological and systems laws. Essentially it is not human-centred or anthropocentric, but centred on the natural ecosystems, of which humans are reckoned to be just another component. There is a strong sense of respect for nature in its own right (bioethic) as well as for pragmatic reasons. Eco-centrics lack faith in modern large-scale technology and society, and the technical, bureaucratic, economic and political elites.⁷¹

1.4.2.4 Techno-centric

This is also classified as a 'mode of thought', which recognises environmental problems but believes either unrestrainedly that society will always solve them through technology and achieve unlimited material growth, or more cautiously, that by careful economic and technical management the problems can be negotiated. In either case

⁷¹ Pepper, David, *Modern Environmentalism; An Introduction*. Op. cit., p. 328.

considerable faith is placed in the ability and usefulness of classical science, technology and conventional economic reasoning. There is little desire for genuine public participation in decision-making, in favour of leaving decisions to politicians advised by technical experts.⁷²

1.5 Conclusion

This chapter aimed to understand the concept and definition of environmental ethics and particularly to distinguish between the Western and Islamic perspectives of environmental ethics. Therefore, in the following pages, the researcher intends to explore the concept of environmental ethics from both Western and religious perspectives. It can be said that the meaning of environment from the Western perspective covers a wider area than that of the Islamic since the source of the latter is only the Divine whereas the former includes many bases upon which environmental ethics can be established. The usage of this term has become extensive. In general both the Western and Islamic perspectives have the same objective i.e. to live in harmony with a better environment. Nevertheless, one of the differences between the two perspectives is the framework and principles of environmental ethics. The theory of environmental ethics in the West has become identified with ideologies such as the anthropocentric, non-anthropocentric, bio-centric and techno-centric or even in the form of a movement such as deep ecology, social ecology, animal liberation and others. In Islam the focus remains on the role of human beings as responsible trustees *khalīfa* which could be a less unstable ground upon which ethics can be based.

⁷² Ibid.

CHAPTER TWO: ENVIRONMENTAL ETHICS FROM IDEOLOGICAL AND RELIGIOUS PERSPECTIVES

2.1 Introduction

This section attempts to explain the growth of environmental ethics, which developed with the emergence of the awareness of environmentalism. The researcher intends to describe and understand the background of environmentalism. In fact, this may be perceived as a gateway through which to elucidate some of the environmental ideologies and practices, whilst relating them to relevant religious perspectives. Additionally, the researcher will compare the notions of sustainable development that are held by the Islamic faith and the Western world. By exploring an overview of environmental ethics from various ideological and religious perspectives, the researcher should be enabled to further analyse the relationship between contemporary environmentalism and Islam, this being the particular subject matter of the subsequent chapters.

2.2 Environmental Ethics in Perspective

The background of environmental ethics is rooted in the appearance of the environmental crisis that followed the Industrial Revolution of the 18th century. This

had a significant impact on consumer goods, the production of goods and the population, which increased as a result of this rapid economic growth. The environment was affected both directly and indirectly at this time.

The word environmentalism can be understood as referring to texts (in various media) and actions (undertaken by individuals or groups) of a broadly political nature that are or are claimed to be concerned in some way with conserving, improving, preserving, protecting or saving the environment. Thus, the term environmentalism may be viewed as collective and it can actually be dissected into various aspects and problems that each command their own very different niches and characteristics. As such, environmental areas have sets of individual criteria that constitute the nature and causes of environmental problems and crises. Thus, the most appropriate responses to these must vary and may be relevant to governmental, political or business organisations.

2.2.1 The Meaning of Environmentalism

Environmentalism, the question of the relations between man in society and the geographical environment in which he lives, is a very old one.¹ It is a collective term to describe ways in which people express their concern about their state and future of the

¹ O.H.K. Spate, Environmentalism in *International Encyclopedia of the Social Sciences*, vol. 5, ed. by Sills, David L. New York: The Macmillan Company, 1968, p. 93.

environment. To get a clarification, the researcher again drew up the meaning of environmentalism. Firstly, the Oxford English Dictionary defines the word environmentalism the theory of the primary influence of environment on the development of a person or group. Furthermore, the word environmentalist defines a person who believes in or promotes the principles or precepts of environmentalism, in other words a person who is concerned with the preservation of the environment from pollution and so on.² Secondly, the Collins Cobuild Learner's Dictionary states that the word 'environmentalism' is used to describe actions and policies, which show a concern with protecting and preserving the natural environment. And the word 'environmentalist' is a person who is concerned with protecting and preserving the natural environment.³

Basically, the term 'environmentalism' is sometimes used to refer to a traditional, instrumentalist view that conceives of 'nature' as that which surrounds human beings, and reduces the natural world to a stock of resources that ought to be used wisely for the benefit of humanity.⁴ It also called political ecology in response to an increasing interest in environmental issues. In additions it expresses ecological concerns and embodies ecological concepts in widely varying degrees.

² *The Oxford English Dictionary*, 2nd edition, vol. V. Oxford: Clarendon Press, 1989, p. 315.

³ *The Collins Cobuild Learner's Dictionary*, Concise Edition. London: HarperCollins Publisher, 2003, p. 367.

⁴ Clark, John, Introduction in *Environmental Philosophy From Animal Rights to Radical Ecology* by Zimmerman, Michael E. (et. al.), London: Prentice Hall, 2001 p. 343.

According to Pepper, environmentalism may have three classifications; firstly is anthropocentrism and biocentrism, secondly is ecocentrism and technocentrism, egocentrism and homocentrism, and thirdly is green politics.⁵

Environmentalism is also called the ecology or the green movements or the green political philosophy. According to Porritt, this movement may be divided into three categories.⁶ Firstly, the foremost amongst those who are not truly green are the conservationists, who were previously unopposed to earlier industrialisation, and seek the conservation of the best of the remaining unspoilt habitats. Secondly, the most radical greens are opposed to the present industrial system, seeking a chance to create a new lifestyle based on small-scale, self-sufficient communities. Lastly, the majority of the supporters of environmental groups lie somewhere between these two extremes. They are not opposed to industrialisation. There are groups of individuals who are actively involved in green lifestyles. These include smallholders, organic farmers, cyclists, vegetarians, those protesting for animal rights, against the nuclear industry or multinational companies, some parts of the women's movement, as well as those formally involved in greening various political parties.

⁵ Pepper, David, *Modern Environmentalism An Introduction*. London: Routledge, 1996, pp. 34-40.

⁶ Porritt, Jonathon, *Seeing Green*. Oxford: Basil Blackwell Ltd, 1984, p. 3.

2.2.2 Environmentalism and Environmental Ethics

According to Zaini Ujang, the development of various environmentalist ideologies may be divided into five main categories.⁷ The first categories were in the beginning of 19th century which was the landmark of the Industrial revolution in the whole of Europe, and then in the North America. The supply and demand for industrial on various sectors had been affected to the natural resources as continuously supplies for the industrials.⁸ Therefore, the urbanisation process had been affected by pollution of air, water and soil. At this time, there were two groups that were involved in raising awareness of environmental problems; the National Trust on 1885 in Britain and the Sierra Club on 1882 in United States of America. The second categories were finished at the end of World War Two. In this period the idea of militarism dominated the world. The third categories began with the book *Silent Spring* by Rachel Carson in 1962.⁹

The fourth categories began at the end of the 1960s. In this period the involvement of intellectual and scientific movements made a big impact on the role of environmentalism from the perspective of philosophy, religious, technology and

⁷ Ujang, Zaini, *Environmentalisme Dalam Tata Baru Dunia* (Environmentalism in New World Order). Kuala Lumpur : Institut Kajian Dasar, 1992, pp. 17-29.

⁸ For example on the industrial product such as tins, the demand was from the Europe and the supply was from the Malaya which was one of the biggest producer. Therefore, the effect for environmental degradation was there are lots of mines had opened to export tins to the demand country such as the Europe.

⁹ Ujang, Zaini, *Environmentalisme Dalam Tata Baru Dunia* (Environmentalism in New World Order). Op. cit., p. 19.

politics. This period began with Professor Lynn White Jr of her articles *The Historical Roots of Our Modern Ecological Crisis*. The last categories are believed to be for the future, as integration between economics, development and environment, so-called sustainable development.¹⁰

According to O’Riordan, environmental philosophy is the pattern and content of intellectual thought together with its evaluative and moralistic connotations as applied to three relationships: firstly, between man and his biophysical surroundings; secondly, between man and his fellow human beings as these relationships affect his thoughts and actions with respect to his biophysical surroundings; lastly within mankind as individual beings, again as these notions influence their cognition and behaviour.¹¹ In conjunction he classified modern environmentalism in two views, namely ecocentric and technocentric.¹²

According to John Clark, the field of environmentalism or political ecology may include free market environmentalism, traditionalist conservative environmentalism, Green market environmentalism, liberal environmentalism, socialist ecology, social ecology, ecofeminism, and bioregionalism.¹³

¹⁰ Ibid. p. 27.

¹¹ O’Riordan, T., *Environmentalism*. London: Pion Limited, 1976, p. iv.

¹² Ibid, p. 1

¹³ Clark, John, Introduction in *Environmental Philosophy From Animal Rights to Radical Ecology*, Op. Cit., p. 345.

From the Islamic perspectives, there is no different meaning of environmentalism. It can be said that Islamic environmentalism is an environmentalism that is demonstrably enjoined by the textual sources of Islam, i.e. the Qur'ān, *Sunna*, and so on.¹⁴ Therefore, the explanation of it will be given in the next chapters.

2.3 Environmental Ethics From Ideological Perspectives

In this part, the researcher will briefly explore some of the ideological perspectives on environmental ethics. These ideologies are important to understand for the relation between environment and environmentalism. They are deep ecology, social ecology, eco-feminism, animal liberation and *Gaia*.

2.3.1 Deep Ecology

Deep ecology is also called ecosophy or ecosophy T, which means ecological wisdom. It is a movement calling for a deeper questioning and a deeper set of answers to environmental concerns. Its motto is 'Simple in Means, Rich in Ends'. The movement was introduced by Arne Naess, the founder of the modern theory of deep

¹⁴ Foltz, Richard C., *Islamic Environmentalism: A Matter of Interpretation in Islam and Ecology*. Foltz, Richard C. (ed. al.). Massachusetts; USA: The President and Fellows of Harvard College, 2003, p. 252.

ecology. This was after his lecture at the 3rd World Future Research Conference, Bucharest in September 3, 1972¹⁵.

Naess described the ecology movement as having two characteristics¹⁶. Firstly, the Shallow Ecology movement, which fights against pollution and resource depletion. Secondly, there is the Deep Ecology movement. Deep ecology fundamentally rejects the dualistic view of humans and nature as separate and different. It holds that humans are intimately a part of the natural environment: they and nature are one. Therefore, to be realistic the following are the basic principles of deep ecology;¹⁷

1. The well-being and flourishing of human and non-human Life on Earth have value in themselves (synonyms: intrinsic value, inherent value). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life forms contribute to the realisation of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.

¹⁵ Naess, Arne, The Shallow and the Deep, Long-Range Ecological Movement in *Environmental Ethics Reading in Theory and Application* by Louis P. Pojman, Op. Cit., p. 147.

¹⁶ Ibid, pp. 147-149.

¹⁷ Devall, Bill and Sessions, George, Deep Ecology in *Environmental Ethics Reading in Theory and Application* by Louis P. Pojman (ed.), Op. Cit., pp. 159-160.

4. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of non-human life requires such a decrease.
5. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
6. Policies must therefore be changed. These policies affect basic economic, technological and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes.

2.3.2 Social Ecology

The idea of social ecology has been introduced by Murray Bookchin. He has been a leading anarchist and utopian political theorist, especially regarding the philosophy of nature. He was also the co-founder and director of the Institute for Social

Ecology.¹⁸ Social ecology is an egalitarian system that has its roots in Marxist and anarchist thought, though he disagrees with both at crucial points. He also rejects economic determinism and the dictatorship of the proletariat. Meanwhile, he rejects anarchist analysis that identifies the modern nation state as the primary cause of social domination. And his attack on social domination was related and connected to ecology.¹⁹ Historically, this idea was influenced by Peter Kropotkin's (1842-1921) who was an anarcho-communist.²⁰ In *The Ecology of Freedom*, he states;

The cultural, traditional and psychological systems of obedience and command are not merely the economic and political systems to which the terms class and state most appropriately refer. Accordingly, hierarchy and domination could easily continue to exist in a "classless" or "stateless" society. I refer to the domination of the young by the old, of women by men, of one ethnic group by another, of masses by bureaucrats who profess to speak of higher social interests, of countryside by town, and in a more subtle psychological sense, of body by mind, of spirit by a shallow instrumental rationality.²¹

The meaning of social ecology is neither 'deep', 'tall', 'fat', nor 'thick'. It is social. It does not depend on incantations, sutras, flow diagrams or spiritual vagaries. It

¹⁸ Bookchin, Murray, Social Ecology Versus Deep Ecology in *Environmental Ethics Reading in Theory and Application* by Louis P. Pojman (ed.), Op. Cit, p.168.

¹⁹ *ibid.*

²⁰ Pepper, David, *Modern Environmentalism An Introduction*, p. 31.

²¹ Bookchin, Murray, Social Ecology Versus Deep Ecology in *Environmental Ethics Reading in Theory and Application* by Louis P. Pojman (ed.), Op. Cit, p.168.

is avowedly rational. It does not try to establish metaphorical forms of spiritual mechanisms from religion. Bookchin has outlined four aspects of social ecology. The first aspect is philosophical, in which social ecology stems from a solid organic tradition in Western philosophy. The second aspect is social. It is revolutionary, not merely “radical”. Thirdly it is political, it is radically green. Finally it is moral, i.e. humanistic.²²

For social ecology, nature is natural evolution, not a cosmic arrangement of beings frozen in a moment of eternity to be abjectly revered, adored and worshipped like God and Goddesses in a realm of ‘supernature’. Natural evolution is nature in the very real sense that it is composed of atoms, molecules that have evolved into amino acids, proteins, unicellular organisms, genetic codes, invertebrates and vertebrates, amphibia, reptiles, mammals, primates and human beings.²³

In addition to practising and realising the idea of social ecology, the Institute for Social Ecology was established in 1974.²⁴ This institute became incorporated in 1981 as an independent institution of higher education dedicated to the study of social ecology, an interdisciplinary field drawing on philosophy, political and social theory, anthropology, history, economics, the natural sciences and feminism.²⁵

²² Ibid, p. 174.

²³ Ibid, p. 175.

²⁴ See: <http://www.social-ecology.org/about/index.html>, p.1, accessed on 14 July 2003.

²⁵ Ibid.

2.3.3 Eco-feminism

Generally, feminism is the movement to end sexist oppression, which is wrong and must be abolished. So eco-feminism is the theory that sees connections between feminism and ecology. This idea was first advanced by Froncoise d'Eaubonne in 1974.²⁶ As described by Warren, eco-feminism or ecological feminism is:

It is the position that there are important connections – historical, experiential, symbolic, theoretical – between the domination of women and the domination of non human nature. I argue that because the conceptual connections between the dual dominations of women and nature are located in an oppressive patriarchal conceptual framework characterised by a logic of domination, (1) the logic of traditional feminism requires the expansion of feminism to include ecological feminism, and (2) ecological feminism provides a framework for developing a distinct feminist environmental ethics. I conclude that any feminist theory and any environmental ethic which fails to take seriously the interconnected domination of women and nature is simply inadequate.²⁷

²⁶ Pojman, Louis P., *Environmental Ethics Reading in Theory and Application*, Op. cit., p.189.

²⁷ Warren, Karen J., The Power and the Promise of Ecological Feminism in *Environmental Ethics Reading in Theory and Application*, ed. by Pojman, Louis P., Op. cit., p.189.

Therefore, according to Des Jardins, this demonstrates that eco-feminism is a comparative recent development among environmental philosophers.²⁸ As argued by Warren, the promise and power of ecological feminism is that it provides a distinctive framework both for reconceiving feminism and for developing an environmental ethic which takes seriously connections between the domination of women and the domination of nature.²⁹ As a result, the aims of feminist ethics are to combat male bias in ethics wherever it occurs, and to develop ethics which are not male biased.

2.3.4 Animal Liberation

The spread and development of the animal movement has affected thousands of people in Western society. This has been proved by the issue of animal hunting in countryside. For instance, recently the United Kingdom Government has passed a law prohibiting animal hunting. It was the result of efforts by the group who support animal rights. The idea of animal liberation or rights may be classified into two: namely, the utilitarian and the deontological arguments.³⁰ Peter Singer is the main representative of

²⁸ Des Jardins, Joseph R., *Environmental Ethics: An Introduction to Environmental Philosophy*, Op. cit., p. 249.

²⁹ Warren, Karen J., The Power and the Promise of Ecological Feminism in *Environmental Philosophy From Animal Rights to Radical Ecology* by Michael E. Zimmerman (et. al.), London: Prentice Hall, 2001 p. 322.

³⁰ Pojman, Louis P., *Environmental Ethics Reading in Theory and Application*, 3rd Edition. Belmont; California: Wadsworth Publishing Company, 2001, p. 29.

the utilitarian and Tom Regan is the main representative and the foremost proponent of the deontological.

According to Singer, animals have equal rights. These arguments are based on a 'fundamental presupposition' of moral theory, the basic moral principle that all interests should receive equal consideration. He argues that human exclusion of animals from moral consideration is on a par with the earlier exclusion of blacks and women. In other words, he justifies the term speciesism to draw a parallel with racism and sexism.³¹ In order to affirm his arguments, he says,

The capacity for suffering and enjoyment is a prerequisite for having interests at all, a condition that must be satisfied before we can speak of interests in a meaningful way. Nothing that we can do to it could possibly make any difference to its welfare. The capacity for suffering and enjoyment is, however, not only necessary, but also sufficient for us to say that a being has interests – at an absolute minimum, an interest in not suffering. A mouse, for example, does have a interest in not being kicked along the road because it will suffer if it is.³²

Then, Regan has developed a rights-based defence of animals. He argues that some animals have rights and that these rights imply strong moral obligations for

³¹ Singer, Peter, A Utilitarian Defense of Animal Liberation in *Environmental Ethics Reading in Theory and Application*, 3rd edition, by Pojman, Louis P., Op. cit., pp. 33-39.

³² As quote from Des Jardins, Joseph R., *Environmental Ethics: An Introduction to Environmental Philosophy*, Op. cit., p. 114.

human responsibility³³. In agreeing with Singer, he condemns on ethical grounds a wide variety of human activities that affect animals. As a result, he has proposed some animal rights, as follows,³⁴

The philosophy of animal rights calls for an end to the use of animals in cosmetic testing in particular and product testing in general.

The philosophy of animal rights calls for an end to the coercive use of any animals.

The philosophy of animal rights calls for an end in military research, or in such research topics as the deleterious effects of smoking, maternal deprivation and drug addiction.

The philosophy of animal rights calls for an end to the traditions of 'sport' hunting and trapping of wildlife.

The philosophy of animal rights calls for an end to the commerce in the skins of other animals for purposes of human vanity.

The philosophy of animal rights calls for an end to the capture and training of wild animals, for purposes of entertainment.

³³ Des Jardins, Joseph R., *Environmental Ethics: An Introduction to Environmental Philosophy*, Op. cit., p. 116.

³⁴ Regan, Tom, 'Animal Rights: What's in a Name?' in *Environmental Ethics An Anthology* edited by Andrew Light and Holmes Rolston III. Oxford: Blackwell Publisher, 2003, p. 70.

In contrast to Singer, Regan argues that humans possess a certain type of value, called 'inherent value'. But animals also have, called subjects-of-a-life. Having a life involves a fairly complex set of characteristics:

To be the subject-of-a-life ... involves more than merely being alive and more than merely being conscious. To be the subject-of-a-life is to ... have beliefs and desires; perception, memory, and a sense of the future, including their own future; an emotional life together with feelings of pleasure and pain; preference and welfare-interests; the ability to initiate action in pursuit of their desires and goals; a psychophysical identity over time; and an individual welfare in the sense that their experiential life fares well or ill for them, independently of their utility for others.³⁵

To sum up, Regan remains convinced that animal can be subjects-of-a-life. At least some mammals possess the characteristics required for having a life. These animals, therefore, have inherent value, and justice demands that humans treat them with respect. In the meantime, humans have a strong prima facie obligation not to harm them.³⁶

³⁵ As quoted from Des Jardins, Joseph R., *Environmental Ethics: An Introduction to Environmental Philosophy*, Op. cit., p. 118.

³⁶ Ibid.

2.3.5 *Gaia*

Gaia is a name for the Greek Earth Goddess or the Earth Mother, also known as Ge. As an ideology, it has been reintroduced by James Lovelock in his book *Gaia A New Look At Life on Earth*. He classifies *Gaia* into two aspects. Firstly, the old *Gaia* was an entity that kept herself and all who lived with her comfortable throughout time and season. She worked so that the air, the oceans and the soil were always fit for life. Secondly, *Gaia* as a new look, which includes the entire surface of the earth including life, is a superorganism.³⁷ He maintains that the earth and its elements such as rocks, oceans and atmosphere, and all living things are part of one great organism, evolving over the vast span of geological time. In Havel's words;

According to the *Gaia* hypothesis, we are parts of a greater whole. Our destiny is not dependent merely on what we do for ourselves but also on what we do for *Gaia* as a whole. If we endanger her, she will dispense with us in the interests of a higher value – life itself.³⁸

Earth is 'alive' because it is 'autopoietic', that is, self renewing. This means that the earth can repair its own body and grow by processing materials. This happens neither by pure chance nor by outside design, but only by virtue of the earth's own

³⁷ Lovelock, James *Gaia A New Look At Life On Earth*. Oxford: Oxford University Press, 1995, p. vii.

³⁸ *ibid*, p. viii.

make-up and laws. In other words, the earth is able to reconstitute and repair itself in response to environmental changes.³⁹

In addition, Lovelock also argues that the *gaia* hypothesis possesses intelligence.⁴⁰ This means that intelligence is a property of living systems and is concerned with the ability to answer questions correctly. For instance, how *gaia* supplies the right answer to questions such as ‘Is it too hot?’ or ‘Is there enough air to breath?’ requires intelligence. Therefore, much of the routine operation of homeostasis⁴¹, whether it be for the cell, the animal, or for the entire biosphere, takes place automatically, and yet it must be recognised that some form of intelligence is required, even within an automatic process, to interpret correctly information received about the environment.

2.4 The Role of Religion in the Conservation of the Environment

Man should not only live in dignity and in harmony with his fellow men, but also in harmony with his environment and with God, the source of all life. As a fundamental aim to achieve this harmony, there must be a mutual relationship and respect between mankind and the environment. It is widely held that religion has a role

³⁹ Ibid.

⁴⁰ Ibid, p. 137.

⁴¹ *Homeostasis* is refers to that remarkable state of constancy in which living things hold themselves when their environment is changing.

to play in the building of a 'world view' from a non-secular perspective. The adherence to a religious belief can create a healthy culture and lifestyle through the development of moral value systems.

It is also believed that religion can play a vital role in the countering of environmental crises; and according to Gottlieb, there are three major considerations.⁴² Firstly, religions may be defined as systems of belief, ritual, institutional life, spiritual aspiration and ethical orientation. These are premised on an understanding of human beings as other or more than simply purely social or physical identities. Secondly, religions provide norms of conduct for the familiar interpersonal settings of family, community and the world. Lastly, religions provide rituals – acts of prayer, meditation, collective contrition or celebration – to awaken and reinforce a personal and communal sense of mankind's connections to the Ultimate Truth(s).⁴³

The question of interfaith dialogue and the relation between religions must encompass the attitude towards God's creation. For instance, if a *Mullah*⁴⁴ tells an individual in the mosque not to pollute the water, his voice will be more effective than an article published in the media by the government.

⁴² Gottlieb, Roger S. (ed.), *This Sacred Earth Religion, Nature, Environment*. Great Britain: Routledge. 1996, p. 8.

⁴³ Ibid.

⁴⁴ A person who is a religious scholar from the Islamic perspective.

The connection between environmental ethics and the religious perspective has demonstrated that the religious traditions agree, to a greater or lesser extent, on the following important points⁴⁵.

- a. The natural world has value in itself and does not exist solely to serve human needs.
- b. There is a significant continuity of being between human and non-human living beings, even though humans do have a distinctive role. This continuity can be felt and experienced.
- c. Non-human living beings are morally significant, in the eyes of God and/or in the cosmic order. They have their own unique relations to God, and their own places in the cosmic order.
- d. The dependence of human life on the natural world can and should be acknowledged in ritual and other expressions of appreciation and gratitude.
- e. Moral norms such as justice, compassion and reciprocity apply (in appropriate ways) both to human beings and to non-human beings. The well being of humans is inextricably linked with that of non-humans.
- f. There are legitimate and illegitimate uses of nature.
- g. Greed and destructiveness are condemned. Restraint and protection are commended.

⁴⁵ This conclusion can be found in Kusumita P. Pedersen, Environmental Ethics in Interreligious Perspective, in *Explorations in Global Ethics: Comparative Religious Ethics and Interreligious Dialogue*, by Twiss, Sumner B. and Boulder, Bruce Grelle (ed. al.). Oxford: Westview Press, 1998.

- h. Human beings are obliged to be aware and responsible in living in harmony with the natural world, and should follow the specific practices for this, as prescribed by their traditions.

In relation to environmental conservation through religion, the researcher intends to explore, firstly the Assisi Declarations and secondly the Alliance for Religions and Conservation.

2.4.1 The Assisi Declarations

The discussion on interaction between the environment and religion has become increasingly important. On 29 September 1986, the 25th anniversary of the World Wildlife Fund for Nature (WWF) was celebrated in the Basilica Di S. Francesco, Assisi, Italy. For the first time in history, five major world religions, namely Hinduism, Buddhism, Judaism, Christianity and Islam, came together. The celebration was led by His Royal Highness, the Duke of Edinburgh, the President of WWF International, Rabbi Arthur Hertzberg, a representative of Judaism, the Venerable Lungrig Namyal, a representative of Buddhism, His Excellency Dr. Abdullah Omar Naseef, a representative of Islam, His Excellency Dr. Karan Singh, a representative of Hinduism and Minister General Father Lanfranco Serrini, a representative of Christianity.⁴⁶

⁴⁶ The World Wildlife Fund for Nature, *Religion and Nature Interfaith Ceremony*. Assisi; Italy: WWF 25th Anniversary, 1986.

It can be said that the basic aim of this celebration was to discuss how each faith could participate in the conservation of the natural world. The ceremony consisted of the following five main themes: thanksgiving for creation; repentance; a celebration of the vision of the future; a dedication to implement this vision and finally, a declaration by the religious leaders. In the words of Father Serrini,⁴⁷

Each religion will celebrate the dignity of nature and the duty of every person to live harmoniously within the natural world. We are convinced of the inestimable value of our respective traditions and of what they can offer to re-establish ecological harmony; but, at the same time, we are humble enough to desire to learn from each other. The very richness of our diversity lends strength to our shared concern and responsibility for our Planet Earth.

The importance of this anniversary lay in its published declaration, namely, *The Assisi Declaration*,⁴⁸ which highlighted the crucial nature of dialogue between the faiths so that each can draw resources from the other in a common effort to face current environmental crises. World religion was invited to share with the conservation movement an understanding and vision of nature and also to share responsibility for the sensitive treatment of the natural world.

⁴⁷ Ibid, p. 11.

⁴⁸ The World Wildlife Fund for Nature, *The Assisi Declaration*. Assisi; Italy: WWF 25th Anniversary, 1986.

2.4.1.1 The Hindu Declaration on Nature

Speaking from the Hindu perspective, His Excellency Dr Karan Singh, the President, Hindu Virat Samaj conveyed the following declaration in Assisi, Italy.⁴⁹

The Vedas, the collections of hymns composed by great spiritual seers and thinkers which are the repository of Hindu wisdom, reflect the vibrancy of an encompassing world view which looks upon all objects in the universe, living or non-living, as being pervaded by the same spiritual power. Hinduism accepts the all encompassing sovereignty of the Divine, manifesting itself in a graded scale of evolution. For instance, the Atharva Veda contains this magnificent Hymn to the earth, which is redolent with ecological and environmental values:

Earth, in which lies the sea, the river and other waters, in which food and cornfields have come to be, in which lives all that breathes and that moves, May she confer on us the finest of her yield.

Earth, in which the waters, common to all, moving on all sides, flow unfailingly, day and night, may she pour on us milk in many streams, and endow us with lustre.

⁴⁹ Ibid, pp. 15-20.

May those born of thee, O Earth, be for our welfare, free from sickness and waste. Wakeful through a long life, we shall become bearers of tribute to thee.

Earth, my mother, set me securely with bliss in full accord with heaven, O wise one uphold me in grace and splendour.⁵⁰

Not only in the Vedas, but also in later scriptures such as the Upanishads, the Puranas and subsequent texts, the Hindu viewpoint on nature has been clearly enunciated. It is permeated by a reverence for life, and an awareness that the great forces of nature – the earth, the sky, the air, the water and fire – as well as various orders of life, including plants and trees, forests and animals, are all bound to each other within the great rhythms of nature.

The main thrust of Hinduism can be found in the stories of the lords, Brahma, Vishnu and Shiva, who represent the cyclical nature of existence; Brahma being the creator of each new world and universe, Vishnu the sustainer of the world and universe and Shiva being both the destroyer and the recreator.

⁵⁰ Ibid, p. 17.

2.4.1.2 The Buddhist Declaration on Nature

The Venerable Lungrig Namgyal Rinpoche, Abbot Gyuto Tantric University, conveyed the Buddhist perspective in the following declaration⁵¹:

Buddhism is a religion of love, understanding and compassion and is committed towards the ideal of non-violence. As such it also attaches great importance towards wildlife and the protection of the environment on which every being in this world depends for survival. The underlying reason why beings other than humans need to be taken into account is that, like human beings, they too are sensitive to happiness and suffering. We should therefore be wary of justifying the right of any species to survive solely on the basis of its usefulness to human beings.⁵²

There are five traditional *sila*, or basic rules for Buddhist morality:⁵³

- a. to abstain from killing
- b. to abstain from stealing
- c. to abstain from sexual misconduct
- d. to abstain from false speech

⁵¹ Ibid, pp. 3-7.

⁵² Ibid.

⁵³ Sivaraksa, S., A Buddhist Perception of a Desirable Society in Engel, J. Ronald and Engel, Joan Gibb (eds.), *Ethics of Environment and Development Global, Challenge and International Response*. London: Belhaven Press, 1990, pp. 219-221.

- e. to abstain from intoxicants that cause heedlessness.

From the Buddhist perspective, man's happiness is interdependent with that of societies, and man's equilibrium is interdependent with that of nature. In the first principle humans should abstain from killing, yet, by perceiving forests as 'resources' for example, man is destroying them. The loss of species through ecological damage is an act of killing performed out of ignorance.⁵⁴

2.4.1.3 The Jewish Declaration on Nature

Rabbi Arthur Hertzberg, Vice President of the World Jewish Congress declared the following from the Jewish perspective:⁵⁵

The encounter of God and man in nature is thus conceived in Judaism as a seamless web, with man as the leader and custodian of the natural world. Even in the many centuries when Jews were most involved in their own immediate dangers and destiny, this universalist concern has never withered...Now, when the whole world is in peril, when the environment is in danger of being poisoned, and various species, both plant and animal, are becoming extinct, it is our Jewish responsibility to put the defence of the whole of nature at the very centre of our concern... Man was given dominion over nature, but he was commanded to behave towards the rest of creation with justice and compassion.

⁵⁴ Ibid, p. 220.

⁵⁵ The World Wildlife Fund for Nature, *The Assisi Declaration*, Op. cit., pp. 27-31.

Man lives, always in tension between his power and the limits set by conscience.

Therefore, it is important to note the Ten Commandments in relation to environmental ethics, as follows;

1. I am the Lord your God, you shall have no other gods before me.
2. You shall not make for yourself an idol.
3. You shall not make wrongful use of the name of the Lord your God
4. Remember the Sabbath day and keep it holy.
5. Honour your father and your mother.
6. You shall not kill.
7. You shall not commit adultery.
8. You shall not steal.
9. You shall not bear false witness against your neighbour.
10. You shall not covet your neighbour's house, you shall not covet your neighbour's wife, male or female slave, or ox, or donkey, or anything that belongs to your neighbour.⁵⁶

These commandments clearly indicate the stance of Judaism towards respect for and maintaining of the environment. A further example can be found in the Torah, which

⁵⁶ As quoted from Exodus 20. 1-21, in *World Religions-Universal Peace-Global Ethics* by Kung, Hans. The Foundation of Global Ethic, p. 10.

forbids the destruction of fruit trees, even in wartime, when many prohibitions may be eased:

When thou shalt besiege a city a long time, in making war against it, thou shalt not destroy the trees thereof by wielding an axe against them; for thou mayest eat of them, but thou shalt not cut them down; for is the tree of the field man, that it should be besieged of thee? Only the trees of which thou knowest that they are not trees for food, them thou mayest destroy and cut down, that thou mayest build bulwarks against the city that maketh war with thee, until it fall.
(Deuteronomy 20: 19-20)

According to the Jewish religion, there are three services that relate to the environment; *chayim* or life, *Shabbat* or *Sabbath* and *shalom* or peace.⁵⁷ *Chayim*, life, is at the heart of traditional Jewish teaching. The *Sabbath* day or *Shabbat* is a uniquely Jewish institution and is a time when everyone rests, including people, animals and the land itself; rest for the environment also being necessary. *Shalom* or peace is linked to the *Sabbath*. The land is to remain fallow every seventh year, to lie untouched and at peace. This doctrine is intended to respect all forms of life and recognise their interdependence.

⁵⁷ Rose, Aubrey (ed.) *Judaism and Ecology*, Op. cit., p. 11.

In addition there are also festivals that relate to the environment, such as, *Tu Bi Shevat*, or the New Year for Trees⁵⁸. This comes on the fifteenth day of the month of *Shevat*, when the winter ends in Israel. It began as a period for computing agricultural tithes, but today it is purely a festival of nature when trees are planted in Israel and in Jewish communities worldwide. It is believed that on *Tu Bi Shevat* God decides how bountiful the fruit of the trees will be in the coming year. The prayer '*Baruch Atah Adonai Eloheinu ha-olam borey pri ha-etz*' means 'Blessed are You, Lord our God, Ruler of the Universe who creates fruit of the tree'. Other examples are the festivals of Fruits and of Harvest during the three pilgrim festivals, when all Jews took to the road, journeying up to Jerusalem.

2.4.1.4 The Christian Declaration on Nature

Father Lanfranco Serrini, Minister General of the Franciscan order, Frati Minori Conventuali, declared:⁵⁹

Through His Almighty word, God created everything that exists, freely, by his word, and out of nothing. He alone is totally other, transcendent and immutable, whereas all creatures are contingent, mutable and wholly dependent on him for their existence. And the Lord God continues to provide for all his creatures in a

⁵⁸ Bassett, Libby (ed.), *Earth and Faith: A Book of Reflection for Action*. New York: The United Nations Environment Programme, 2000, p. 47.

⁵⁹ The World Wildlife Fund for Nature, *Religion and Nature Interfaith Ceremony*, Op. cit., p. 31.

most generous manner. He unfailingly gives them life and sustains them. Even when men and women disobeyed their Creator and were enslaved by the disharmony they thus introduced into their relationships with God and creatures, the infinitely faithful Lord continued to love them. Indeed God saved humanity by sending his Son, Jesus Christ, who is the Divine Word and the eternal Wisdom made human. In his faithfulness to what he has made and declared to be very good, God the Father sends his life-giving Spirit to renew humanity and the whole Earth, arousing in human beings a firm hope in the life of the world to come, a world of justice, peace and harmony.

Father Lanfranco Serrini further maintained:⁶⁰

The heart of the Christian faith resides in its proclamation of God's merciful fidelity to himself and to the works of his hands. Christians believe that God the Father has not abandoned men and women to their sinful ways but has sent the Savior to bring redemption and healing to everyone and to all things... They maintain that, risen from the dead and ascended into heaven in his glorified humanity, he reconciles all things visible and invisible, and that all creation is therefore purposefully oriented in and through him, towards the future revelation of the glorious liberty of God's children, when, in the new heaven

⁶⁰ The World Wildlife Fund for Nature, *The Assisi Declaration*, Op. cit., pp. 9-14.

and the new earth, there will no longer be death, mourning, sadness or pain...Christians therefore cannot be pessimistic about the future of the world.

The allegation that Christianity is ecologically or environmentally harmful was made by Professor Lyn White Jr. In 1967 she published an article on *The Historical Roots of Our Ecological*⁶¹ wherein she states:

Christianity is the most anthropocentric religion the world has seen. As early as the 2nd century both Tertullian and Saint Irenaeus of Lyons insisted that when God shaped Adam he was foreshadowing the image of the incarnate Christ, the Second Adam. Man shares, in great measure, God's transcendence of nature. Christianity, in absolute contrast to ancient paganism and Asia's great religions (except, perhaps Zoroastrianism), not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends.

However Christian leaders and thinkers have joined the voices condemning environmental destruction. Pope John Paul II states, "We begin to ask how we can have destroyed so much". He stresses, "I wish to repeat that the ecological crisis is a moral issue".⁶² Patriarch Dimitrios of the Orthodox Church also maintains, "We cannot

⁶¹ This article appeared originally in *Science*, vol. 155, pp. 1203-1207 (10 March 1967). Copyright 1967 by the American Association for the Advancement of Science.

⁶² Pope John Paul II, The Ecological Crisis: A Common Responsibility in *This Sacred Earth*, Op. cit., p. 236.

continue plundering God's creation without reaping the results of its eventual destruction".

Christian theologians, such as Irenaeus (CA. 130-200), Augustine (354-430) and Francis of Assisi (1182-1226) demonstrated the attitude of Christianity towards nature, praising nature as part of God's creation, which is 'good'.⁶³ The Bible, as the sacred book for Judaism and Christianity, contains the Old and New Testament and both religions share the book of Genesis, which details the creation. It is cited in 1:28 of Genesis that man should have 'dominion' over all living creatures and 'replenish the earth and subdue it'. The terms utilised here may have been misconstrued and the Christian stance on conservation is defended and clarified by Matthew Henry's commentary, which maintains the definition of 'dominion' in this context to signify that 'God put an honour upon man to continue his providence'.⁶⁴ Thus man, as a rational and responsible being, has a custodial role in ensuring that the fine balance of nature is respected and preserved. The Bible contains further passages that reflect the glory of the natural world; for example Psalm 96: 11-13 :

Let the heavens be glad, and let the earth rejoice;

Let the sea roar; and all that fills it;

Let the field exult, and everything in it!

⁶³ David Kinsley, Christianity as Ecologically Harmful and Christianity as Ecologically Responsible in *This Sacred Earth*, Gottlieb, Roger S. (ed.), Op. cit., pp. 119-121.

⁶⁴ Henry, Matthew, *Commentary on the Bible (Genesis to Revelation)* edited by the Reverend Lesley F. Church. London: Marshall, Morgan and Scott Ltd, 1960, p. 4.

Then shall all the trees of the wood sing for joy,

Before the Lord, for he comes,

For he comes to judge the earth

He will judge the world with righteousness,

And the people with his truth.

In conclusion, it can be said that the Abrahamic religions, Judaism, Christianity and Islam (which will be studied in the next chapter), agree that no part of nature is in itself divine, although God is present and can be known therein. The distinction is between Creator and creation.

2.4.2 The Alliance for Religions and Conservation

Nearly a decade after the Assisi meeting and assisted by religious advisors led by Mr Martin Palmer, the Alliance for Religions and Conservation (ARC) was founded in 1995 by His Royal Highness Prince Philip, the Duke of Edinburgh.⁶⁵ The original five faiths (Hinduism, Buddhism, Judaism, Christianity and Islam) were joined by four others, the Baha'is, Daoists, Jains and Sikhs. Currently, 11 major faiths are represented, including Shinto and Zoroastrian.⁶⁶

⁶⁵ See the official website of the Alliance for Religions and Conservation on <http://www.arcworld.org> access on 10th March 2004.

⁶⁶ Ibid.

The ARC is a secular organisation that aids the major religions of the world in developing their own environmental programme, based on their individual core teachings, beliefs and practices. It also assists the religions to link with key environmental organisations, creating powerful alliances between faith, communities and conservation groups.⁶⁷ The aims of the ARC are stipulated as follows:⁶⁸

- a. To assist and encourage the evolution of practical, educational projects which further the involvement of religions in caring for the natural environment.
- b. To assist and encourage the development of religions and ethical programmes within conservation bodies.
- c. To assist and encourage events that bring together religious and conservation groups in order to further ties and develop practical conservation projects.
- d. To raise and grant funds for the above aims.
- e. To publish and promote materials which explore the links between religions and conservation and further the aims of ARC.

Currently, the International President of the ARC is His Excellency Mr Enkhbayar, Prime Minister of Mongolia and the Chairman is Mr Brian Pilkington. The organisation is administered by a team of eight full-time and seven part-time staff.⁶⁹

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ The official address is ARC, 3 Wynnstay Grove, Manchester M14 6XG, England, United Kingdom.

In order to achieve its objectives, the ARC has identified six key areas, which explore the links between religion and conservation: land and assets, education, media, health, lifestyle and advocacy.⁷⁰ For example, places of worship, whether land or buildings, can be managed to provide a habitat for birds, bats, insects and plants.

The key mission of the ARC, to liaise and work with 11 worldwide faiths, is quite a mammoth undertaking considering the fact that these faiths and their networks embrace 85% of the world's population: some 5 billion human beings. Drawing on their traditions, religious communities are working in countless ways to care for the environment. Each faith has its own distinctive history and teachings, and its own unique relationship with the natural world. Indeed, on its website, ARC has outlined the basics relating to the history, beliefs and teachings on ecology of each faith.

The ARC is an active organisation; this being reflected through its website wherein projects are designed to involve local, national and international and also private, corporate and royal bodies. Its 3iG project (International, Interfaith Investment Group) has been operating together with the World Bank and other organisations. Originally, the idea for 3iG was initiated during the run up to the Kathmandu Sacred Gifts meeting in November 2000, when the ARC undertook a survey of the assets of its major faiths and discovered vast holdings of stocks and shares. While there has long

⁷⁰ See the official ARC's website is <http://www.arcworld.org>.

been a tradition of some faiths employing a screening policy in order to avoid investment in certain products explicitly banned by their teachings (e.g. alcohol, pork and gambling), little has been done to seek to invest pro-actively in areas which can be seen as supportive of their religious principles and teachings. In response, the ARC has set up the 3iG Advisory Group; involving major banks such as Citigroup (one of the key funders of the venture), Rabobank from the Netherlands, the World Bank, as well as agencies such as Innovest, WWF International, ethical investment advisory groups and economic think-tank bodies such as Medley Global Advisors. All meet to offer assistance and there exists a tangible partnership between the religious and the secular, whereby each brings to the table what is distinctive of their own skills and power in order to activate world change.⁷¹

The ARC is also actively involved in the publishing of books, materials and resources that highlight the relationship between religion and conservation. Most recently (October 2003), 'Faith in Conservation: New Approaches to Religion and the Environment' by Martin Palmer with Victoria Finlay, was published in affiliation with the World Bank. The objective of this work is to emphasise the benefits of an increasing cooperation between world religions, environmental movements and development groups, in order to generate positive global impact.⁷²

⁷¹ Ibid.

⁷² Ibid.

2.5 The Environmental Ethics of Sustainable Development

In this section, the researcher will analyse the new phase of environmental ethics, as an integrated awareness moves towards the importance of sustainable development. This sustainable development has been said to be the true ethic for human beings on planet Earth.⁷³

The term 'sustainable development' was established in the 1990s, reflecting the global importance of its impact. Despite this, it was primarily initiated by the World Commission on Environment and Development (WCED) in 1987. This commission was chaired by the Prime Minister of Norway, Gro Harlem Brundtland, to propose ways forward. In this year, 1987, the commission proposed the Brundtland Report, which argued for priority to be given to achieving sustainable development. The term was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".⁷⁴ The concept has two axiomatic ideals;

- a. An overriding prioritisation of the essential needs of the world's poor.
- b. An idea of the limitations imposed on the state by technology and the environment's ability to meet present and future needs.

⁷³ Engel, J. Ronald, Introduction: The Ethics of Sustainable Development in *Ethics of Environment and Development*, Engel, J. Ronald and Engel, Joan Gibb, Op. cit., p. 1.

⁷⁴ World Commission on Environment and Development, *Our Common Future*. Oxford: Oxford University Press, 1987, p. 8.

The prominence given to 'needs' reflects a concern to eradicate poverty and meet basic human needs. The report maintains that the goals must be defined in terms of sustainability in all countries, developed and undeveloped.

Therefore, the concept of sustainable development focused attention on finding strategies to promote economic and social development in ways that avoided environmental degradation, over-exploitation or pollution, and sidelined less productive debates about whether to prioritise development or the environment.⁷⁵

Some scholars, such as William Rees, maintain that sustainable development can only work properly if the environment is treated as a capital resource, similar to economic capital. He maintains that, "We have not only been living off our ecological interest but also consuming the capital, and the rate at which we are doing so is increasing year by year. This is the inevitable consequence of exponential growth". He adds that, "...for the foreseeable future, sustainable development is only possible if we are willing to live on the interest of our remaining ecological endowment".⁷⁶

The Earth Summit in Rio de Janeiro, 1992, defined sustainable development as integrating and balancing economic, social and environmental concerns in meeting our

⁷⁵ Greene, Owen, Environmental Issues in *The Globalization of World Politics* by Baylis, John and Smith, Steve (ed. al.). Oxford: Oxford University Press, 2001, p. 392.

⁷⁶ Rees, William, Sustainable Development: Economic Myths and Ecological Realities in *Environmental Ethics Reading in Theory and Application*, 3rd edition, ed. by Pojman, Louis P., Op. cit., p. 459.

needs; this is essential to continuing human life on this planet. Achieving this kind of integration and balance between economics, social and environmental dimensions would require new ways of looking at how we produce and consume, how we work, how we get along with each other, or how we make decisions.

From the Islamic point of view, the concept of sustainable development is not a new concept.⁷⁷ Contemporary Governments and communities may have recently adopted it but the principles, which underpin it, have existed for centuries. The Qur'ān and the *Sunna* of the Prophet Muhammad, peace be upon him, provide the framework for the spiritual and physical well being of humanity. There are over 500 verses in the Qur'ān giving guidance on matters relating to the environment and how to deal with it. In addition, there are numerous examples from the Prophet's life and his sayings, which provide a model for justice and equity. According to Islamic law, the elements of nature and resources such as land, water, air, fire, water, forests and others, were considered to be the common property of all, not only for all human beings but for all creatures.

The Islamic concept of development and charity can be seen to stem from the basic notion of charity (*zaka*) and how this is distributed amongst the poor and needy.⁷⁸

⁷⁷ Abdullah, Atikullah, 'Islamic Approach Towards Sustainable Development to Achieve Better Quality of Life'. A paper presented at the *Southeast Asian Natural Resources and Environmental Management Conference*, jointly organised by University Malaysia Sabah and Unit of Science and Technology, State Government of Sabah, at Pacific Sutera Harbour Hotel, Kota Kinabalu, Sabah, Malaysia on 17-18 October 2002.

⁷⁸ Izzī Dien, Mawil, *Islam and Sustainable Development*, unpublished paper, p. 3.

This is revealed in the Qur'ān,

The alms are only for the poor and needy and those who collect them, and those whose hearts are to be reconciled, and to free the captives and the debtors, and for the cause of Allah, and for the wayfarers; a duty imposed by Allah. (At-Tauba, 9: 60)

In Islam, charity is a purification mechanism; a process by which the material is filtered through the sieve of ethics. This creates an understanding that reality is not necessarily restricted to quantifiable and materialistic factors, but rather that reality achieves tangibility once it is amalgamated with ethics. Therefore the term wealth, although generally understood to indicate something that is mathematically quantifiable, also contains the notion of intrinsic value. Wealth is not only what the human being can see and feel but also able to sense. Nevertheless, Islam holds a very strong stance with regard to the basic requirements of sustainable development i.e. a shift in fundamental social attitudes and values, and a change in world view. This very well known quote from the Prophetic tradition illustrates the Islamic doctrine regarding the environment: “If the Day of Resurrection comes upon any one of you while he has seedling in his hand, let him plant it”.

In Islam to achieve sustainable development is of course an important step towards achieving a good quality of life⁷⁹. The quality of life in Islam unlike those of the predominantly secularist systems of the present day world are not primarily materialist. It is rather based on its own concepts of human well-being (*al-falāh*), good life (*al-ḥayā al-ṭayyiba*) and welfare in this world and the hereafter (*ḥasana fī al-dunyā wa al-akhīra*) which give utmost importance to brotherhood, socio-economic justice and a harmonious relationship between men and their environment. It also requires a balanced satisfaction of both the material and the spiritual needs of all human beings. This is because of the belief that all human beings are equal in being God's vicegerents on earth, His dependents, and cannot feel inner happiness and tranquillity until the real well-being of all has been attained through the satisfaction of both spiritual and material needs.⁸⁰

2.6 Conclusion

The core of this section has been the exploration of environmental ethics from ideological and religious perspectives. The various approaches of each ideology and religion have similar aims and objectives, that is, to share the earth through the tending

⁷⁹ Abdullah, Atikullah, 'Islamic Approach Towards Sustainable Development to Achieve Better Quality of Life', Op. cit., p. 17.

⁸⁰ Ibid.

of the environment. However, the achieving of these objectives is approached using differing methodologies and practice. The focus of subsequent chapters will be to compare the modern religious perspective with the Islamic perspective on environmental ethics. The modern religious outlook for the environment was generated by the growth of environmental ethics in the West which practically forced various religions to look for solutions to minimise the environmental crisis. Each religion began a process of self examination to find both theological and practical ways to help the environment. Both chapter one and two form the gateway to analyse the relation between environment and ethics from an Islamic perspective.

CHAPTER THREE: THE ISLAMIC CONCEPT OF ENVIRONMENT

3.1 Introduction

Islam is the youngest of the Abrahamic religions founded after Judaism and Christianity. It has a unique perspective on the question of mankind's relationship to the environment. Muslims believe that this is the religion that has been revealed and preached by all the prophets of God. It is supported by the Qur'ān itself, which revealed that God ordained for Islam previous prophets such as Noah, Abraham, Moses and Jesus.¹

The message of Islam is to guard mankind from the influence of Satan and evil desires. The Qur'ān declares the role of Satan in influencing human beings from all directions against the right path of Islam.² Therefore, Islam as *ad-dīn*³ is concerned with the relationship between mankind and God, with fellow human beings, with other creatures of God, including the environment and the universe, and with themselves.

In this chapter, the researcher intends to study Islam as an environmental way of life, and to show that every Muslim has an obligation to protect the environment.

¹ The Qur'ān, Ash-Shūra, 42: 13. There are many other verses that reflect the same meaning such as Āl-Imrān, 3: 83 and Al-Baqarah, 2: 136.

² The Qur'ān, Al-A'rāf, 7: 14-17 and Yūsuf, 12: 53.

³ The word *ad-dīn* has been used in the Qur'ān in Āl-Imrān, 3: 19.

3.2 Islam As 'The Way'

Islam is an Arabic term, derived from two words.⁴ Firstly, *Salm*, which means peace; this signifies that one can achieve real peace of body and mind only through submission and obedience to God. Such a life of obedience brings with it peace of the heart and establishes real peace in society at large. Secondly, *Silm*, which means submission, surrender and obedience. The religion of Islam is the acceptance of and obedience to the teachings of God, which He revealed to His last Prophet, Muhammad.⁵

As previously mentioned, Islam as *ad-dīn*, refers to a way of life that includes every aspect of human activity, material or spiritual. Muslims believe that as long as all activities are carried out in accordance with the prescribed *sharīʿah* (Islamic law), with the good intention of seeking God's *riḍa* (pleasure), then the requirement for full submission is being met. Although the main focus is the relationship between three parties; God, mankind and the environment, mankind has a duty as God's viceregency on earth. Therefore the relationship with the environment must not be neglected since it is part of the above duty. The Qur'ān states;

See you not (O men) that Allah has subjected for you whatsoever is in the heavens and whatsoever is in the earth, and has completed and perfected His Graces upon you, (both) apparent and hidden. Yet of mankind is he who

⁴ Mawdūdī, Abūl A'la, *Towards Understanding Islam*. Leicester: The Islamic Foundation, 1980, p. 10.

⁵ Ibid.

disputes about Allah without knowledge or guidance or a Book giving light!
(Luqmān, 31: 20)

However, despite all of these bounties, the lives of mankind are full of difficulties and turmoil. The reason is because humans do not establish good relationships in the three stated ways, and do not carry out their duties and tasks as their responsibility demands. As a result all sort of crises, political, economic, social, environmental and others, international and local, are seen everywhere, caused by all levels of mankind. These catastrophic consequences are caused by those with selfish and vested interests, who are concerned only with fulfilling their own desires without considering the welfare of others. Hence, in this respect, these relationships must be well taken care of. Therefore, Islam as a complete way of life provides the framework within which crises can be addressed and disasters averted.

In terms of Islam as an environmental religion, the leading scholar Izzi Dien uses the model of Ninian Smart's six dimensions or categories as a guide in defining religion: doctrinal, ritual, mythological, ethical, social, and experiential.⁶ In the doctrinal dimension, he argues for the significance of the environment in Islam as a vessel for multitudinous religious events being manifested in different forms and patterns of behaviour, not only by human beings but also by other elements of nature. However, Islam does not perceive the environment or its elements as a god, but rather

⁶ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 11.

as ontological symbols upon which people's minds can be focussed to understand the Creator. The role of the environment as such is therefore derived from what it represents and not from what it is. Axiomatic meanings for human existence are often concluded from the environment. Human beings are given value, for instance, from the fact that they are made from clay of the earth, an often-unclean substance that discomforts when it dirties clothes or utensils. Yet this substance is a basic element for the community of life. Earth is considered to be the womb for all life, for from it all life forms gain nourishment. It is one womb that produces different types of offspring, different fruits and vegetables, resonating the power of its Maker.⁷ The Qur'ān states,

And in the earth are neighbouring tracts, and gardens of vines, and field sown with corn, and palm trees, growing out two or three from a single stem root, or otherwise, watered with the same water, yet some of them We make more excellent than others to eat. Verily, in these things, there are *Āyāt* for the people who understand. (Ar-Ra'd, 13: 4)

3.3 The Environment in Islam

3.3.1 The Qur'ān and the *Sunna* on Environment

Muslims believe that Islam is the final revelation for humankind, and serves as a way of life that is pertinent to all human races and applicable for all times. In

⁷ Ibid, p. 12.

conjunction with that, the authenticity of the Islamic faith has been preserved by the Qur'ān and the detailed account of the Prophet Muhammad's life, (the *Sunna*). In this part, the researcher will focus on the function of the Qur'ān and the *Sunna* regarding the environment.

The Qur'ān is the literal word of God, which He revealed to His Prophet, Muhammad, through the Angel Gabriel. It was memorised by the Prophet, who then dictated it to his companions. The companions memorised it, wrote it down, and reviewed it with the Prophet. Meanwhile, the Prophet himself reviewed the Qur'ān with the Angel Gabriel once each year. It is the first resource in Islam. Although, the Qur'ān was revealed fourteen centuries ago, it is certain that the Qur'ān's role is relevant today. According to Seyyed Hossein Nasr, the cosmic dimension of the Qur'ān can be inferred from two aspects.⁸ The Qur'ān first referred to the cosmic or ontological Qur'ān (*al-Qur'ān al-Takwīnī*), and, secondly complemented the composed or 'written' Qur'ān (*al-Qur'ān al-Tadwīnī*). The Qur'ān depicts nature as being ultimately a theophany, which both veils and reveals God.

In addition, he added according to the Islamic perspective, God Himself is 'the Ultimate Environment', which surrounds and encompasses man.⁹ It is of the utmost

⁸ Nasr, Seyyed Hossein, 'Sacred Science And The Environmental Crisis: An Islamic Perspective' in *Islam And The Environment* by Abdel Haleem, Harfiyah (ed.). London: Ta-Ha Publishers Ltd., 1998, p. 120.

⁹ Ibid, pp. 120-121.

significance that in the Qur'ān God is said to be All-Encompassing (*Muhīt*). The Qur'ān states,

And to Allah belongs all that is in the heavens and all that is in the earth. And Allah is Ever Encompassing all things. (An-Nisa', 4: 126)

The term *Muhīt* also means environment. To remember God is to see Him everywhere and to understand His reality as *Muhīt*.

The Qur'ānic term *khalq* is used to signify all surroundings that are the sum of creation. This word is derived from the root *kh l q* in Arabic and there are estimated to be 261 verses in the Qur'ān that are derived from this root in its various grammatical forms.¹⁰ As proof the first revelation of the Qur'ān contains the verb *khalaq* (created) derived from this root. The Qur'ān states,

Read! In the Name of your Lord, Who has created (all that exist). (Al-'Alaq, 96: 1)

According to Sayyid Qutb, this verse is the first attribute of God, alluding to creation and initiation.¹¹ This verse clearly indicates the implication that mankind is part of the totality of the creational process, the responsibility for which has been that of the Creator —Allah. The Qur'ān, which manifests this totality, is then a manual of life transaction for the human community. The Qur'ān's contents are broad and cover the foundations for the conducting of mankind's affairs in creation. It lays down rules for conserving the body and the soul and the marking out of the relationship between man

¹⁰ Abd al-Baqi, M. Fu'ad, *Al-Mu'jam al-Mufahrās li al-Fāz al-Qur'ān*. Beirut: Dār al-Ma'rifāh, 1994. pp. 302-311.

¹¹ Qutb, Sayyid, *In The Shade of The Qur'ān*, vol. 30. London: MWH London Publishers, 1979, p. 96.

and the natural order. It is about the communities of beings that fly and crawl, and lope and swim. It is also about the cosmos, the elements, forests, mountains and rivers. According to Fazlun Khalid, the body of teaching in the Qur'ān that deals with these matters may be described as *‘Ilm al-Khalq* (Knowledge of Creation), which pre-dates the science of Ecology by fourteen centuries.¹²

In Islam, everything belongs to Allah as a Creator. The Qur'ān states, He to Whom belongs the dominion of the heavens and the earth, and Who has begotten no son (children or offspring) and for Whom there is no partner in the dominion. He has created everything, and has measured it exactly according to its due measurements. (Al-Furqān, 25: 2)

This verse indicates that Allah created the entire universe and every single thing in it. The laws of creation include the elements of order, balance and proportion. Everything is limited in space and time. It is Allah as the Creator who is in complete charge of the vast and complex universe and the myriads of elements of creation and only He knows how it works in its totality.

In other words the Qur'ān stresses the importance of the environment in different aspects and views. Human beings are invited to ponder on the function,

¹² Khalid, Fazlun, *Qur'ān Creation and Conservation*. Birmingham: The Islamic Foundation for Ecology and Environmental Sciences, 1999, p. v.

mechanism and the science of nature. They are also encouraged to explore the secrecy of nature. The Qur'ān states;

And in the alternation of night and day, and the provision (rain) that Allah sends down from the sky, and revives therewith the earth after its death, and in the turning about of the winds, are signs for a people who understand. (Al-Jāthiya, 45: 5)

According to Izzi Dien, there are several words for creation used in the Qur'ān instead of *khalq*. There are *faṭir* and *ja'ala*.¹³ The word *khalq* conveys the meaning of calculation and estimation and is used to describe the causation of existence for something that did not exist before Ādam. The Qur'ān states,

Does not man remember that We created him before, while he was nothing?
(Maryam, 19: 67)

The process of creation put human beings and the rest of creation on an equal footing and same level. The only difference is the knowledge and foolishness that led human beings to accept responsibility, namely *amānah*, for none of the other creations could bear the responsibility.

The Qur'ān also uses *faṭir* to express creation, as it refers to God as the Initiator of heavens and earth. The *Sūrah Faṭir* in the Qur'ān indicates the Originator of

¹³ Samarai, Al Mawil, 'The Human Appointment and Creation' in *Islam and The Environment* by A.R. Agwan (ed.). Kuala Lumpur; Malaysia: Synergy Book International, 1997, pp. 155-156.

Creation. This *Sūrah* portrays to a Muslim the very powerful message that God originated the heavens and the earth and created humankind. Perhaps from this verse, it is possible to conclude that the creation of human beings came after God had created the rest of the systems. The word *jaʿala* is used throughout the Qurʾān to describe the action of using the system that has been created to develop something else. The word is employed to describe the causation of the various cosmic phenomena like darkness and light¹⁴. The Qurʾān states,

All praises and thanks be to God, Who (alone) created the heavens and the earth, and originated the darkness and the light, yet those who disbelieve hold others as equal with their Lord. (Al-Anʿām, 6: 1)

In addition, the word ‘earth’, *ard* in Arabic, is applied to both the planet and the soil.¹⁵ This word is referred to many times both in the Qurʾān and in the *Sunna*. The Qurʾān uses the word ‘earth’ a total of 485 times. The earth is described as the source from which humankind is made and the place where humans end their final journey, as the Qurʾān states,

Thereof (the earth) We created you, and into it We shall return you, and from it We shall bring you out once again. (Ṭā-Hā, 20: 55)

¹⁴ Ibid, p. 156.

¹⁵ Izzī Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 51.

The Qur'ān also places great significance on the creatures of the natural world and the environment is clearly reflected in the titles of many of its chapters which are named after an animal or natural phenomenon such as, The Cow, Cattle, Thunder, Bees, Light, Ants, Spider, Smoke, Star, Moon, Iron, Human Beings, Zodiac, Dawn, Sun, Night, Figs, Blood Clot, Elephant, Plate of Food and People. Among this list are all the elements that environmentalists agree should be conserved and protected.¹⁶

An exploration of the Qur'ān for the study of creation and nature has become interesting for scholars in both West or East. For instance, an outstanding study by Dr Maurice Bucaille has commented on and classified the verses in the Qur'ān on various aspects of creations, such as astronomy, earth, formation of the universe, creation of the earth and heaven, animal and vegetable kingdom, human reproduction and others.¹⁷

Then the *Sunna* is the second source in Islam. The *Sunna* is comprised of *hadīth*, which are reliably transmitted reports by the Prophet Muhammad's companions of what he said, did or approved of. As in the Qur'ān, there are many *hadīth* related to the environmental elements such as nature, hygiene, resources conservation, land reclamation and others. In general, the Prophet Muhammad had become an example

¹⁶ Ibid, p. 51.

¹⁷ See his book, Bucaille, Maurice, *What is the Origin of Man? The Answers of Science and the Holy Scriptures*, tr. from the French by Pannell, Alastair D. and the Author (La Bible. Le Coran Et La Science), 8th edition. Paris: Seghers, 1982.

through his life in dealing with the surrounding environment during his time. Therefore Muslims have responsibilities to follow the path showed by the Prophet.

3.3.2 The Importance of the Environment in Islam

Undoubtedly the environment is integral to Islam; every life being inextricably woven into its tapestry until passing on to the hereafter. According to Izzi Dien, there are eight bases for all Muslims to protect the environment¹⁸. Firstly, it is the creation of Allah and Muslims believe that Allah Ta'ala is Creator, therefore all other life forms are creatures except Him. His creation of this earth and its natural resources reflects His power, glory, wisdom, mercy and other attributes. Thus it is important for the human being to know and understand his Creator. The Qur'ān states,

Allah is He Who raised the heavens without any pillars that you can see. Then He *Istawa* (rose over) the Throne (really in a manner that suits His Majesty). He has subjected the sun and the moon (to continue going round)! Each running (its course) for a term appointed. He regulates all affairs explaining the *Āyāt* (proofs, evidences, verses, lessons, signs, revelations, etc.) in detail, that you may believe with certainty in the meeting with your Lord. And it is He Who spread out the earth, and placed therein firm mountains and rivers and of every kind of fruit He made *Zawjain Ithnān* (two in pairs – may mean two kinds or it may

¹⁸ Izzi Dien, Mawil, 'Environmental Protection and Islam' in *Journal of The Faculty of Arts and Humanities*, vol. 5, 1985, p. 37.

mean: of two sorts, example, black and white, sweet and sour, etc.). And in the earth are neighbouring tracts, and gardens of vines, and fields sown with corn, and palm trees, growing out two or three from a single stem root, or otherwise (one stem root for every palm), watered with the same water, yet some of them We make more excellent than others to eat. Verily, in these things, there are *Āyāt* (proofs, evidence, lessons, signs) for the people who understand. (Ar-Ra^cd, 13: 2-4)

Secondly, it is the responsibility of every Muslim to protect and preserve the environment, because in so doing he protects Allah's creatures, which pray to Him and praise Him. Mankind may not be able to comprehend how these creatures praise Allah, but this does not mean that they do not do so. The following Qur'ānic verse exemplifies man's position,

Allah is He Who has created the heavens and the earth and sends down water (rain) from the sky, and thereby brought forth fruits as provisions for you; and He has made the ships to be of service to you, that they may sail through the sea by His Command; and He has made rivers (also) to be of service to you. And He has made the sun and the moon, both constantly pursuing their courses, to be of service to you; and He has made the night and the day, to be of service to you. And He gave you of all that you asked for, and if you count the Blessings of Allah, never will you be able to count them. Verily! Man is indeed an extreme wrongdoer, - a disbeliever. (Ibrāhīm, 14: 32-34)

Thirdly, Islamic scholars concur that creatures are deserving of *ḥurmā* (prohibition), following the path of the Prophet who allowed neither the killing of bees nor any captured beast of burden. Interestingly, the letter written by *Khalīfah* Abū Bakr to Yazid (appointing him as an army commander), declares,

Do not kill a child or a woman or an old person, do not destroy a populated area, do not destroy fruit trees, do not kill an animal which cannot talk unless you need it for food, do not burn the date-palm, and do not run away from your enemy or exhibit cowardice.

A fourth reason why Muslims must protect and preserve the environment lies in the fact that Islam is a comprehensive way of life, which is established on the concept of good (*khayr*). Every Muslim should be aware that the protection of the environment bears a direct relation to worship and consequently its importance should be acknowledged and considered during every moment of life. Hence, everyone must understand the crucial nature of conservation as being ‘good’ in itself. The Qur’ān states,

So whosoever does good equal to the weight of an atom (or a small ant), shall see it. And whosoever does evil equal to the weight of an atom (or a small ant), shall see it. (Al-Zalzalah, 99: 7-8)

The fifth reason is rooted in the relationship between man and the environment; this being based upon various concepts such as justice (*‘adl*) and equity (*‘ihsān*). The Qur’ānic evidence for this is as follows,

Verily, Allah enjoins *Al-‘Adl*, and *Al-‘Ihsān*, and giving (help) to kith and kin, and forbids *Al-Fāḥshā’*, and *Al-Munkar*, and *Al-Baghy*, He admonishes you, that you may take heed. (An-Naḥl, 16: 90)

The Prophet verifies this further,

Verily Allah has prescribed equity (*iḥsān*) in all things. Thus if you kill, kill well and if you slaughter, slaughter well. Let each one of you sharpen his blade and let him spare suffering to the animal he slaughters.

The notion of balance is crucial to Islam, thus a sixth ground for the prescription of environmental preservation lies in the need to maintain the equilibrium of this divinely created universe. The two subsequent Qur’ānic statements corroborate this,

.... Every single thing is with Him in (due) proportion. (Ar-Ra‘d, 13: 8)

And there is not a thing, but with Us are the stores thereof. And We send it not down except in a known measure. (Al-Ḥijr, 15: 21)

A further base for conservation can be found in the Islamic notion of the need to consider future generations. A blinkered regard for the present is selfish and shortsighted and on this topic Allah states,

He it is Who created for you all that is on earth. Then He *Istawa* (rose over) the heaven and made them seven heavens and He is the All-Knower of everything.

(Al-Baqarah, 2: 29)

In this verse, the definition of ‘you’ is general and the word refers to all men and women, limited neither by time nor place. It clearly indicates past, present and future generations.

Izzi Dien finally maintains that as man is the only creature capable of environmental protection, then the onus is on him to fulfil this obligation. Allah entrusted His human creation with the duty of *khalīfah* or stewardship or viceregency on earth. Thus man is the appointed trustee,

Truly, We did offer *Al-Amānah* (the trust or moral responsibility or honesty and all the duties which Allah has ordained) to the heavens and the earth, and the mountains, but they declined to bear it and were afraid of it. But man bore it. Verily, he was unjust (to himself) and ignorant (of its results). (Al-’Aḥzāb, 33:72)

3.3.3 The Elements of the Environment

In this part, the researcher intends to analyse the main environmental elements that are affected by humans which often said to be land, air, water, animals and humans themselves. Therefore, all things that God has created in this universe are created in due

proportion and measure, both quantitatively and qualitatively.¹⁹ This basic principle has been stated in the Qur'ān as follows,

Verily, We have created all things with *Qadar* (measure). (Al-Qamar, 54: 49)

Everything with Him is in (due) proportion. (Ar-Ra'd, 13: 8)

..., and caused to grow therein all kinds of things in due proportion. (Al-Hijr, 15: 19)

Each thing that God has created is a wondrous sign, full of meaning; pointing beyond itself to the glory and greatness of its Creator, His wisdom and His purposes for it. Then, God has not created anything in this universe in vain, without wisdom, value and purpose. The Qur'ān said,

And We created not the heavens and the earth, and all that is between them, for mere play, We created them not except with truth, but most of them know not. (Ad-Dukhān, 44: 38-39)

In addition, every living creature is part of a community. They organise and conduct themselves in such a way as to ensure their survival and a sign of this is the way they live in balance with their particular environments. The Qur'ān called their community their '*Ummah*':

¹⁹ Ba Kader, Abu Bakr Ahmed, (et. al.), *Environmental Protection in Islam*, second edition. Gland; Switzerland: IUCN, 1994, p. 1.

There is not a moving (living) creature on earth, nor a bird that flies with its two wings, but are communities like you. We have neglected nothing in the Book, then unto their Lord they (all) shall be gathered. (Al-An'ām, 6: 38)

3.3.3.1 Biodiversity

Biodiversity stands for biological diversity. It is the variety in creation. There is a dazzling unity and coherence in this very diversity of creation. The concept of diversity is crucial to the conservation of the natural world. The richness of life on earth has always been moderated by natural forces, particularly climate. Then, the concept of biodiversity is further elaborated in the Qur'ān:

And in the earth are neighbouring tracts, and gardens of vines, and fields sown with corn, and palm trees, growing out two or three from a single stem root, or otherwise (one stem root for every palm), watered with the same water, yet some of them We make more excellent than other to eat. Verily, in these things, there are *Āyāt* (proofs, evidence, lessons, signs) for the people who understand. (Ar-Ra'd, 13: 4)

Now, the researcher will explore the process of plants according to the Qur'ān.

The process begins,

And We have made from water every living thing... (Al-Anbiyā, 21: 30)

..., and the sky as a canopy, and sent down rain from the sky and brought forth therewith fruits as a provision for you. (Al-Baqarah, 2: 22)

And the earth He has put for the creatures. Therein are fruits, date-palms producing sheathed fruit-stalks (enclosing dates). And also corn, with (its) leaves and stalk for fodder, and sweet-scented plants. (Ar-Rahman, 55: 10-12)

And it is He Who spread out the earth,.....and of every kind of fruit He made *Zawjain Ithnaīn* (two in pairs – may mean two kinds or it may mean: of two sorts, for example, black and white, sweet and sour, etc.). (Ar-Ra'd, 13: 3)

Then, the process of fertilisation of plants, either by winds, animals or others.

And We send the winds fertilising (to fill heavily the clouds with water,... (Al-Hijr, 15: 22)

...No fruit comes out of its sheath, ... (Fussilat, 41: 47)

It is He Who sends down rain from the sky, and with it We bring forth vegetation of all kinds, and out of it We bring forth green stalks, from which We bring forth thick clustered grain. And out of the date-palm and its spathe come forth clusters of dates hanging low and near, and gardens of grapes, olives and pomegranates, each similar (in kind) yet different (in variety and taste). Look at their fruits when they begin to bear, and the ripeness thereof. Verily! In these things there are signs for people who believe. (Al-An'ām, 6: 99)

And in the earth are neighbouring tracts, and gardens of vines, and fields sown with corn, and palm trees, growing out two or three from a single stem root, or otherwise (one stem root for every palm), watered with the same water, yet

some of them We make more excellent than others to eat. Verily, in these things, there are *Āyāt* (proofs, evidence, lessons, signs) for the people who understand. (Ar-Ra^ʿd, 13: 4)

..., and caused to grow therein all kinds of things in due proportion. (Al-Hijr, 15: 19)

...And He knows whatever there is in (or on) the earth and in the sea; not a leaf falls, but He knows it. There is not a grain in the darkness of the earth nor anything fresh or dry, but is written in a Clear Record. (Al-An^ʿām, 6: 59)

And Who brings out the pasturage, and then makes it dark stubble. (Al-A^ʿlā, 87: 4-5)

... and afterward thereby produces crops of different colours, and afterward they wither and you see them turn yellow, then He makes them dry and crumble away. (Az-Zumar, 39: 21)

Lastly, the process of plants begins again and again,

And indeed We have distributed it (rain or water) amongst them in order that they may remember the Grace of Allah, but most men refuse and accept nothing but disbelief or ingratitude. (Al-Furqān, 25: 50)

And have sent down from the rainy clouds abundant water. That We may produce therewith corn and vegetations, and gardens of thick growth. (An-Naba', 78: 14-16)

3.3.3.2 Natural Cycles

In the Western view, natural cycles or orders are similar to the concept of *Gaia*, which was introduced by James Lovelock. Similarly, Islam considers that the earth's ecosystems are self-organising, self adjusting and self replenishing. Planet earth is unique. The unique of green that covers the earth is essential for all forms of life. Plant cover provides the basis for all food chains, mediates water cycles, stabilises microclimates and protects the living soil, the foundation of the biosphere. Legions of soil micro-organisms, and of anaerobic microbes in the shallow mud of sea floor and swamp, work ceaselessly to recycle decaying matter back into the nutrient system.²⁰

An example of the natural cycle according to the Qur'ān is regarding the process of rain. The steps begin with the role of clouds and thunder as signals of rain,

It is He who shows you the lightning, as a fear (for travellers) and as a hope (for those who wait for rain). And it is He Who brings up (or originates) the clouds, heavy (with water). And *Ar-Ra'd* (thunder) glorifies and praises Him, and so do the angels because of His Awe, He sends the thunder-bolts, and therewith He strikes whom He wills, yet they (disbelievers) dispute about Allah... (Ar-Ra'd, 13: 12-13)

Then, the formation of clouds which bring the water,

²⁰ Khalid, Fazlun M., *Qur'ān: Creation And Conservation*. Birmingham: The Islamic Foundation For Ecology And Environmental Sciences, 1999, p. 23.

And it is He Who sends the winds as heralds of glad tidings, going before His Mercy (rain), and We send down pure water from the sky, (Al-Furqān, 25: 48)

And it is Allah Who sends the winds, so that they raise up the clouds, and We drive them to a dead land, and revive therewith the earth after its death. As such (will be) the Resurrection! (Fāṭir, 35: 9)

Next,

Allah is He Who sends the winds, so they raise clouds, and spread them along the sky as He wills, and then break them into fragments, until you see rain drops come forth from their midst! Then when He has made them fall on whom of His slaves as He will, lo! They rejoice! (Ar-Rūm, 30: 48)

See you not that Allah drives the clouds gently, then joins them together, then makes them into a heap of layers, and you see the rain comes forth from between them. And He sends down from the sky hail (like) mountains, (or there are in the heaven mountains of hail from where He sends down hail), and strike therewith whom He will, and averts it from whom He wills. The vivid flash of its (clouds) lightning nearly blinds the sight. (An-Nūr, 24: 43)

Then, the benefit of rain on earth,

And We sent down from the sky water (rain) in (due) measure, and We gave it lodging in the earth, and verily, We are able to take it away. (Al-Mu'minūn, 23: 18)

He sends down water (rain) from the sky, and the valleys flow according to their measure, but the flood bears away the foam that mounts up to the surface, and

(also) from that (ore) which they heat in the fire in order to make ornaments or utensils, rises a foam like unto it, thus does Allah (by parables) show forth truth and falsehood... (Ar-Ra^ʿd, 13: 17)

Then,

By the sky (having rain clouds) which gives rain, again and again. (Al-Ṭarīq, 86: 11)

Tell Me! The water that you drink. Is it you who cause it from the rainclouds to come down, or are We the Causer of it to come down? If We willed, We verily could make it sald (undrinkable), why then do you not give thanks (to Allah)? (Al-Wāqī^ʿa, 56: 68-70)

Lastly, the rain will be distributed to another place and the process will begin again,

And indeed We have distributed it (rain or water) amongst them in order that they may remember the Grace of Allah, but most men refuse and accept nothing but disbelief or ingratitude. (Al-Furqān, 25: 50)

According to Ibn Qayyim al-Jawziyya, the water cycle is a part of an intricate system, a system consisting of four elements: dust, water, air and fire.²¹ He added that while water is the source of life, air is frequently the medium by which it is transported. Islam considers that both these mechanisms were created by God's Divine system to

²¹ As quote from Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 28. The Original source at Ibn al-Qayyim, *Miftah Dār al-Saʿada*, vol. 1. Riyad, n.d., p. 223.

guarantee the continuation of life on earth.²² Furthermore, he wrote about the virtues of the air as follows;

The air gives life to [all creatures'] bodies. It supports their lives when breathed and acts as a medium for their daily lives. It is also the vehicle for transporting sounds long or short distances like a messenger. It is the air that carries various smells and sounds. It is the agent that carries heat and cold to both plants and animals helping them to live... Different kinds of wind have been employed by God to induce clouds to give rain. The clouds are first stirred by the stirring wind, *muthira*. Then it is carried by the carrying wind, *hamila*, until the composing wind, *mū'allifa*, unites its particles in preparation for the water to be extracted from it with the fecundating wind, *lawāqih*. The driving wind, *muzjiya*, leads the cloud to where it rains, while the sprinkling wind, *mufarriqa*, causes the rain to fall in small drops in order not to destroy the habitats, *masākin*, of various plants and animals. There are also winds that pollinate plants and trees, without them vegetation would be left infertile. There are also winds that move ships, cool water, and cause fire and dry that which has to be dried. In general the life of the earth's creatures, both flora and fauna, depend upon the wind. Without its service the plants would wilt, all animals would die, food supplies would perish, and the entire world would rot and get bad, *fasāda wa antāna*. When the wind is still, sickness and depression become widespread, causing both bodily and spiritual illness, which if continued would lead to the

²² Ibid.

death of both people and animals. The wind's stillness causes fruit and vegetation to rot and epidemics, *wabā'*, to spread in the air, *jaww*. God be praised who caused the wind to bring His mercy and comfort.²³

3.3.3.3 Water

In Arabic, water is *ma'*. The Qur'ān uses 'water' more than 60 times, 'rivers' more than 50 and 'the sea' more than 40. While the words 'fountains', 'springs', 'rain', 'hail', 'clouds' and 'winds' occur less frequently. This emphasis indicates the vital importance of water in Islam. The Qur'ān states;

And We have made from water every living thing. (Al-Anbīyā, 21: 30)

Water is one of the most precious resources on earth. This verse show how vital it is for all living things, human beings or non-human beings.

According to Abdel Haleem, the theme of water in the Qur'ān serves chiefly three purposes.²⁴ Firstly, the water is used as a proof of God's existence, unity and power. This is indicated by such statements as this of His signs:

Is not He Who created the heavens and the earth, and sends down for you water (rain) from the sky ... (An-Naml, 27: 60)

²³ Ibid, p. 29.

²⁴ Abdel Haleem, M.A.S., Water In The Qur'ān in *Islam And The Environment* by Abdel Haleem, Harfiyah (ed.). London: Ta-Ha Publishers Ltd., 1998, pp. 113-114.

Secondly, it is used as a proof of God's care. This is always indicated by the prepositions 'for you' or 'to you'. Lastly, the water, with its effects, is further used in the Qur'ān as a proof of the Resurrection. The unbelievers frequently argued in relations to the Qur'ān how, when they have died and been turned into 'dust and bones', can they be restored to life? (Al-Wāqī'a, 56: 47). In response the Qur'ān says of 'the living' made from the water,

He brings out the living from the dead, and brings out the dead from the living... (Ar-Rūm, 30: 19)

3.3.3.4 The Earth

The earth is essential for the perpetuation of human life and that of other creatures. According to the Qur'ān,

And the earth He has put for the creatures. (Ar-Raḥmān, 55: 10)

The geography of the earth, as mentioned in the Qur'ān, is as follows,

And He has affixed into the earth mountains standing firm, less it should shake with you, and rivers and roads, that you may guide yourselves. (An-Naḥl, 16: 15)

For human beings, there are roads, ways and others to ease them on their journey. The Qur'ān states:

Who has made earth for you like a bed (spread out); and has opened roads (ways and paths etc.) for you therein, ... (Ṭā-Ḥā, 20: 53)

And We have placed on the earth firm mountains, lest it should shake with them, and We placed therein broad highways for them to pass through, that they may be guided. (Al-Anbiyā, 21: 31)

Then, the creatures which settled on the earth.

.... and has set on the earth firm mountains, lest it should shake with you. And He has scattered therein animals of all kinds. (Luqmān, 31: 10)

See you not that Allah sends down water (rain) from the sky, and We produce therewith fruits of varying colours, and among the mountains are streaks white and red, of varying colours and (others) very black. And of men and *Ad-Dawāb* (moving living creatures, beasts, etc.), and cattle, in like manner of various colours... (Fāṭir, 35: 27-28)

Have We not made the earth as a bed, and the mountains as pegs? And We have created you in pairs (male and female, tall and short, good and bad, etc.). (An-Naba', 78: 6-8)

Then, God has made the land a source of sustenance and livelihood for human beings and other living creatures.

The vegetation of a good land comes forth (easily) by the Permission of its Lord, and that which is bad, brings forth nothing but a little with difficulty... (Al-A'rāf, 7: 58)

And verily! We shall make all that is on it (the earth) a bare dry soil (without any vegetation or trees, etc.). (Al-Kahf, 18: 8)

Human beings require the maintaining of the productivity of the soil. Activities such as farming, grazing, forestry and others which are benefits for human beings.

And a sign for them is the dead land. We gave it life, and We brought forth from it grains, so that they eat thereof. And We have made therein gardens of date-palm and grapes, and We have caused springs of water to gush forth therein. So that they may eat of the fruit thereof, and their hands made it not. Will they not, then, give thanks? (Yā-Sīn, 36: 33-35)

And do they not see that We do drive rain to parched soil (bare of herbage), and produce therewith crops, providing food for their cattle and themselves? Have they not the vision? (As-Sajdah, 32: 27)

The Prophet Muhammad declared that, “The whole earth has been created as a place of worship for me, pure and clean.”²⁵

3.3.3.5 Animals

The Qur’ān termed their community as their ‘*Ummah*’ :

²⁵ Hadith of sound authority, related by al-Bukharī, Muslim, and at-Tirmidhi, on the authority of Jābir b. ‘Abd Allah and others.

There is not a moving (living) creature on earth, nor a bird that flies with its two wings, but are communities like you. We have neglected nothing in the Book, then unto their Lord they (all) shall be gathered. (Al-Anʿām, 6: 38)

And (He has created) horses, mules and donkeys, for you to ride and as adornment. And He creates (other) things of which you have no knowledge. (An-Naḥl, 16: 8)

The Qurʾān elaborates :

Allah has created every moving (living) creature from water. Of them there are some that creep on their bellies, some that walk on two legs, and some that walk on four. Allah creates what He wills. Verily! Allah is able to do all things. (An-Nūr, 24: 45)

... He has made for you mates from yourselves, and for the cattle (also) mates. (Ash-Shūra, 42: 11)

... And He has scattered therein animals of all kinds. (Luqmān, 31: 10)

And of men and *Ad-Dawāb* (moving living creatures, beasts, etc.), and cattle, in like manner of various colours. (Fāṭir, 35: 28)

The Qurʾān also explains the benefits and advantages of animals for mankind, as follows,

And verily! In the cattle there is indeed a lesson for you. We give you to drink (milk) of that which is in their bellies. And there are, in them, numerous (other) benefits for you, and of them you eat. (Al-Mu'minūn, 23: 21)

And the cattle, He has created them for you, in them there is warmth (warm clothing), and numerous benefits, and of them you eat. And wherein is beauty for you, when you bring them home in the evening, and as you lead them forth to pasture in the morning. And they carry your loads to a land that you could not reach except with great trouble to yourselves. Truly, your Lord is full of Kindness, Most Merciful. And (He has created) horses, mules and donkeys, for you to ride and as adornment. And He creates (other) things of which you have no knowledge. (An-Nahl, 16: 5-8)

And We have subdued them unto them so that some of them they have for riding and some they eat. (Yā-Sīn, 36: 72)

Allah, it is He Who has made cattle for you, that you may ride on some of them and of some you eat. And you have (many other) benefits from them, and that you may reach by their means a desire that is in your breasts (i.e. carry your goods, loads etc.), and on them and on ships you are carried. (Ghāfir, 40: 79)

The animal products such as honey bees as medicine, as mentioned in the Qur'ān, are as follows:

And your Lord inspired the bee,..... There comes forth from their bellies, a drink of varying colour wherein is healing for men. Verily, in this is indeed a sign for people who think. (An-Nahl, 16: 68-69)

The medieval Al-‘Izz b. ‘Abd al-Salam stated that the rights of animals and other creatures dependent on man are as follows:²⁶

He should spend on it (time, money or effort) even if the animal is aged or diseased in such a way that no benefit is expected from it. His spending should be equal to that on a similar animal useful to him.

Nor should he overburden it.

Nor should he place with it whatsoever may cause it harm, be it of the same kind or of another species.

He should kill them properly and with consideration, he should not cut their skin or bones until their bodies have become cold and their life has fully passed away.

He should not kill their young within their sight.

He should give them different resting shelters and watering places which should all be cleaned regularly.

He should put the male and female in the same place during their mating season.

²⁶ As quoted in Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, pp. 45-46. Original source at ‘Abd al-Salam, ‘Izz al-Din, *Qawā‘id al-Aḥkam fī Maṣāliḥ al-‘Anfām*, vol. 1. Beirut, n.d., p. 142

He should nor hunt a wild animal with a tool that breaks bones, rendering it unlawful for eating.

3.3.3.6 Human Beings

Human beings are the most intelligent and most complex of God's creation. They are the only creatures with the special qualities that enable them to serve the earth. The Qur'ān describes the creation of human beings in general, as follows,

O mankind! Be dutiful to your Lord, Who created you from a single person (Adam), and from him (Adam) He created his wife (Eve), and from them both He created many men and women, (An-Nisā', 4: 1)

The creation of human beings has been through the following process:

While He has created you in (different) stages. (Nūḥ, 71: 14)

Has there not been over man a period of time, when he was nothing to be mentioned. Verily, We have created man from *Nutfah* drops of mixed semen (discharge of man and woman), in order to try him, so We made him hearer, seer: (Al-Insān, 76: 1-2)

Who made everything He has created good, and He began the creation of man from clay. Then He made his offspring from semen of no value fluid (male and female sexual discharge). (As-Sajdah, 32: 7-8)

And indeed We created man (Adam) out of an extract of clay (water and earth).

Thereafter We made him (the offspring of Adam) as a *Nutfah* (mixed drops of

the male and female sexual discharge) (and lodged it) in a safe lodging (womb of the woman). (Al-Mu'minūn, 23: 12-13)

So let man see from what he is created! He is created from a fluid poured forth.

Proceeding from between the back-bone and the ribs, (Aṭ-Ṭarīq, 86: 5-7)

Then We made the *Nutfah* into a clot (a piece of thick coagulated blood), then

We made the clot into a little lump of flesh, then We made out of that little lump of flesh bones, then We clothed the bones with flesh, and then We brought it

forth as another creation. So blessed be Allah, the Best of creators. (Al-Mu'minūn, 23: 14)

He it is Who shapes you in the wombs as He pleases. (Āl-ʿImrān, 3: 6)

Who created you, fashioned you perfectly, and gave you due proportion; In whatever from He willed, He put you together. (Al-Infīṭār, 82: 7-8)

Then He fashioned him in due proportion, and breathed into him the soul (created by Allah for that person), and He gave you hearing (ears), sight (eyes) and hearts. Little is the thanks you give! (As-Sajdah, 32: 9)

According to Izzi Dien, the relationship of human beings with the environment is considered by Islam as positive and interactive rather than one of dominance and repression.²⁷ He adds that this symbiosis is seen in Islam through the following principles, firstly, that all human individuals are merely parts of the holistic system of life created by God. Human beings should learn to accept what is available and not

²⁷ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 46.

waste resources. The correct human role cannot be achieved when some over-indulge in what ought to be shared with others. Secondly, while human beings have the right to survive, like the other individual creatures and components of creation, they have been given the role of responsible leadership on this earth. In Islam there is no dispute over the relationship that humankind has with the other creatures.²⁸

3.4 A Framework of Environment in Islam

It is clear that there is a relationship between God, human beings and the environment in Islam, as shown in the appendix 2 (The Relationship Between God, the Environment and Human Beings). According to Izzi Dien, there are several characteristics of the framework of environment in Islamic thought. These are: firstly the Divine Origins of all Creation, secondly Constancy or *Thabāt*, thirdly Comprehensiveness or *Shūmūl*, fourthly the Balance or *Tawāzūn*, fifthly Positivism or *Wāqifiyya*.²⁹ Therefore, the researcher now intends to elucidate some of the characteristics of environment in Islam.

3.4.1 The Divine Origins of All Creation

²⁸ Ibid, p. 47.

²⁹ Ibid, pp. 58- 70.

The essence of this relationship is to attract human beings to understanding the environment. For human beings, they have to question and to think out the natural phenomena, which refer to the environment. For that, they are encouraged to make every effort to explore by knowledge the signs of God. In many contexts in the Qur'ān, God requires human beings to think and ponder over the physical environment in its surroundings such as its beauty, its diversity, its calculated measure, and above all the fact that the universe in its entirety is interrelated.

The natural phenomena are God's Signs. They contain the symbols of God. The Qur'ān always refers to the natural phenomena as '*āyat*', or symbol. The Qur'ān states:

And among His Signs is the creation of the heavens and the earth, and the difference of your languages and colours. Verily, in that are indeed signs for men of sound knowledge. (Ar-Rūm, 30: 22)

And among His Signs is that He shows you the lightning, by way of fear and hope, and He sends down water (rain) from the sky, and therewith revives the earth after its death. Verily, in that are indeed signs for a people who understand. (Ar-Rūm, 30: 24)

The importance of the Signs of God lies in the natural phenomena that have been created by the Divine, namely '*Sunnatullah*'. Therefore, nature has been created by God with true purpose and it is not to be neglected. Hence, everything was created

properly and seriously. God did not create it 'just for nothing (*laʿb*) and did not forge it'. The Qur'ān states,

He has created everything, has measured it exactly according to its due measurements. (Al-Furqān, 25: 2)

And He taught Ādam all the names (of everything), ... (Al-Baqarah, 2: 31)

Who has created the seven heavens one above another, you can see no fault in the creation of the Most Beneficent. Then look again: "Can you see any rifts?" Then look again and yet again, your sight will return to you in a state of humiliation and worn out. (Al-Mulk, 67: 3-4)

Furthermore, the fact that the nature was created in truth, not for idleness, and not without purpose, indicates that nature is not disorganised, but in good order. The Qur'ān states,

He has created the heavens and the earth with truth. (Az-Zumar, 39: 5)

We created not the heavens and the earth and all that is between them for a (mere) play. (Al-Anbiyā, 21: 16)

And We created not the heaven and the earth and all that is between them without purpose! (Şād, 38: 27)

The meaning created in truth (*bi al-ḥaqq*) as in wisdom and in proportions is that it should be, in terms of its size, shape, position, or properties He has predestined and specified through His Wisdom, or in accordance with righteousness and justice that is a necessity.

3.4.2 Constancy or *Thabāt*

In Islam, constancy means that ‘everything obeys God by following His law’.³⁰

This statement is strongly supported by the Qur’ān, which states:

(This was Our) *Sunna* (rule or way) with the Messengers We sent before you (O Muhammad), and you will not find any alteration in Our *Sunna* (rule or way).

(Al-Isrā’, 17: 77)

And the Word of your Lord has been fulfilled in truth and in justice. None can change His words. (Al-An‘ām, 6: 115)

These verses clearly show that obedience is not restricted to ‘living things’ but extends far wider. Human belief in God is the starting point. Actions can only be accepted by God as practised in the light of believing Him, His angels, His books, His messengers, Destiny and the Last Day. Submission is the only way that God accepts and that human can follow to solve their problems and those of others. If individuals do not submit to God, then they might be tempted to believe that the environment is their own and that they are free to do with it what they will. Submission makes human beings similar to other creatures which carry out their duties in a constant manner without attempting to cause imbalance in their surroundings due to selfishness or greed.³¹

³⁰ Ibid, p. 59.

³¹ Ibid.

In addition, the human species is honoured with the duty of responsible trusteeship. False values include material, racial and geographical values. Human trusteeship is manifested in human creative and responsible activities, whether ploughing a field or splitting the atom. However, it is important to state that human beings are an important element of creation, and without them the sustainability of the environment becomes difficult.³²

3.4.3 Comprehensiveness or *Shūmūl*

In general, the comprehensiveness of Islam is evident in the Qur'ān which says:

This day, I have perfected your religion for you, completed My Favour upon you, and have chosen for you Islam as your religion. (Al-Mā'idah, 5: 3)

This verse recognises the comprehensiveness of Islam in every aspect. Islam as a Divinely based system has a comprehensive, holistic outlook derived from the Divine perception of all that He has created. To God the smallest particle of existence is important.

The comprehensive nature of the components of life and the various systems and laws, which are termed the environment or ecosystem, are emphasised in the Qur'ān as follows:

³² Ibid, p. 59.

(He is the) Cleaver of the day-break. He has appointed the night for resting, and the sun and the moon for reckoning. Such is the measuring of the All-Mighty, the All-Knowing. (Al-An'ām, 6: 96)

Allah has created every moving (living) creature from water. Of them are some that creep on their bellies, some that walk on two legs, and some that walk on four. Allah creates what He wills. Verily! Allah is Able to do all things. (An-Nūr, 24: 45)

Furthermore, the comprehensiveness of nature describing the regulations and co-ordination of the universe that forms an environment was created on purpose and well planned. The evidence of deliberateness and compliance to the plan is in the form of orderliness, balance, harmony and beauty in all God's creation. The following Qur'ānic verses endorse this:

Who has created the seven heavens one above another, you can see no fault in the creation of the Most Beneficent. Then look again: "Can you see any rifts?" Then look again and yet again, your sight will return to you in a state of humiliation and worn out. (Al-Mulk, 67: 3-4)

Therefore, the existence of the orderliness in the natural phenomena, the harmony amongst various part of the nature, and the aim of creation in nature are the most important aspects, which are stressed by the Qur'ān. Moreover, the existence of

regulation and design have been indicated as the Sign of Unity, the Oneness of God.

The Qur'ān states,

Had there been therein (in the heavens and the earth) gods besides Allah, then verily both would have been ruined. Glorified be Allah, the Lord of the Throne, (High is He) above what they attribute to Him! (Al-Anbiyā, 21: 22)

No son (or offspring or children) did Allah beget, nor is there any *ʾilāh* (god) along with Him; (if there had been many gods), behold, each god would have taken away what he had created, and some would have tried to overcome others! Glorified be Allah above all that they attribute to Him! (Al-Mu'minūn, 23: 91)

According to Izzi Dien, the duality of norms is another element of Islam's comprehensive view of the environment.³³ Life and death, day and night, happiness and sorrow, good and evil are all patterns that have been devised by the Creator, as the Qur'ān says,

Know that Allah gives life to the earth after its death! Indeed We have made clear the *Āyāt* (proofs, evidences, signs, etc.) to you, if you but understand. (Al-Hadīd, 57: 17)

Verily! In the creation of the heavens and the earth, and in the alternation of night and day, there are indeed signs for men of understanding. (Āl-ʿImrān, 3: 190)

³³ Ibid, p. 62.

3.4.4 Balance or *Tawāzūn*

In the context of Islamic environment, balance is the foundation of natural movement and activities can happen due to an exact measurement and specific regulations created by God. In other words, all the creation and the causes of natural phenomena follow their particular measurement, and every object has its definite limit of time. All of these regulations strengthen the existence of natural balance as the orderliness principle. The Qur'ān states,

The sun and the moon run on their fixed courses (exactly) calculated with measured out stages for each. (Ar-Raḥmān, 55: 5)

And there is not a thing, but with Us are the stores thereof. And We send it not down except in a known measure. (Al-Hijr, 15: 21)

Do they not think deeply (in their ownselves) about themselves (how Allah created them from nothing, and similarly He will resurrect them)? Allah has created not the heavens and the earth, and all that is between them, except with truth and for an appointed term. And indeed many of mankind deny the Meeting with their Lord. (Ar-Rūm, 30: 8)

And the heaven He has raised high, and He has set up the balance. In order that you may not transgress (due) balance. And observe the weight with equity and do not make the balance deficient. (Ar-Raḥmān, 55: 7-9)

To emphasise the role of balance in natural phenomena, the Qur'ān also elaborates on the mechanisms and ways of certain events in the universe, as follows,

..., and sent down rain from the sky and brought forth therewith fruits as a provision for you. (Al-Baqarah, 2: 22)

... Abraham said, "Verily! Allah causes the sun to rise from the east; then cause it you to rise from the west." So the disbeliever was utterly defeated. (Al-Baqarah, 2: 258)

And the sun runs on its fixed course for a term (appointed). That is the Decree of All-Mighty, the All-Knowing. And the moon, We have measured for it mansions (to traverse) till it returns like the old dried curved date stalk. It is not for the sun to overtake the moon, nor does the night outstrip the day. They all float, each in an orbit. (Yā-Sīn, 36: 38-40)

The above verses explain the belief that God has created the universe with the right purpose. Therefore, He has decided everything as the real truth. The measurements of all creatures have been suited to their portion and their capacity accordingly. Characteristics such as the co-ordinations, mechanism, space, and times of the revolution have been regulated so that everything revolves about its own orbit. Furthermore, the most important is that all these have resulted in a balance and a harmony in the universe. The balance condition has been created due to their certainty in regulation and measurement, as determined by God. The balance condition, in turn, causes a harmony in the universe.

In the words of Izzi Dien, the balance that preserves the stability of the environment stems from the Islamic view of life, and has become a practice without the sense of detachment from the environment. As it is expected that a Muslim should balance spirit and material, mind and emotion, and every part of the dual system of life, so it is expected that the environment will be protected against any imbalance. The latter would violate the principle of coherence to which the Qur'ān repeatedly draws attention and its reiteration in every aspect of life and existence.³⁴

3.4.5 Positivism or *Wāqī'iyya*

According to Izzi Dien, the relationship between the Creator and that which He created is considered by Islam to be an interactive relationship.³⁵ The interactive relationship which shows the Creator's attitude is positive and compassionate. The Creator did not create existence and abandon it, but rather acknowledges and cherishes it, because the sustenance of all the systems of creation is part of God's responsibility. The Creator's relationship with sentient beings and other elements of the universe as positivism has been stressed by the Qur'ān:

Verily, We have created all things with *Qadar* (Divine Preordainments of all things before their creation, as written in the Book of Decrees – (*Al-Lauh Al-Mahfūz*)). (Al-Qamar, 54: 49)

³⁴ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 69.

³⁵ Ibid, p. 70.

Indeed Allah has set a measure for all things. (Aṭ-Ṭalāq, 65: 3)

To prove that the positive attention of God is given to the smallest leaf of a tree or a grain, in the same way as to the largest element of the cosmos, we read:

... And He knows whatever there is in (or on) the earth and in the sea; not a leaf falls, but he knows it. There is not a grain in the darkness of the earth nor anything fresh or dry, but is written in a clear record. (Al-Anʿām, 6: 59)

3.5 The Islamic Declaration on Nature

It is important to mention here the Islamic declaration on nature conveyed by Dr Abdullah Omar Nasseef at Assisi, Italy on 29 September 1986.³⁶ This shows that Islam as a religion has a vital role to help the Muslim understand the nature on his life. Below are some of the points of this declaration,

The essence of Islamic teaching is that the entire universe is God's creation. Allah makes the waters flow upon the earth, upholds the heaven, makes the rainfall and keeps the boundaries between day and night. The whole of the rich and wonderful universe belongs to God, its Maker. It is God who created the plants and the animals in their pairs and gave them the means to multiply. Then God created mankind, a very special creation because mankind alone was created with reason and the power to think and even the means to turn against

³⁶ *The Assisi Declaration*, Op. cit., pp. 23-24.

his Creator. Mankind has the potential to acquire a status higher than that of the angels or sink lower than the lowliest of the beasts.³⁷

Then, in the next part of the Islamic declaration is the aim of environmental ethics in Islam. This the researcher will discuss in the next chapter. The declaration states:

For the Muslim, mankind's role on earth is that of a '*khalīfa*', viceregent or trustee of God. We are God's stewards and agents on Earth. We are not masters of this earth, it does not belong to us to do what we wish. It belongs to God and He has entrusted us with its safekeeping. Our function as viceregents, '*khalīfa*' of God, is only to oversee the trust. The '*khalīfa*' is answerable for his/her actions, for the way in which h/she uses or abuses the trust of God.³⁸

3.6 Conclusion

It is clear that Islam also gives an important significance to the environment. In comparison with other religions, Islam has also indicated the obligation for Muslims to care for the environment. In fact, Islam not only teaches the theory, but says it must be practiced. Therefore, the following chapters will discuss the theory of Islamic environmental ethics, then following that the implementation of *sharī'ah*.

³⁷ Ibid, p. 23.

³⁸ Ibid.

CHAPTER FOUR: ENVIRONMENTAL ETHICS IN ISLAM

4.1 Introduction

The aim of this section is to analyse the meaning of environmental ethics from an Islamic perspective. To permit comparison with other concepts of environmental ethics in various religions, it is essential to study environmental ethics in Islam. As previously mentioned, the critiques of many scholars assist in establishing the best form of environmental ethics in accordance with the Islamic framework. Of course, it may be said that one way to solve the environmental crisis is through religion, as the differing faiths contain the values and ethics that can educate the people to appreciate and nurture the environment. Therefore, this part will be divided into three: the framework of ethics, the exploring of environmental ethics and the Islamic systems in environmental ethics.

4.2 A Framework of Ethics in Islam

In conjunction with chapter one, under the heading of Ethics and Environment in Islam, this section is an attempt to clarify a framework of ethics from the Islamic perspective. The discussion will focus on two aspects: the basics of ethics and the theory of ethics.

4.2.1 The Basics of Ethics in Islam

The basics of ethics may be classified as the essentials of ethics and the sources of ethics.

4.2.1.1 The Essentials of Ethics

There are several characteristics of the fundamentals of Islamic ethics, which influence Muslim attitudes towards the environment. This ethical character will be reflected in an increasingly strong belief in God as Muslims progress through three stages of spiritual development, namely *Īmān*, *Islam*, and *Iḥsān*.¹ Each of these stages affects Muslim behaviour.

a. *Īmān*

Īmān or faith in God is the core of Islamic ethical character. It implies belief in the Oneness of God (called *Tawhīd*) and the Prophet Muhammad. A person with a strong faith will consider himself or herself and all his or her possessions as belonging to God. Faith also implies belief in the life Hereafter and in one's ultimate accountability for one's deeds. This connection with the Islamic environment will be studied in part three of this chapter.

¹ Ahmad, Khurshid (ed.), *Islam: Its Meaning and Message*. Leicester: The Islamic Foundation, 1976, p. 21.

b. Islam

This is a second layer of the ethical personality of Muslims that builds upon *īmān*. Islam means the achievement of peace with God, within oneself and with the creation of God, through willing submission to Him. In other words, *īmān* in practice is called Islam.² Islam thus deals with all deeds, called devotion, *‘ibāda*. The acts of *‘ibāda*, which are considered vital for a Muslim are five: *shahadah* or testimony, *ṣalāt* or prayer, *zakā* or almsgiving, *ṣawm* or fasting, and *ḥajj* or pilgrimage. For instance, according to Izzī Dien, the fifth *‘ibāda* which is pilgrimage, *ḥajj*, can be viewed as an environmental festival in which Muslims come from the four corners of the earth to acknowledge submission to the Divine, abandoning their homes for tents, and becoming physically involved in the natural environment. Everything returns to nature. Men do not shave, nor do they wear clothes dyed or shaped in any way, while women dress simply and do not use jewellery or cosmetics.³

c. *Ihsān*

Ihsān literally means to do ‘good’ to others. According to Izzī Dien, *ihsān* is general charity to all beings and it appears in Islam as a subtle concept of sustainable and constant assistance. Muslims are expected to practice *ihsān* at all times, even when they are taking the lives of animals.⁴ The Qur’ān states,

² Rahman, Afzalur, *Islam: Ideology and the Way of Life*. Op. cit., p. 3.

³ Izzī Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 48.

⁴ Ibid, p. 184.

Verily, Allah enjoins *Al-ʿAdl* and *Al-Ihsān*, and giving (help) to kith and kin, and forbids *Al-Fahshā*, and *Al-Munkar*, and *Al-Baghy*, He admonishes you, that you may take heed. (An-Naḥl, 16: 90)

In addition, in one of the *ḥadīth saḥīh*, the Prophet Muhammad replied to a question about *ihsān* posed by the angel Gibreal: “*Ihsān* means that you worship God as though you see Him and if you do not see Him, know surely that He always sees you”.⁵ This *ḥadīth* indicates clearly that the word *ihsān* refers to an act of doing good, especially with respect to the worship of God. It must be conducted carefully, sincerely and faithfully in order for it to be accepted by Him.

Furthermore, in the *ḥadīth* where the Prophet Muhammad is reported to have said that God prescribed *ihsān* in everything and even when an animal is being slaughtered; the knife must to be sharpened and the suffering of the animal avoided.⁶ In other words, the process of *ihsān* is expected not only when life is being given but also when it is being taken. In this case therefore, the taking of life is a positive rather than a negative action, and it is *ihsān* that delineates which life is better and which sort of death is preferable. Islam considers all the composite elements of the environment to be complementary, with each exchanging *ihsān* with the others. This represents an ethical

⁵ Bukhārī, *Saḥīh al-Bukharī*, in *Kitāb al-Imān*, *ḥadīth* no. 48. See also Muslim in his *Saḥīh Muslim*, in *Kitāb al-Imān*, *ḥadīth* no 5. See also Al-Nawawī, *Matan al-Arbaʿīn al-Nawawīyyah* (Al-Nawawī Forty *Ḥadīth*, tr. by ʿIzz al-Dīn Ibrāhīm and ʿAbdullāh Wadūd), Beirut: Dār al-Qurʾān al-Karīm, 1990 *ḥadīth* no. 2.

⁶ Narrated by Shaddad b. Aws and transmitted by *Saḥīh Muslim*. Mundhiri, *Mukhtasar*, p. 98.

dimension for the cycle of life, making every component dependent upon the others. The breaking of this cycle would lead to the breaking of the concept of *iḥsān*.⁷

The medieval scholar Al-ʿIzz b. ʿAbd al-Salam instructed Muslims to tend the rights of animals and other creatures dependent on man, as follows;⁸

He should spend on it (time, money or effort) even if the animal is aged or diseased in such a way that no benefit is expected from it. His spending should be equal to that on a similar animal useful to him.

Nor should he overburden it.

Nor should he place with it whatsoever may cause it harm, be it of the same kind or of another species.

He should kill them properly and with consideration, he should not cut their skin or bones until their bodies have become cold and their life has fully passed away.

He should not kill their young within their sight.

He should give them different resting shelters and watering places, which should all be cleaned regularly.

He should put the male and female in the same place during their mating season.

He should not hunt a wild animal with a tool that breaks bones, rendering it unlawful for eating.

⁷ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p.120.

⁸ As quoted from Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., pp. 45-46. Original source at ʿAbd al-Salam, ʿIzz al-Dīn, *Qawāʿid al-Aḥkam fī Maṣaliḥ al-ʿAnʿām*, vol. 1. Beirut, n.d., p. 142.

4.2.1.2 The Sources of Ethics

In the beginning of Islam, the Qur'ān and *Sunna* were the two foundation sources of ethics in every aspect. In this context, the Qur'ān is a scripture, which embodies the message revealed by God to the Prophet Muhammad. Secondly, the *Sunna* is the exemplification of that message in the perceived model pattern of the Prophet's actions, sayings and norms.⁹ In other words, both embody the original core of the Islamic ethical spirit.¹⁰

Then, with the impact of development and growth of Islamic civilisation, according to Nanji, the discussion of Islamic ethics can be divided into four approaches: the theological and traditionalist approaches, the philosophical approaches, ethics in the *Shī'a* tradition, and the *ṣūfī* perspectives.¹¹ Other scholars such as Ansari explore the discussion of Islamic ethics by various writers – philosophers, theologians, jurisprudence, *ṣūfis*, and political and economic theorists – in their particular fields on some issues that are either part of, or relevant to, Islamic ethics.¹²

⁹ Nanji, Azim, Islamic Ethics, in *A Companion to Ethics* by Singer, Peter (ed.). Oxford: Blackwell Publishers, 1993, p. 106.

¹⁰ Fakhry, Majid, *Ethical Theories in Islam*. Leiden: E.J. Brill, 1991, p. 1.

¹¹ Nanji, Azim, Islamic Ethics, in *A Companion to Ethics* by Singer, Peter (ed.). Op. cit., pp. 111-115.

¹² Ansari, Abdul Haq, Islamic Ethics: Concept and Prospects in *American Journal of Islamic Sciences*, 1989, vol. 6, p. 81.

For instance, in summing up the traditionalist approaches, the formulations of commands and prohibitions in *Sharīʿah* are expressed in ethical terms. Five categories are employed for evaluating all acts;

- a. Obligatory acts (*wājib*), such as the duty to perform ritual prayer, paying *zakā* and the practice of fasting
- b. Recommended acts (*mandūb*), which are not considered obligatory, such as supererogatory acts of charity, kindness, prayer etc.
- c. Permitted actions (*mubāḥ*), regarding which the law adopts a neutral stance, that is there is no expectation of reward or punishment for such acts
- d. (*Makrūh*) acts are those discouraged and regarded as reprehensible, but are strictly forbidden: Muslim jurists differ about what actions to include under this category
- e. Actions that are categorically forbidden (*ḥarām*), such as murder, adultery, blasphemy, theft, intoxication etc.¹³

Meanwhile, the others sources of ethics in Islam will be examined later in this chapter. These sources are categorised as the secondary sources, which are *al-Ijmā*, *al-Qiyās* and *al-Ijtihād*.¹⁴ Indeed, these sources are derived from the legal injunctions of the Qurʾān and the *Sunna* of the Prophet Muhammad. Hence, the final sanction for all intellectual activities and aspects in respect of the development of Islamic law comes

¹³ I. Doi, Abdur Rahman, *Sharīʿah : The Islamic Law*. Kuala Lumpur: A.S. Noordeen, 1989, pp. 50-51.

¹⁴ Ibid, p. 64.

from nowhere else but the Qur'ān. Even any *hadīth* which goes contrary to the Qur'ān is not to be considered as authentic.

4.2.2 Islamic Ethics Theory

It is important to analyse the theory of ethics from Islamic perspectives. The main aim is to compare it with the existence theory of ethics, as aforementioned in chapter one. The contemporary scholar Fakhry classifies the ethics theory into four aspects: firstly is scriptural morality, secondly is theological ethics, thirdly is philosophical ethics, and finally is religious ethics.¹⁵ In addition, a scholar Naqwi has outlined four ethical axioms in relation to Islamic economics, namely, unity, equilibrium, free will and responsibility.¹⁶ Moreover, there are some principles of ethics, which has been outlined by Al-Faruqi, such as, actionalism, ummatism, universalism, and life and world-affirmation.¹⁷ Furthermore, a scholar Zaidi has outlined three ethical principles, namely, justice, *taqwā* or piety, and knowledge.¹⁸ Therefore, in the context of Islamic environmental ethics, the researcher will examine some characteristics of ethical theory, namely obligation, responsibility, sanction and intention.¹⁹

¹⁵ Fakhry, Majid, *Ethical Theories in Islam*. Op. cit., pp. 6-8.

¹⁶ Naqvi, Syed Nawab Haider, *Ethics and Economics: An Islamic Synthesis*. Leicester: The Islamic Foundation, 1981, p. 41.

¹⁷ Al-Fārūqī, Ismā'īl Rājī, *Al-Tawḥīd: Its Implications for Thought and Life*. Op. cit., pp. 74-84.

¹⁸ Zaidi, Iqtidar H., 'On the Ethics of Man's Interaction with the Environment: An Islamic Approach' in *Journal of Environmental Ethics*, 1981, vol 3, pp. 44-46.

¹⁹ Warrāz, Muhammad 'Abdullah, *Dustūr Al-Akhlāq Fī Al-Qur'ān*. Kuwait: Dār Al-Buḥūth Al-'Ilmiyah, 1987, pp. 19, 134, 243 and 419.

4.2.2.1 Obligation or *'Ilzām*

To obey and follow the commandments of God is an obligation upon all Muslims. Therefore, for Muslims, the total obligation is towards God. According to the Qur'ān,

Say (O Muhammad): “Verily, my prayer, my sacrifice, my living, and my dying are for Allah, the Lord of the *‘Alamīn* (mankind, jinns and all that exists). (Al-An‘ām, 6: 162)

In another verse, Muslims are commanded to submit fully to the law of God and thus enter into the fold of Islam, as the Qur'ān commands,

O you who believe! Enter perfectly in Islam (by obeying all the rules and regulations of the Islamic religion) and follow not the footsteps of Satan. Verily! He is to you a plain enemy. (Al-Baqarah, 2: 208)

In this context, Islamic environmental ethics must be within the framework and guidelines of Islam. This means that to realise this concept the researcher will analyse the Islamic systems in accordance with environmental ethics.

4.2.2.2 Responsibility or *Mas'ulīyya*

The word *mas'ulīyya* or responsibility does not occur as such in the Qur'ān, although a large number of the etymological derivations of the verb *sa 'a la* do. However, a synonym of the word *mas'ulīyya* does occur in the Qur'ān, namely *amāna* or

trust. The Qur'ān addresses the concept of *amāna* or trust within the framework of *mas'ulīyya* (responsibility) in the following verse:

Verily! Allah commands that you should render back the trusts to those, to whom they are due; (An-Nisā', 4: 58)

Therefore, the explanation of the concept of responsibility is described by the Prophet as follows, “Verily, each one of you is a guardian (shepherd), and each guardian (shepherd) is responsible for his subjects (flock)”; the leader who is in charge of people is a guardian for them and he is responsible for them; the husband is likewise a guardian of his household and he is responsible for it; similarly, the wife is a guardian of her husband's home and children and she is responsible for them; the servant is a guardian of his master's wealth and he is responsible for it; therefore, each one of you is a guardian, and each one of you is responsible for his subjects”.²⁰

The above tradition indicates clearly that every person has responsibility for their surroundings and environment. In relation to Islamic environment, a further discussion of responsibility in dealing with mankind is given in the next part of this chapter.

²⁰ This *ḥadith* is transmitted from Bukhāri and Muslim.

4.2.2.3 Sanction or *Jazā'*

The third Islamic ethics theory is sanction or *jazā'*. According to Warrāz, sanction may be classified into three terms: the moral sanction, the law sanction and the God sanction.²¹ To elaborate these classifications, the researcher will examine them in relation to Islamic environmental ethics. Firstly the moral sanction, for instance in the issues such as vegetarians, genetic-modified food and others. From the Islamic stand points, the requirements of Islamic law or *shar'īah* is important to justify either they are good or bad, permissible or prohibited, take or abandoned it. This will be analysis in the next part.

Secondly the law sanction, which is identified either by regulations, rules, procedures, laws, enforcement and others. In conjunction with the Islamic law or *shar'īah*, it can be divided into three aspects: the punishment under *shar'īah* or *al-ḥudūd*, the law of equality or *al-qīṣāṣ*, when the punishment is not fixed by law, and the judge is allowed discretion both as to the form in which such punishment is to be inflicted and its measure or *al-ta'zīr*.²² Therefore, it is important to develop and expand the role of *ḥisbā* on environment in Islamic countries. It can be applied, for instance, by using *al-ta'zīr* as a tool to implement various of laws in relation to environmental problems.

²¹ Warrāz, Muhammad 'Abdullah, *Dustūr Al-Akhlāq Fi Al-Qur'ān*. Op. cit., p. 245.

²² I. Doi, Abdur Rahman, *Sharī'ah : The Islamic Law*. Op. cit., p. 226.

Thirdly the God sanction, for Muslims God is Law Giver.²³ In the context of environmental ethics, for those who pollute the environment, as mentioned in the Qur'ān;

Mischief has appeared on land and sea because of what the hands of men have done(Ar-Rūm, 30: 41)

Therefore, the God sanction for those who are mischief makers is called *mufsidūn*, as follows,

And Allah does not like the *mufsidūn* (mischief-makers). (Al-Mā'idah, 5: 64)

4.2.2.4 Intention or *Nīyya*

The root word of *nīyya* is *n w y*, meaning intention. It can be defined as the acts prescribed by the Islamic *sharī'ah*, obligatory or not, required to be preceded by a declaration by the performer, that he or she intends to perform such an act. This declaration, pronounced audibly or mentally, is called *nīyya*. Without it, the act would be *bāṭil*.²⁴

The term does not occur in the Qur'ān, but it is found in the Prophet Tradition, which says; "Actions are but by intention and every man shall have but that which he intended".²⁵ This tradition covers in every aspect of Muslim life, such as religious, moral,

²³ Ibid, p. 2.

²⁴ Wensinck, A.J., art: *Nīyyā* in *The Encyclopaedia of Islam New Edition*, vol. VIII by H.A.R. Gibb (et.al.). Leiden: E.J. Brill, 1960, p. 66.

²⁵ Al-Nawawī, *Matan al-Arbā'īn al-Nawawīyyah* (Al-Nawawī Forty *Ḥadīth*, tr, by 'Izz al-Dīn Ibrāhīm and 'Abdullāh Wadūd), Beirut: Dār al-Qur'ān al-Karīm, 1990 *ḥadīth* no. 1.

social and others. In the context of Islamic environmental ethics, it can be said, for instance, that the intention may be identified such as objectives, purposes, goals of the projects, events or others. An example in every Environmental Impact Assessment (EIA) is that the developer must propose the objectives of the project.

4.3 Exploring the Characteristics of Islamic Environmental Ethics

In this part, the researcher will explore the elements of environmental ethics in Islam. It will focus on three main points, namely, *khalīfah*, the responsibilities of mankind and the lawful and prohibited in Islam.

4.3.1 *Khalīfah*

In the Qur'ān, the word '*khalīfah*' has been repeated twice: firstly in the Sūra Al-Baqarah (2) verse 30 and secondly in Sūra Şād (38) verse 26.²⁶ The plural of this word *khala'ifa* or *khulafā*' occurs seven times in the Qur'ān.²⁷ The Arabic word '*khalīfah*' has been variously translated into English as successor, deputy, vicegerent, inheritor and trustee. Its verbal root *kh l f* means 'he came after, followed, succeeded to'. Beside the word '*khalīfah*' the Qur'ān also used the word *istikhlaf* which means to indicate appointment as a trustee.

²⁶ Abd al-Baqi, M. Fu'ad, *Al-Muġjam al-Mufahrās li al-Fāz al-Qur'ān*. Op. cit., p. 240.

²⁷ Ibid.

According to Izzi Dien, the *istikhlaf* format appears to modify the meaning of *khilāfa* to the concept of deputyship, one that also conveys the idea of a limited power of attorney.²⁸ The Qur'ān states,

And it is He Who has made you generations coming after generations, replacing each other on the earth. And He has raised you in ranks, some above others that He may try you in that which He has bestowed on you. Surely your Lord is Swift in retribution, and certainly He is Oft-Forgiving, Most Merciful. (Al-An'ām, 6: 165)

The researcher will explore the meaning of '*khalīfah*' in the Sūra Al-Baqarah, verse 30, through the translation of the Qur'ān by the scholars. Firstly, the translation by 'Abdullah Yūsuf 'Ali,²⁹

Behold thy Lord said to the angels: "I will create vicegerent on earth".

Secondly, the translation by Pickthall³⁰,

And when thy Lord said unto angels: Lo! I am about to place a viceroy in the earth.

Thirdly, the translation by Asad,

And Lo! Thy Sustainer said unto the angels: "Behold, I am about to establish upon earth one who shall inherit it".

Fourthly, the translation by Ṣāliḥ, Malik,

²⁸ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 75.

²⁹ Ali, Abdullah Yusuf, *The Holy Qur'an: Text, Translation and Commentary*. Beirut: Dār al-'Arabia, 1968, p. 24.

³⁰ Pickthall, Mohammed Marmaduke, *The Meaning of the Glorious Qur'an*. GB: The Government of H.E.H. The Nizam, 1930, p. 36.

Note that occasion, when your Rabb said to the angels: “I am going to place a vicegerent on earth”.

Fifthly, the translation by Dr. Muhammad Taqīuddīn Al-Hilālī and Dr. Muhammad Muḥsin Khān,³¹

And (remember) when your Lord said to the angels: “Verily, I am going to place (mankind) generations after generations on earth”.

Sixthly, the translation by Thomas, Khursid and Muhammad,³²

So when your Lord told the angels: “I am placing a representative on earth”.

Seventhly, the translation by the Reverend J.M. Rodwell M.A.,³³

When thy Lord said to the angels, “Verily, I am about to place one in my stead on earth”.

Eighthly, the translation by George Sale,³⁴

When thy Lord said unto the angels, “I am going to place a substitute on earth”.

Ninthly, the translation by Behbudi and Turner,³⁵

Remind the people that your Lord said to the angels: “I wish to create upon earth a new race of beings: be ready to carry out My command!”

Tenthly, the translation by Majid,³⁶

When your Lord said to the angels: “I am placing a deputy on earth”.

³¹ Al-Hilālī, Muhammad Taqīuddīn and Khān, Muhammad Muḥsin, *Interpretation of the Meanings of the Noble Qur’ān in the English Language*. Riyadh: Maktaba Dār-us-Salam, 1994, p. 8.

³² Irving, Thomas Ballantine; Ahmad, Khurshid and Ahsan, Muhammad Manazir, *The Qur’an: Basic Teachings*. UK: The Islamic Foundation, 1979, p. 81.

³³ Rodwell, J.M., *The Koran Translated from the Arabic*. London: J.M. Dent & Co., u.d., p. 340.

³⁴ Sale, George, *The Koran: Al-Koran of Mohammed*. London: Frederick Warne and Co., u.d., p. 4.

³⁵ Behbudi, Muhammad Baqir and Turner, Colin, *The Quran: A New Interpretation*. GB: Curzon Press, 1997, p. 3.

³⁶ Fakhry, Majid, *The Qur’an: A Modern English Version*. Lebanon: Garner Publishing Limited, 1997, p. 8.

Eleventh, the translation by T.B. Irving,³⁷

So when your Lord told the angels: "I am placing an overlord on earth".

Twelfth, the translation by Arthur J. Arberry,³⁸

And when thy Lord said to the angels, "I am setting in the earth a viceroy".

The above translations indicate clearly the Islamic point of view that man is Allah's vicegerent on earth, and called '*khalīfah*'. In spite of the various translation by the scholars, the best form for this word is the Arabic word itself. In relation to man's appointment to be the *khalīfah*, it is necessary to note that such appointment causes protest amongst the angels. The Qur'ān states,

And (remember) when your Lord said to the angels: "Verily, I am going to place (mankind) generations after generations (*khalīfah*) on earth". They said: "Will You place therein those who will make mischief therein and shed blood, - while we glorify You with praises and thanks and sanctify you". He (Allah) said: "I know that which you do not know". (Al-Baqarah, 2: 30)

This verse gives a kind of divine guidance that man indeed has a tendency to make mischief if he is delegated with such a large authority as Allah's vicegerent to manage and to develop the earth. Whereas in fact, the earth was not created to be destroyed but it was created as a component of the harmony of this universe. Further, the earth was developed for man's own interest.

³⁷ Irving, T.B., *The Qur'an: The First American Version*. USA: Amana Books, 1985, p. 4.

³⁸ Arberry, Arthur J., *The Koran Interpreted*. GB: George Allen & Unwin, 1980, p. 33.

The question is what are the differences between mankind and other creatures? Islam perceives mankind as Allah's *khalīfah* that must care for and develop the earth and may not destroy it at all. Therefore, it is useful to note the creation process of mankind when he was selected as the holder of Allah's trust on the earth. As aforementioned in the previous chapter regarding the creation of human beings, one of the comments in the Qur'ān states,

And indeed We created man (Ādam) out of an extract of clay (water and earth). Thereafter We made him (the offspring of Ādam) as a *Nutfah* (mixed drops of the male and female sexual discharge) (and lodged it) in a safe lodging (womb of the woman). Then We made the *Nutfah* into a clot (a piece of thick coagulated blood), then We made the clot into a little lump of flesh, then We made out of that little lump of flesh bones, then We clothed the bones with flesh, and then We brought it forth as another creation (Al-Mu'minūn, 23: 12-14)

In other verses of the Qur'ān it states,

... and He began the creation of man from clay. Then He made his offspring from semen of no value fluid (male and female sexual discharge). Then He fashioned him in due proportion, and breathed into him the soul, and He gave you hearing (ears), sight (eyes) and hearts... (As-Sajdah, 32: 7-9)

It is interesting to analyse the two verses above to identify the differences of the creation and the role of mankind and other creatures. Based on the information given by the Qur'ān there are three elements, namely body, life and soul. Firstly, body is a physical body, the same as other things in nature that can be corrupted and annihilated.

Secondly, life is the power of growth and development that shared by human beings and every living creature, such as animals and plants. Thirdly, the soul is related to the capacity to think and to sense and mankind alone has that. Therefore, all animals and plants also own the first two components, which are body and life, but the mankind owns and possesses all three components. Therefore, this exclusiveness is the reason why Allah gives mankind the role of *khalīfah* on the earth.

Furthermore, the capacity to think is needed to support man's duty as Allah's *khalīfah* on earth. And man realises the capacity to think through two ways. The Qur'ān states,

... Verily, it is not the eyes that grow blind, but it is the hearts which are in the breasts that grow blind. (Al-Ḥajj, 22: 46)

This verse indicates that in the men's ownelves, there are two capacities, firstly, the capacity to think that is centralised in the head and secondly, the capacity to sense which is called heart or conscience, inside the chest. Other creatures such as animals, plants, and other non-living things, have no such capacities. For instance, animals and plants have the capacity to live, but non-living things do not. In terms of reasons and capacities, man has the mind and intelligence to develop the earth. Thus, Allah created man as His *khalīfah* on earth with the responsibility to manage the earth.

The word '*khalīfah*' is followed by the words '*fi al-arḍh*', which mean 'on earth'. Therefore '*khalīfah fi al-arḍh*' refers to a person, a people or mankind, to whom Allah has entrusted part of His power on earth. In other words this phrase describes man's

sphere of authority as Allah's vicegerent. The first Adam, the progenitor of the human race, primal man and prophet – was appointed '*khalīfah*' and then every man and woman has inherited that power and responsibility vis-à-vis the planet and all its life forms.³⁹

By comparison with the status of man from the Western perspective is that human beings are anthropocentric. According to Nasr, the Islamic attitude towards man differs profoundly not so much from traditional Jewish and Christian ones, but from later religious thought in the West which gradually succumbed. Islam sees God alone as being absolute. Furthermore, the meanings of the testimony of Islam "*Lā ilāha illā Allāh*" (There is no deity but Allah) is that there is no absolute unless it is the Absolute. Therefore man is seen as a creature who, as a theomorphic being, reflects all of God's Names and Qualities in a direct and central fashion, but he is not absolute in himself, especially in his transient earthly state.⁴⁰ According to Izzi Dien, submission to God is the missing link between Western philosophy and the Islamic vision of life. It can be concluded that the idea of vicegerency is a type of spiritual contract between the ultimate power of existence and the instrumental tool that God created.⁴¹

The other task of man as *khalīfah* on earth which has been stated in the Qur'ān is the duty and the function of man to 'settle' the earth. According to the Qur'ān in the following verse,

³⁹ Al-Hamid, Abd, 'Exploring the Islamic Environmental Ethics' in *Islam and the Environment* by Agwan, A.R. (ed.). Malaysia: Synergy Book International, 1997, p. 41.

⁴⁰ Nasr, Seyyed Hossein, 'Sacred Science and The Environmental Crisis: An Islamic Perspective' in *Islam and the Environment*, by Abdel Haleem, Harfiyah (ed.), p. 126.

⁴¹ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 76.

... He brought you forth from the earth and settled you therein ... (Hūd, 11: 61)

The Arabic word is *istiʿmar* which means to settle. This verse reflects the expression of the Prophet Ṣāliḥ who called his people to worship Allah alone Who has granted men the authority to settle and to develop the earth.

4.3.2 The Responsibilities of Mankind

In Islam, the creation of human beings has an ultimate purpose, which is to serve the Creator. The Qurʾān states,

Did you think that We had created you in play (without any purpose), and that you would not be brought back to Us? (Al-Muʾminūn, 23: 115)

Truly, We did offer *Al-Amānah* (the trust or moral responsibility or honesty and all the duties which Allah has ordained) to the heavens and the earth, and the mountains, but they declined to bear it and were afraid of it (i.e. afraid of Allah's Torment). But man bore it. Verily, he was unjust (to himself) and ignorant (of its results). (Al-Aḥzāb, 33: 72)

And I (Allah) created not the jinns and men except they should worship Me (Alone). (Az-Zāriyāt, 51: 56)

And (remember) when your Lord said to the angels: "Verily, I am going to place (mankind) generations after generations (*Khalīfah*) on earth". They said: "Will You place therein those who will make mischief therein and shed blood, - while we glorify You with praises and thanks (Exalted be You above all that they

associate with You as partners) and sanctify you.” He (Allah) said: “I know that which you do not know”. (Al-Baqarah, 2: 30)

On the basis of the above verses, the researcher intends to analyse the responsibilities of mankind, namely the human beings as servant or *‘ubūdiyyah* and his role of trusteeship or *amānah*.

4.3.2.1 Trusteeship or *Amānah*

The concept of man’s responsibility as Allah’s *khalīfah* which is related to the trust that is received by man, is outlined in the following verse of the Qur’ān which states,

Truly, We did offer *Al-Amānah* (the trust or moral responsibility or honesty and all the duties which God has ordained) to the heavens and the earth, and the mountains, but they declined to bear it and were afraid of it (i.e. afraid of God’s Torment). But man bore it. Verily he was unjust (to himself) and ignorant (of its results). (Al-Aḥzāb, 33: 72)

The root word *amāna* in Arabic is *a m n*. Its meaning in English is to be faithful, reliable and trustworthy.⁴² In this verse, the trust, *amāna*, mentioned above is something which is not any other creature’s responsibility. Beside that, only man as *khalīfah*

⁴² Cowan, J Milton (ed.), *The Hans Wehr: A Dictionary of Modern Written Arabic*, third edition. New York: Spoken Language Service, Inc., 1976, p. 28.

was commanded to be faithful and obey the God and His apostles. Moreover, this verse indicates clearly that no other creation such as the heavens, the earth and the mountains were prepared to bear this trust and responsibility, but mankind agreed.

In the words of Izzi Dien, the responsibility, *amāna*, according to Quranic interpreters, means awareness of God and his ordinances, application of the duties expected by this ordinance, and bearing both the reward and the punishment. Shanqiti states that the ‘offering’ of the trust to the heavens and the earth and the ‘fear’ are true actions and not figurative speech, but human beings cannot understand these expressions, only that the events occurred.⁴³ He adds that offering the responsibility, *amāna*, to the heavens, among other potential candidates, appears to indicate that they too might have the ability to bear it. The question is how would they perform their task? Any answer to such question would be pure speculation, bearing in mind that the reference to the heavens and the earth could be interpreted as linguistic licence to indicate the awesomeness of this task. Whether human responsibility is limited to this earth or not, it is a fact that human beings and the rest of creation are equal in being created.⁴⁴

4.3.2.2 ‘*Ubūdiyyah*

The essence of *khalīfah* is to be the servant of Allah. The Qur’ān states,

⁴³ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 77.

⁴⁴ Ibid, pp. 77-78.

And I (Allah) created not the jinns and men except they should worship Me (Alone). (Adh-Dhāriyāt, 51: 56)

The original word is “*b d*” meaning to serve and worship to God⁴⁵. The man is a servant of Allah who always has the duty to obey and to be faithful to God’s Laws. In other words, the quality of this *khalīfah* is perfected with the quality of service, namely ‘*ubūdiyyah* to God. Man is the servant of Allah and hence he must to obey Him. As the servant of Allah, man has to trust in God to get blessing and grace. But, as Allah’s inheritors, man must be active in the world, to care for natural harmony and to spread the blessing showered by Allah. Therefore, man has an important role in protecting and maintaining the ecology and the environment where he resides.

In relation to the environment and how man should behave as a servant of Allah, the Qur’ān has outlined the optimum characteristics for humans as ‘*ibād ar-raḥman* :

And the slaves of the Most Beneficent (Allah) are those who walk on the earth in humility and sedateness, and when the foolish address them (with bad words) they reply back with mild words of gentleness. And those who spend the night before their Lord, prostrate and standing. And those who say: “Our Lord! Avert from us the torment of Hell. Verily! Its torment is ever an inseparable, permanent punishment. ‘Evil indeed it (Hell) is as an abode and as a place to dwell. And those, who, when they spend, are neither extravagant nor niggardly, but hold a medium (way) between those (extremes). (Al-Furqān, 25: 63-67)

⁴⁵ Cowan, J Milton (ed.), *The Hans Wehr: A Dictionary of Modern Written Arabic*. Op. cit., p. 586.

From the above verse, it is clear that the attitude of human beings must be one of humility towards the earth and this signifies that mankind is prohibited from spending extravagantly on every aspect of life. Islam suggests that the best attitude is that of taking the path of moderation in every circumstance.

The concept of humans as *khalīfah* and the servants of Allah is crucial so that they may realise their role as managers of the environment in the best possible way. Man cannot exploit nature unwisely without considering both the immediate and far-reaching consequences of that action. Nevertheless, there is a guideline for man in utilising the natural resources of the environment, that is, he must obey Allah's laws regarding natural balance. In addition, there is nothing more dangerous on earth than Allah's *khalīfah* who no longer considers himself to be the servant of Allah. He will play a destructive role in exploiting the world. This may be the angel's anxiety when Allah creates man as *khalīfah* on earth. The Qur'ān states,

... They said: "Will You place therein those who will make mischief therein and shed blood? (Al-Baqarah, 2: 30)

4.3.3 The Lawful (*Ḥalāl*) and Prohibited (*Ḥarām*)

Islam is concerned with matters that are lawful and unlawful regarding every aspect of Muslim life. The lawful is *ḥalāl* and the unlawful is *ḥarām*. According to Al-Qaradawi, the meaning of *ḥalāl* is that which is permitted, with respect to whatever has

no existing restrictions, and the doing of what the Law-Giver, Allah, has allowed.⁴⁶ The meaning of *ḥarām* is that which the Law-Giver has absolutely prohibited; anyone who engages in this is liable to incur the punishment of Allah in the Hereafter as well as a legal punishment in this world.⁴⁷ This is the decree of *al-ḥalāl wa al-ḥarām* in the words of Qaraḍāwī,⁴⁸

The *ḥalāl wa al-ḥarām* are part of the total legal system of Islam, its *sharīʿah*, a system whose primary objective is the good of mankind. The Islamic *sharīʿah* removes from human beings harmful burdensome customs and superstitions, aiming to simplify and ease the business of day-to-day living. Its principles are designed to protect man from evil and to benefit him in all aspects of his life. And they are designed to benefit everyone in the community – the rich and the poor, the rulers and the ruled, the men and the women – as well as to benefit the whole of humanity throughout the earth in various countries and climes, with its multitude of groupings, and in every period of time throughout succeeding generations.

The root of the principle of lawful and prohibited in *Sharīʿah* is in the Qurʾān and the Traditions of the Prophet Muhammad. According to the Qurʾān:

Say (O Muhammad): “(But) the things that my Lord has indeed forbidden are *al-Fawāḥish* (great evil sins, every kind of unlawful sexual intercourse etc.) whether

⁴⁶ Qaraḍāwī, Yūsuf, *The Lawful and the Prohibited in Islam*, translated by K. El-Helbawy, M.M. Siddiqui and S. Shukry. London: Shorouk International, 1985, p. 10.

⁴⁷ Ibid.

⁴⁸ Ibid, p. 6.

committed openly or secretly, sins (of all kinds), unrighteous oppression, joining partner (in worship) with Allah for which He has given no authority, and saying things about Allah of which you have no knowledge". (Al-Aʿrāf, 7: 33)

The Tradition of the Prophet Muhammad says; "That which is lawful is plain and that which is unlawful is plain and between the two of them are doubtful matters about which not many people know".⁴⁹

In this section, the researcher intends to clarify some of the misunderstandings in relation to environmental ideology such as those pertaining to vegetarianism and animal liberation.

Briefly, vegetarianism is the belief in and practice of eating exclusively vegetable foods and abstaining from any form of animal food. Food plays a major role and forms the essence in the practice of religion in India. Historically, during the ancient Aryan *Vedic* period, meat was consumed after animal sacrifice to the Gods. This slowly changed with the rise of Jainism and Buddhism, since their founders advocated the principle of *ahimsa* or "non-violence". The Brahman priests, who used to exploit the people and advocate animal sacrifices as offerings in the name of religion, also began to preach vegetarianism since it gained much popularity in India. They began to embrace vegetarianism by following a vegetarian diet themselves. However due to this constant

⁴⁹ Narrated by Abū ʿAbdullah an Nuʿmān and transmitted by al-Bukhārī and Muslim in Al-Nawawī, *Matan al-Arbaʿūn al-Nawawīyyah* (Al-Nawawī Forty *Ḥadīth*, tr. by ʿIzz al-Dīn Ibrāhīm and ʿAbdullāh Wadūd), *ḥadīth* no. 6.

exploitation of the people, these Brahmin priests soon began losing their status and respect in the society, which once placed them in the highest strata. By 1908 vegetarianism had become an organised global movement gaining popularity when the International Vegetarian Union was founded in Germany.⁵⁰ In India there are two factors involved in vegetarianism, namely religious or ethical beliefs; and income considerations or poverty.⁵¹

Vegetarians do not eat meat, fish and poultry. A person who is called vegan abstains from eating or using all animal products, including milk, cheese, other dairy items, eggs, wool, silk and leather. Among the many reasons for being a vegetarian are health, ecological and religious concerns, dislike of meat, compassion for animals, belief in non-violence and economics. The American Dietetic Association has affirmed that a vegetarian diet can meet all known nutritional needs. The key to a healthy vegetarian diet, as with any other diet, is to eat a wide variety of foods, including fruits, vegetables, plenty of leafy greens, whole grain products, nuts, seeds and legumes and limit the intake of sweets and fatty foods.⁵² Interestingly, some of the major vegetarian categories include:

- Ovo vegetarian - eats eggs; no meat
- Lacto-ovo vegetarian - eats dairy and egg products; no meat

⁵⁰ See: article on *Vegetarianism in India* in http://www.indianchild.com/vegetarianism_in_india.htm accessed on 4 September 2003.

⁵¹ Ibid.

⁵² See: article on *What is a Vegetarian?* in <http://www.vrg.org/nutshell/nutshell.htm#what> accessed on 6th September 2003.

- Lacto vegetarian - eats dairy products; no eggs or meat
- Vegan - eats only food from plant sources
- Other categories include: Pesco vegetarians - eats fish but no other meat; and Pollo vegetarians - eats poultry but no other meat.⁵³

In general, Islam has given guidelines as to which foods are considered either *ḥalāl* or *ḥarām* . At one extreme every kind of meat was permitted and at the other, all meat was prohibited. The Qur’ān addressed all human beings saying,

O mankind! Eat of that which is lawful and good on the earth, and follow not the footsteps of Satan. Verily, he is to you an open enemy. (Al-Baqarah, 2: 168).

The above verse clearly states that God has allowed human beings to eat of the good things, which He has provided for them on the earth. Except, they should not follow the ways of Satan, who has made it alluring to some people to prohibit themselves various wholesome things which God has made *ḥalāl*, thus leading them toward the pitfalls of self-destruction.⁵⁴ Then, God explains the kinds of *ḥalāl* and *ḥarām* foods, as follow,

O you who believe! Eat of the lawful things that We have provided you with, and be grateful to Allah, if it is indeed He Whom you worship. He has forbidden you only the *maytata* (dead animals), and blood, and the flesh of swine, and that which is slaughtered as sacrifice for others than Allah. But if one is forced by

⁵³ See: article on *Vegetarianism* in http://kidshealth.org/parent/nutrition_fit/nutrition/vegetarianism.html accessed on 6th September 2003.

⁵⁴ Qaraḍāwī, Yūsuf, *The Lawful and the Prohibited in Islam*, Op. cit., p. 41.

necessity without wilful disobedience nor transgressing due limits, then there is no sin on him. Truly, Allah is Oft-Forgiving, Most Merciful. (Al-Baqarah, 2: 172-173)

The above verse indicates what is *ḥalāl* and *ḥarām* for Muslims to eat. In other words, food must fulfil the criteria of guidelines that have been given in accordance with the Qur'ān and the Traditions of the Prophet Muhammad. The guidelines are further delineated as follows:

Say (O Muhammad): "I find not in that which has been inspired to me anything forbidden to be eaten by one who wishes to eat it, unless it be *maytata* (a dead animal) or blood poured forth, or the flesh of swine (pork, etc.) for that surely is impure, or impious (unlawful) meat (of an animal) which is slaughtered as a sacrifice for others than Allah. But whosoever is forced by necessity without wilful disobedience, nor transgressing due limits, (for him) certainly, your Lord is Oft-Forgiving, Most Merciful. (Al-An'ām, 6, 145)

And in further detail:

Forbidden to you (for food) are: *Al-maytata* (the dead animals), blood, the flesh of swine, and the meat of that which has been slaughtered as a sacrifice for others than Allah, or has been slaughtered for idols etc., or on which Allah's Name has not been mentioned while slaughtering, and that which has been killed by strangling, or by a violent blow, or by a headlong fall, or by the goring of horns – and that which has been (partly) eaten by a wild animal – unless you are able to slaughter it (before its death) and that which is sacrificed (slaughtered) on *an-*

nuṣub (stone-altars). (Forbidden) also is to use arrows seeking luck or decision, (all) that is *fisqun* (disobedience of Allah and sin)...

They ask you (O Muhammad) what is lawful for them (as food). Say: "Lawful unto you are *aṭ-ṭayyibāt* [all kind of *ḥalāl* (lawful-good) foods which Allah has made lawful (meat of slaughtered eatable animals, milk products, fats, vegetables and fruits, etc.)]. And those beasts and birds of prey which you have trained as hounds, training and teaching them (to catch) in the manner as directed to you by Allah; so eat of what they catch for you, but pronounce the Name of Allah over it, and fear Allah. Verily, Allah is Swift in reckoning.

Made lawful to you this day are *aṭ-ṭayyibāt* [all kinds of *ḥalāl* (lawful) foods, which Allah has made lawful (meat slaughtered eatable animals, milk products, vegetables and fruits, etc.)]. The food (slaughtered cattle, eatable animals, etc.) of the people of the Scripture (Jews and Christians) is lawful to you and yours is lawful to them.... (Al-Mā'idah, 5: 3-5)

The preceding verses clearly indicate the guidelines of lawful food and the lists of ten prohibited foods. As for the *ḥalāl* food, the basic condition is that that the food is good. The Prophet Muhammad has elaborated on the definition of good:

Allah the Almighty is good and accepts only that which is good. Allah has commanded the Faithful to do that which he commanded the Messengers, and the Almighty has said: "O ye Messengers! Eat of the goods things, and do right."⁵⁵

And Allah the Almighty has said: "O ye who believe! Eat of the good things

⁵⁵ The Qur'ān, Al-Mu'minūn, 23: 51.

wherewith We have provided you.”⁵⁶ Then he mentioned [the case of] a man who having journeyed far, is dishevelled and dusty and who spreads out his hands to the sky [saying]: O Lord! O Lord! – while his food is unlawful, his drink unlawful, his clothing unlawful, and he is nourished unlawfully, so how can he be answered!⁵⁷

In terms of unlawful (*ḥarām*) food, this may be classified as the prohibition of eating what is dead; the prohibition of flowing blood; pork; animals which are dedicated to anyone other than Allah; types of dead animals such as the strangled, the beaten, the fallen, the gored and that which has been (partly) eaten by wild animals; and finally those animals which have been sacrificed to idols.⁵⁸

In contrast with to ideology of vegetarianism and animal liberation, Islam may allow some of the ideals of vegetarianism within the guidelines of the Qur’ān and the Traditions of the Prophet. For instance, according to Al-Qaradawī, the reason of medical necessity is allowed for the Muslim who is sick and he may abstain from meat on the advice of a Muslim doctor.⁵⁹ He adds that the patient should fulfil the criteria under the following conditions,

- a. The patient’s life is endangered if he or she does not take the medicine.

⁵⁶ The Qur’ān, Al-Baqarah, 2: 172.

⁵⁷ Narrated by Abū Huraira and transmitted by Muslim in Al-Nawawī, *Matan al-Arbaʿīn al-Nawawīyyah* (Al-Nawawī Forty *Ḥadīth*, tr, by ʿIzz al-Dīn Ibrāhīm and ʿAbdullāh Wadūd). Op. cit., *ḥadīth* no. 10.

⁵⁸ Qaradāwī, Yūsuf, *The Lawful and the Prohibited in Islam*, Op. cit., pp. 42-47.

⁵⁹ Ibid, pp. 50-51.

- b. No alternative or substitute medication made from entirely *ḥalāl* sources is available.
- c. The medication is prescribed by a Muslim doctor who is knowledgeable as well as God-fearing.⁶⁰

4.4 The Islamic System in Environmental Ethics

In every aspect of Muslim life, Islam has provided a complete system devised by God, which functions as the guideline. For instance, politics, economics, social matters, family and law etc. fall under the system of Islam. It is the purpose of this research to demonstrate how environmental issues are included within this system and that the onus is upon Islamic scholars to manifest such in order to benefit Muslims. Therefore, the researcher intends to analyse environmental ethics according to the Islamic system; the focus of this is inherent in the *tawhīd*, *sharʿiyyah* and *akhlāq*. These Islamic systems are in place to relate and strengthen the value of environmental ethics in Islam accordingly.

4.4.1 The *Tawhīd* in Islamic Environmental Ethics

In Islamic ethics, the concept of *Tawhīd* is indispensable. The application of the principle of *Tawhīd* in every aspect of issues such as ecological, economic or others is important to establish a good relationship with God. According to Manzoor, *Tawhīd* is

⁶⁰ Ibid.

thus the very process of *Islamisation* by which the natural world is brought under moral control; nature and ethics are integrated and the unity of intent and action, purpose and goal, means and ends is achieved.⁶¹ Therefore the researcher will analyse the relation of *Tawhīd* to Islamic environmental ethics.

4.4.1.1 The Meaning of *Tawhīd*

Islam has outlined the concept of *Tawhīd*, which is an essential prerequisite not only for human beings to achieve success in the Hereafter, but simultaneously in this earthly life. Man is thus enabled to examine his relationship with himself and God and furthermore to establish a good relationship with fellow humans in particular and with others of God's creatures. Afzal Rahman has stressed this principle:⁶²

Thus, an invitation to *al-Tawhīd* is an invitation to an all comprehensive and all pervading revolution, which changes not only religion but the entire system of living. It provides a new philosophy of life, new values and a new ideology which lift a man far above his fellow-beings.

Tawhīd is the foremost fundamental teaching and it epitomises the bedrock of Islam in every aspect of life. The term *Tawhīd* represents belief in the existence and Oneness of God and His Supremacy of Being. Muslims, who are fully conscious, accept

⁶¹ Manzoor, S. Parvez, Environment and Values: The Islamic Perspective in *The Touch of Midas*, by Sardar, Ziauddin (ed.). Petaling Jaya; Malaysia: Pelanduk Publications, 1988, p. 156.

⁶² Raḥmān, Afzal, *Islam; Ideology and the Way of Life*. London: The Muslim Schools Trust, 1980, p. 184.

this short expression, “*Lā ilāha illā Allāh*” meaning “There is no deity but Allah”. This absolute belief will transform human beings and place them within a totally different life perspective from others who do not accept it. Accordingly, it will produce personalities with a different view regarding the objective of their lives in this world.⁶³

This concept requires that God is the only being worthy of worship and obedience. Through the understanding of His attributes in addition to worship and obedience, real impact will be made on the lives of human beings. A correct understanding will fashion life in accordance with the law and guidance of the Divine Will.⁶⁴ Muslims perceive that this will lead the believer to success in this earthly life as well as in that of the Hereafter.⁶⁵

In other words, the term *Tawhīd* is not to be understood purely from its literal meaning that “There is no deity but Allah”, because it encompasses a complexity of principles that represent all the diverse aspects of human life.⁶⁶ Hence, it is important to conceive of its correct interpretation and acknowledge the interwoven correlation between man, his environment and the universe as a whole. The term embraces everything that needs to be addressed regarding the intricacies of the behaviour etc. of the human being. The researcher will attempt to elaborate on the role of this complex concept with regard to its influence on Islamic environmental ethics.

⁶³ Maudūdī, Abū Aʿlā, *Towards Understanding Islam*. UK: The Islamic Foundation, 1980, pp. 61-72.

⁶⁴ Raḥmān, Afzal, *Islam: Ideology and the Way of Life*. Op. cit., pp. 1-10.

⁶⁵ Maudūdī, Abū Aʿlā, *Towards Understanding Islam*. Op. cit., pp. 68-72.

⁶⁶ Al-Farūqī, Ismāʿīl Rāji, *Al-Tawḥīd: Its Implications for Thought and Life*. Herndon, Virginia : The International Institute of Islamic Thought, 1992, pp. 9-16.

The belief in the oneness of the Creator leads to the unification of all human energies to act under the command of this Creator. This unification extends to include all cosmic forces, which are to be seen as one force acting in one direction, applying the Divine order. Therefore, Islam has constructed a holistic pattern for existence in its entirety; the natural environment being integral to this order. The jigsaw-like elements of the environment that God has created constitute visible features which Islam acknowledges and encourages the believer to observe. The dead and the living complement one another, the day and the night complement one another, the sun, the moon and stars over the land and water all complement one another.⁶⁷ The Qur'ān states:

Verily! It is Allah Who causes the seed-grain and the fruit-stone (like date-stone, etc.) to split and sprout. He brings forth the living from the dead, and it is He Who brings forth the dead from the living. Such is Allah, then how are you deluded away from the truth? (Al-An'ām, 6: 95)

And following the same theme:

It is He Who has set the stars for you, so that you may guide your course with their help through the darkness of the land and the sea. We have (indeed) explained in detail our *Āyāt* (proofs, evidence, verses, lessons, signs, revelations, etc.) for people who know.

It is He Who has created you from a single person (Ādam), and has given you a place of residing (on the earth or in your mother's wombs) and a place of storage

⁶⁷ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 72.

[in the earth (in your graves) or in your father's loins]. Indeed, We have explained in detail Our Revelations (this Qur'ān) for people who understand.

It is He Who sends down rain from the sky, and with it We bring forth vegetation of all kinds, and out of it We bring forth green stalks, from which We bring forth thick clustered grain. And out of the date-palm and its pollen come forth clusters of dates hanging low and near, and gardens of grapes, olives and pomegranates, each similar (in kind) yet different (in variety and taste). Look at their fruits when they begin to bear, and the ripeness thereof. Verily! In these things there are signs for people who believe. (Al-An'ām, 6: 97-99)

In Islam the Creator of the universe is God, as stated in the Qur'ān,

Pharaoh said: "And what is the Lord of the 'Alamīn (mankind, jinns and all that exists)?" Moses said: "Lord of the heavens and the earth, and all that is between them, if you seek to be convinced with certainty". (Ash-Shu'arā, 26: 23-24)

He said: "Nay, your Lord is the Lord of the heavens and the earth, Who created them and of that I am one of the witnesses". (Al-Anbiyā, 21: 56)

Verily your *Ilāh* (God) is indeed One (i.e. Allah). (As-Sāffāt, 37: 4)

4.4.1.2 The Role of *Tawhīd* in Islamic Environmental Ethics

"*Lā ilāha illā Allāh*" (There is no deity but Allah) carries the weight of God being the only One who is worthy of worship and obedience. When one utters this phrase with full understanding and consciousness, one becomes bound to follow the guidance prescribed by Islam in daily life, including that relevant to man's interaction with the

environment. Islam is the foremost yardstick with which to judge the permissibility of human actions and for the latter to be considered as acts of worship *‘ibādah*, they must be carried out in parallel with the *sharī‘ah*. Consequently, such obedience will promise the final goal for which every Muslim strives, success in physical life and in the Hereafter.

The phrase also contains the vital concept of the Oneness of God, which implies that there is no other Creator, Provider and Sustainer of the universe except Him. This notion designates that everything created and provided by God is to be utilised by man as an instrument through which to serve and praise Him. Hence, in order to acquire all the bounties that God has created in this world, human beings must attain and spend them in ways that do not contradict the Divine will. The role of man is that of *khalīfah*, carrying the *amānah* and being the earthly holder of God’s trust.

Everything that has been created by God bears the same status and only the virtues of *taqwā* (righteousness) can generate any differentiation between His creatures. In order to attain this high and special status, man must perform everything in life in accordance with *akhlāq*, good moral conduct, as prescribed in the teaching of Islam. With reference to environmental ethics, human beings have to consolidate their activities with the environment in ways that are *ḥalāl* (lawful) and beneficial to others. This universe and its environs have been set out by God for human beings to use, not to abuse, and being indiscriminate over consumption or waste of resources contravenes the Islamic notion of respect for all living creatures and their habitats. By sensitive use of the earth’s

resources, man can display his consciousness and acceptance of the phrase of *Tawhīd*, whilst simultaneously showing gratitude to the only Sustainer. Such a perspective will generate a positive attitude towards the environment and its value. Indiscriminate exploitation of the earth indicates man's failure to fulfil his obligations as trustee *amānah* and caretaker, as demanded by the *Tawhīd*.

To conclude, the importance of the *Tawhīd* lies in its potential to affect an individual's role in this life, so that man is encouraged to exist in balance and harmony with other creatures. This principle can inject norms and values that will entirely change human attitudes and relationships towards the many creations of God. Al-Farūqī maintains:

Tawhīd commits man to an ethic of action; that is to an ethic where worthiness and unworthiness are measured by the degree of success the moral subject achieves in disturbing the flow of space-time, inside his own body as well as around himself.⁶⁸

⁶⁸ Al-Farūqī, Ismā'īl Rāji, *Al-Tawhīd: Its Implications for Thought and Life*, Op. cit., p. 193.

4.4.2 The Islamic Law (*Shari'ah*) on Environmental Ethics

The law of Islam is termed *Shari'ah*⁶⁹, literally meaning 'the path to water'⁷⁰ or 'the way to a watering water'⁷¹. It is based on the Qur'ān which states,

Then We have put you on a plain way of commandment (law). So follow you that, and follow not the desires of those who know not. (Al-Jāthiya, 45: 18)

The importance and value of all life forms are manifest in this symbolic connotation. The fact that Islamic law derives its name from the source of life gives a clear environmental flavour to the Islamic legal system. It is a law that aims to harmonise the diverse aspects of creation in a holistic relationship within the notion of submission to God.⁷²

4.4.2.1 The Objectives of *Shari'ah* in Environmental Ethics

According to Ibn Qayyim al-Jawzīyah, the *Shari'ah* is established and based upon wisdom and the welfare of God's servants in this world of the living and the world of the return. It is entire justice, entire mercy, entire benefit, and entire wisdom; hence any case, which diverges from justice to oppression, from mercy to the violation of it, from benefit

⁶⁹ According to The Encyclopedia of Islam, *Shari'ah*, a which the plural is *sharā'i* designates a rule of law, or system of laws, or the totality of the message of a particular prophet. In so far as it designates a system of laws it is synonymous with the word *Sharī'ah*, which is probably the more common word in juristic literature for divine law. The verb *Sharā'i* may appear with God as subject (following the Qur'ānic usage). In addition, the process of demonstrating the law is a prophetic activity, and the word *Shari'* (Law-Giver) refers characteristically to Muhammad in his function as model and exemplar of the law. Furthermore, the word *Shari'* is transferred to the jurists, thereby highlighting the creative aspect of their interpretative activity. See: *The Encyclopedia of Islam*, (art. *Shari'a*), vol. IX: SAN-SZE, p. 322.

⁷⁰ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., p. 2.

⁷¹ I. Doi, Abdur Rahman, *Shari'ah : The Islamic Law*. Op. cit., p. 2.

⁷² Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. cit., p. 101.

to harm, and from wisdom to futility, is not part of the *Sharī'ah*, though it be introduced therein by way of interpretation. For the *Sharī'ah* is God's justice among His servants, His mercy among His creatures and His shadow on His earth.⁷³

In addition, Ibrāhīm ibn Mūsā al-Shātibī discusses the Qur'ānic basis for the principle of *maṣlaḥah*, and the inductive reasoning by which it is discovered and clarified :

The rulings of the *Sharī'ah* have been instituted only for the welfare of God's servants, both immediate and ultimate.... and the basis of this assertion is that by inductive analysis of the *maṣlaḥah* we have determined that it has been instituted for the welfare of God's servants For God, be He exalted, has revealed in the Qur'ān concerning His sending forth of messengers to mankind; and this constitutes the fundamental purpose, "And We have sent you, not but as a mercy for the 'Alamīn (mankind, jinns and all that exists)." (Al-Anbiyā, 21: 107). And He has revealed concerning the fundamental purpose of the creation, "And He it is Who has created heavens and the earth" (Hūd, 11: 7); "And I (Allah) created not the jinns and men except they should worship Me (Alone)" (Az-Zāriyāt, 51: 56); "Who has created death and life, that He may test you which of you is best in deed." (Al-Mulk, 67: 2). And as far as the Qur'ān and the *Sunna* are

⁷³ Shams al-Dīn Abī 'Abdullah Muhammad ibn Abī Bakr, known as Ibn Qayyīm al-Jawzīyah, *ʾIlām al-Muwaqq'īn 'an Rabb al-'Ālamīn*, ed. by Muhammad Muḥīy al-Dīn 'Abd al-Ḥamīd, vol. 3. Beirut: Dār al-Fikr, 1955, pp. 14-15.

concerned, they are more than can be enumerated The moral obligations of the *Sharīʿah* pertain to its ultimate purposes for the creation.⁷⁴

The preceding statements clearly indicate that Islamic ethics draw no limit either to the number or kinds of creatures that Muslims are required to benefit by their good works, or to the extent of the good that they are required to do to them. Of course, the ultimate objective of the *Sharīʿah* is thus the universal common good, the welfare of the entire creation.

4.4.2.2 The Role of Islamic Law (*Sharīʿah*) in Environmental Ethics

The sources of Islamic law may be categorised into two components: firstly, the primary sources, which are the Qurʾān and the *Sunna* of the Prophet Muhammad; secondly, the secondary sources such as analogy or *qiyās*; closing the gate to evil or *sadd al-dharaiʿ*; customary practice or *ʿurf*; and the Islamic legal maxims.⁷⁵ In other words, according to I. Doi, the secondary sources are *al-Ijmāʿ*,⁷⁶ *al-Qiyās* and *al-Ijtihād*.⁷⁷ In this part, the researcher intends to analyse some of the sources of the Islamic law with regard to environmental ethics.

⁷⁴ Ibrāhīm ibn Mūsā al-Shāṭibī, *Al-Muwāfaqāt fī Uṣūl al-Sharīʿah*, ed. by: ʿAbdullāh Drāz. Cairo: Maktabah al-Tijārīyah al-Kubrā, n.d., vol. 2, pp. 6-8.

⁷⁵ Ibid, pp. 101-116

⁷⁶ Briefly, *al-Ijmāʿ* is the consensus of opinions of the companions of the Prophet and the agreement reached on the decisions taken by the Jurists on various Islamic matters. (see: I. Doi, Abdur Rahman. *Sharīʿah : The Islamic Law*. Op. cit., p. 64)

⁷⁷ Ibid.

The Qur'ān, which is the first primary source, contains the various general principles for human beings apropos the environment. These include: God's exclusive ownership of all things in the universe; His ordaining sustenance in the earth for all humankind and other creatures; the serviceability of all things for beneficial human use; the permissibility of farming, raising livestock and of hunting for legitimate reasons; the injunction to enjoy all good and beautiful things provided for sustenance; and prohibition of excessive or wasteful consumption; the destruction of crops and livestock and the corruption in the earth. The taking of life without right is prohibited and the laws of slaughter and sacrifice are established. The Qur'ān also emphasises the need for justice as the foundation for arbitration between people:

Verily! Allah commands that you should render back the trusts to those, to whom they are due; and that when you judge between men, you judge with justice. (An-Nisā', 4: 58)

The second primary source is the *Sunna*, an Arabic word that is translated roughly as 'tradition'. In Islamic terminology *Sunna* refers to the actions, words and tacit approvals of the Prophet Muhammad. According to Izzi Dien, there are five guidelines of *Sunna* legislation on environmental protection.⁷⁸ The *Sunna* encourages conservation as a pure good deed that should be performed even if the end of the world is about to take place. As the Prophet said, "A person who is carrying a palm cutting in his hand when

⁷⁸ Ibid, pp. 104-108.

the Day of Judgement takes place should plant it'.⁷⁹ This Tradition leads to the notion that planting is not for the anticipated material benefit but rather for the element of goodness in the principle of preservation, and for the hope of God's reward, even if the end of the world is imminent. The second guideline illustrates the importance of care for all forms of creation. The *Sunna* instructs believers that all forms of creation are to be nurtured and protected. The Prophet said about the mountain of *Uhud* that, "It is a mountain that loves us and we love it".⁸⁰ This would represent an important feature of the human-eco relationship, which is built on a foundation of love rather than on conflict and materialism. The third directive deals with raising awareness of the universe and all aspects of the natural world. The Prophet Muhammad often described the universe as being comprised of heavens, with dwellers within them. Bukharī transmitted a *ḥadith* that included a prayer offered by the Prophet, which reflects the universe as not only being occupied by humans, but also by many others who are sustained by God;

Praise you, O Lord of heavens and earth! Praise you, O the Sustainer of heavens and earth, and all who are in it. You are the light of heavens and earth.⁸¹

A further Prophetic *ḥadith* maintains that, 'God and His angels and the occupants, *ahl*, of heavens and earth, even [the minute] ants in their nests and [the large] fish acknowledge the teacher of goodness to people'.⁸²

⁷⁹ Aḥmad Ibn Ḥanbal, *Al-Musnad*. Cairo, 1895, p. 3.

⁸⁰ Transmitted by Bukhari, Aḥmad, Tirmidhi. I Ajluni, *Kashf al-Khafa' wu muzil al-ilbas*. Damascus: 1983, 1, p. 357.

⁸¹ M.I. Bukhari, *Sahīh al-Bukhari*. Istanbul: 1315 AH, 8, p. 167.

⁸² Tirmidhi, *Jama' Sahīh al-Tirmidhi*. Beirut: 1987, 5, p. 48.

The fourth guideline outlines the environmental awareness of the Prophet Muhammad himself. Islamic law does not refer solely to the Prophet's words as sources of legislation, but also to his actions, silent approvals and his character. Hence, some of his actions elaborate on the role of *akhlāq* in Islamic environmental ethics, a topic that will be clarified in the subsequent section. It is narrated that the Prophet Muhammad said that anyone who grows a plant or tree to be eaten by a bird, human being or animal would have a good deed recorded for him.⁸³ The following is one of the most comprehensive *ahādith* reflecting a substantial environmental awareness; 'O people, give mercy for those who are on earth, for He who is in heaven will have mercy on you'.⁸⁴ The fifth and final directive details care for the environment as a personal responsibility for every Muslim. It can be concluded from the variety of reported traditions that the Prophet Muhammad considered the welfare of all creatures to be an integral part of his and others' personal responsibility. Animals were created to fulfil certain functions in life, for example to act as part of food chains for one another or for human beings. No one has an absolute right to use them, and most importantly the owners of animals are expected not to abuse, exploit or neglect them.⁸⁵ According to Ibn 'Abbas, the Prophet Muhammad prohibited man from using animals to fight one another in the name of sport.⁸⁶

⁸³ Bukhari, *Sahīh al-Bukhari*, 3, p. 66.

⁸⁴ Transmitted by Abū Dāwud and Tirmidhi, Ajluni, *Kashf*, 1, p. 119.

⁸⁵ Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. Cit., p. 107.

⁸⁶ Transmitted by Abū Dāwud and Tirmidhi, Shawkari, *Nayl al-Awthar*, 8, p. 249.

It is clear that the primary sources have provided important sources for the Muslim Jurists regarding the general principles of Islamic law. However, under the circumstances that Islam is universal and suitable for every time and day, in order that the objective of *Sharī'ah* may be realised and preserved, the role of secondary sources are important to undertake this function.

Among the secondary sources, first is analogy, *qiyās*. It is one of a number of mechanisms that the Islamic law utilises to extract legal injunctions. It is a logical process, which is employed as a tool for legislation.⁸⁷ According to I. Doi, *qiyās* could be defined as analogy or analogical deduction⁸⁸. It is the legal principle introduced in order to arrive at a logical conclusion of a certain law on a certain issue that has to do with the welfare of Muslims. In exercising this, however, it must be based on the Qur'ān and *Sunna* and *Ijmā*.⁸⁹ For example, the usage of *qiyās* in accordance with the environmental problems, as practised by the Prophet Muhammad, was in order to prevent public salt from becoming privately owned. Abyad b. Hammal al-Ma'rabī narrated that he asked the Prophet Muhammad to grant him the sole use of the mineral salt in Ma'rab, Yemen. The Prophet granted his wishes. Then someone commented to the Prophet that this was like a permanent water, which is unceasing. The Prophet then said, "No permission is therefore granted". Ibn Qudama, who recorded the *ḥadīth*, commented that this decision was made because of the importance of this mineral to the public. Their need for it was so great that

⁸⁷ Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. cit., pp. 111-112.

⁸⁸ I. Doi, Abdur Rahman, *Sharī'ah : The Islamic Law*. Op. cit., p. 70.

⁸⁹ Ibid.

no individual should claim it, *ihya'*, and no government should give it, *iqta'*, because it is similar to the public's access to water and thoroughfares. Ibn Qudama then confirmed that mineral salt is a basic element owned by God and one which cannot be possessed by any individual.⁹⁰ In addition, the benefits of *qiyās* in term of its usage may be an important tool for the Muslim environmentalist such as a lawyer and others. It can be applied in a wide range of cases to solve outstanding questions in the Muslim community.⁹¹ Therefore, the researcher intends to analyse one of the case studies in the following chapter.

Another source of Islamic law is known as 'closing the gate to evil'⁹² or 'blocking the ways'⁹³, *sadd al-dhara'*. It is a mechanism in which the danger (evil) is anticipated and measures taken to prevent it happening, with all types of legislation being capable of validation under this apparatus. In the context of environment, it can be useful as a tool to prevent all causes of environmental degradation, abuse and exploitation, whether direct (pollution and hunting, particularly hunting endangered species) or indirect (deforestation and increasing the levels of carbon dioxide and other greenhouse gases).⁹⁴ Therefore, in the case of haze in South East Asia, particularly Malaysia, this mechanism is most useful to prevent any activities that are causes of haze such as open burning fires and so on. Another mechanism of Islamic law is represented by customary practice, *'urf*. One of the benefits of this mechanism on the environment is the acceptance of the principle of

⁹⁰ Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. cit., p. 112.

⁹¹ Ibid, p. 113.

⁹² Ibid.

⁹³ I. Doi, Abdur Rahman, *Sharī'ah : The Islamic Law*. Op. cit., p. 84.

⁹⁴ Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. cit., p. 113.

preserving biodiversity, which is also acknowledged by Islam on the basis that it ensures the preservation of God's creatures.⁹⁵

Furthermore, among the mechanisms that Muslim legal scholars have devised for formulating legislation is the legal maxim which represents general principles being phrased as concisely as possible.⁹⁶ Some of these maxims in brief are as follows:

- a. Actions are by intention
- b. No harm is to be inflicted or retaliated
- c. Necessity justifies committing that which is prohibited
- d. Harm may not be negated by inflicting further harm
- e. Whatever is old remains old
- f. Harm cannot be considered as old
- g. What has been allowed by necessity should be measured by that necessity and nothing more
- h. What is exceptionally allowed on the grounds of necessity will not be allowed if the necessity ceases to exist
- i. Nature of the harm, where public protection is given preference over private.⁹⁷
- j. And others.

⁹⁵ Ibid.

⁹⁶ Ibid, p. 114.

⁹⁷ Ibid, pp. 114-116.

The researcher does not intends to elaborate all maxims, however, he will analyse case studies in the following chapters, particularly in chapter seven. An example is a legal maxim ‘no harm is to be inflicted or retaliated’. This means that no individual is permitted to inflict harm on others, and if harm should take place it should be removed. In the context of the environment, the most important aspect of this rule is to establish the harm that is covered by legislation in order that it may be stopped. In addition, the damaging of the environment is considered to be harmful and therefore, it should be stopped by the authorities.⁹⁸

4.4.3 *Akhlāq* in Environmental Ethics

The aim of this section is to analyse some of the characteristics of the Prophet Muhammad, particularly towards the environment. It will describe his action towards such things as animals, plants and others. It is clear that the Qur’ān has given major evidence in the previous parts and chapter, so here the researcher will focus on the Prophet Muhammad’s attitude towards the environment. It can be examined through his life both in Mecca and Medina. Although, there are a lot of relationship between the Prophets and the environment, such as the Prophet Nūh with the ark, the Prophet Sulaimān with the animals and others; however, the researcher will elucidate on the Prophet Muhammad only.

⁹⁸ Ibid.

4.4.3.1 The Meaning of *Akhlāq*

The word '*akhlāq*' in Arabic means morals or ethics. The plural is '*khuluq*'. Significantly, the word comes from the word '*khalaqa*', whose root is '*kh l q*'. It means created. *Akhlāq* can thus be taken to mean the natural or innate morals or values such as truth, honesty, goodness, justice with which man has been created.

Akhlāq is a crucial factor in the teaching of Islam and it also plays a role in Islamic environmental ethics, being perceived as one of the basic principles for all the Prophetic teachings. Muhammad stated,

I have not been sent except for the perfection of moral conduct.⁹⁹

This tradition clearly indicates to Muslims that one of the imperative missions of His messenger was the perfecting of mankind's moral behaviour. In addition, the Prophet Muhammad is the role model for every Muslim.

4.4.3.2 The Role of *Akhlāq* in Environmental Ethics

There are a lot of examples on the attitude and behaviour of the Prophet Muhammad towards the environment. The researcher intends to analyse the characteristics of *akhlāq* for Islamic environmental ethics. This concept and its practice are important because the relationship between human and human; human and the

⁹⁹ Ahmad Ibn Hanbal, *Musnad Ahmad*. Egypt: Dār al-Ma'ārif, 1980, in *Kitāb baqī musnad al-mukthirīn*, *hadīth* no. 8595.

environment; human and animal; and human with the other creatures of God to establish environmental ethics is inevitable.

A further example as practised by the Prophet is contained in the subsequent story of 'The Ants'.¹⁰⁰ Abū Hurayrah reported that the Prophet Muhammad said,

Once while a Prophet amongst the Prophet was taking a rest underneath a tree, an ant bit him. He, therefore, ordered that his luggage be taken away from underneath that tree and then ordered that the dwelling place of the ants should be set on fire. Allah sent him a revelation, "Wouldn't it have been enough to burn a single ant (that bit you)?"¹⁰¹

In another version as narrated by Abū Hurayrah, the Prophet said,

An ant had bitten a Prophet among the Prophets and he ordered that the colony of ants should be burnt. And Allah revealed to him, "Because of an ant's bite, you have burnt a community from amongst the communities, which sing My glory".¹⁰²

The most important lesson from the above *hadīth* is that although an ant is a tiny species, it is not permissible to kill ants unnecessarily. Also, it is improper to burn any living creatures with fire. This is a proof that even creatures such as ants glorify and sanctify God.

¹⁰⁰ Iqbal, Maulana Muhammad Zakaria, *Stories From The Hadīth*, (tr. by Rafīque Abdur Rahman). Karachi: Darul Ishaat, 2000, p. 130.

¹⁰¹ This *Hadīth* is transmitted from *Sahīh Bukhārī*, number 3319.

¹⁰² This *Hadīth* is transmitted from *Sahīh Muslim*, number 5567.

Then, the universe and whatever is in it are subjected to the command of God. Therefore, the sun, moon, stars, planets revolve and rotate at His command. For instance, the clouds that saturate the earth and quench the thirst of the fields turning them into green, fertile gardens also obey His command. Abū Hurayrah reported that the Prophet Muhammad said,

While a person was in the wilderness he heard a voice from the cloud (commanding it), 'Irrigate the garden of so-and-so'. After that the cloud (separated from other clouds) and came to a side and poured water on a stony ground. It filled a channel amongst of the channels of that land. That person followed the water and found a man standing in the garden occupied in channeling the water with the help of a hatchet. He said to him, "Servant of God, what is your name?", and he gave him the same name that he had heard from the cloud. Then, the other asked him, "Servant of God, why do you ask me my name?" He said, "I heard a voice from the cloud, which has brought the downpour saying: Water the garden of so-and-so, taking your name. What do you do that God has shown you favour in this matter?". He said, "Now that you ask, I look what yield I get from it, and I give one-third as charity out of it; and I and my children eat one-third of it; and one-third I return to it as investment".¹⁰³

Despite human beings having responsibility towards God, the above *hadīth* demonstrates that everything in the universe and the working of the universe is dependent on the command of God. A cloud, for instance, will pour its water where it is commanded to

¹⁰³ This *Hadīth* is transmitted from *Sahīh Muslim*, number 7112.

pour it and not at any other place it chooses. Therefore, when the owner of the garden receives extra income, he should give charity as a mercy from God. This explains the interrelationship between God, humankind and the creatures.

Regarding dealing with animals such as cats or dogs, Abū Hurayrah has quoted the Prophet as saying,

While a man was walking he felt thirsty and went down a well and drank water from it. On coming out of it, he saw a dog panting and eating mud because of excessive thirst. The man said, “This dog is suffering from the same problem as I had been suffering”. So he (went down the well), filled his shoe with water, caught hold of it with his teeth and climbed up and watered the dog. God appreciated his gesture and God forgave him. The people asked, “O God’s Messenger! Is there a reward for us in serving the animals?” He replied, “Yes, there is reward for serving the animate”.¹⁰⁴

A prostitute saw a dog moving around a well on a hot day and hanging out its tongue because of thirst. She drew water for it in her shoe, and she was pardoned (for that).¹⁰⁵

The greatest lessons from the above *hadīth* are that to show mercy to the creatures of God entitles human beings to the mercy and benevolence of God, and particularly to be merciful to the mute animals. Although the persons concerned did not mind the trouble they had to face to help a dog, God forgave them for that, even though the dog is an

¹⁰⁴ This *Hadīth* is transmitted from *Sahīh Bukhārī*, number 2363.

¹⁰⁵ This *Hadīth* is transmitted from *Sahīh Muslim*, number 5578

impure. But to help the creatures of God is a worthy deed in the sight of God and they earned forgiveness for that.

Then, there is the case of the cruelty of a hard-hearted woman who tortured a cat. As narrated by ‘Abdullah Ibn ‘Umar the Prophet said,

A woman entered the Fire because of a cat, which she had tied; she neither gave it food nor set it free to eat from the vermin of the earth.¹⁰⁶

In another version of *Hadīth*, the Prophet said,

A woman was tortured and was put in Fire because of a cat she had kept locked till she died of hunger.¹⁰⁷

In contrast to the previous lessons, these *hadīth* teach human beings that to show mercy to animals is an obligatory act. But to let an animal die of hunger and thirst is the worst kind of cruelty. If animals and birds are caged, then those who keep them must be very particular about feeding and watering them and catering for their other needs. It is not proper to cause hardship to the creatures of God.

In fact, the interaction of Muslims with the environment may be considered as a kind of faith: for instance, the removal of harmful things from the road. These may be thorns, garbage, trees and so on. Abū Hurayrah narrated that the Prophet said,

¹⁰⁶ This *Hadīth* is transmitted from *Sahīh Bukhārī*, number 3318.

¹⁰⁷ This *Hadīth* is transmitted from, *Sahīh Bukhārī*, number 2365.

While a man was going on a way, he saw a thorny branch and removed it from the way and God became pleased with his action and forgave him for that.¹⁰⁸

A man while walking along the path saw the branches of a tree lying there. He thought, 'By God, I shall remove these from this road, so that they may not harm the Muslims, and he was admitted to Paradise.¹⁰⁹

Muslims must be aware of their environment. They must keep their surroundings: rooms, houses, neighbourhoods, gardens, parks, roads and so on, clean and tidy. Not only must they attend to the environment, but also the safety and interest of others.

There are also prohibitions from the Prophet relating to animals, such as using them as targets, for instance in sports, activities and so on. Ibn 'Umar reported,

That (once) he passed by some Quraysh young men who had made a (living) animal as a target and were shooting arrows at the bird which they had tied down. They had arranged with the owner of the bird that all the arrows that missed the target will become his property. Ibn 'Umar asked, "Who has done this? May God's curse be upon the person who did this". The Prophet Muhammad has cursed the man who makes a living animal a target for shooting.¹¹⁰

In another version Anas ibn Mālik reported,

The Prophet Muhammad has forbidden making an animal a target for arrow shooting.¹¹¹

¹⁰⁸ This *Hadīth* is transmitted from *Sahīh Bukhārī*, number 652.

¹⁰⁹ This *Hadīth* is transmitted from *Sahīh Muslim*, number 6340.

¹¹⁰ The *Hadīth* is transmitted from Bukhārī and Muslim in *Riyad al-Salihīn*, by An-Nawāwī, Abū Zakaria Yaḥya, tr. by Abbasi, S.M. Madni, vol II. Saudi Arabia: International Islamic Publishing. u.d., p. 779.

¹¹¹ Ibid.

Creatures also have their *hurma* and the preceding *ḥadīth* is proof of this. Any activities and sports, which make targets of animals, are also categorised as bad behaviour.

Another prohibition from the Prophet is the forbidding of urination into still water, such as reservoirs, ponds, lakes, wells and so on. His companion, Jābir reported,

The Prophet Muhammad has forbidden urination into still water.¹¹²

Man must also be aware of the fine balance of nature and take care not to degrade it. The above *ḥadīth* condemns urination into still water and this reflects the importance of maintaining a healthy and clean environment.

4.5 Conclusion

This part analysed three main subtopics; the framework, characteristics and the Islamic system for environmental ethics. Each examines the concept of environmental ethics from the Islamic perspective. Although there are accusations, for instance, that the tendency of Islamic environmental ethics leans towards the anthropocentric, the elaboration and explanation on the status of *khalīfah* signifies otherwise. Indeed, Islam stresses the good relationship between three parties, these being God, human beings and the environment (non-human beings).

¹¹² The *Ḥadīth* is transmitted from Muslim in *Riyad al-Salihīn*, Op. cit., p. 848.

CHAPTER FIVE: THE IMPLEMENTATION OF THE *SHARĪAH* IN ISLAMIC ENVIRONMENTALISM

5.1 Introduction

The aim of this chapter is to help elucidate the notion of Islamic conservation of the environment. The researcher will attempt to define and then analyse these key terms *harīm* (protected or prohibited zone), *hīma* (reserve land) and *hīsba* (the office of public inspection). Clarification of these terms is important, as that constitute the main focus and practice of Islamic conservation. The following explanations may well be rejected by Western scholars or environmentalists, as the ideology behind Islamic conservation is perhaps alien to them, both in concept and practical implementation.

Why does the protection of the environment feature so strongly in the Islamic creed? A scholar Izzi Dien proffers several explanations for this emphasis, stating that the obvious satisfying of human needs represents only part of the whole picture.¹ In summary, the environment is Allah's creation and responsibility lies with all Muslims to protect all creatures who pray to Him and praise Him. Islamic scholars agree that Allah's creatures are deserving of *ḥurmā* (prohibition) and the practice of Islam (as *ad-dīn*) as a whole; this necessitates an all-embracing way of life of which the environment forms an integral part. The inseparable nature of the Muslim from his environment is

¹ Izzi Dien, Mawil, 'Environmental Protection and Islam' in *Journal of the Faculty of Arts*, vol. 4. Jeddah: King Abdul Aziz University, 1984, pp. 35-43.

inherent within the concepts of *'adl* and *'ihsān*, which preserve the balancing features of this universe Allah having created man with the mental and physical equipment necessary to protect the environment.

According to Yassin Dutton, the natural resources of land in Islamic law can be divided into three main categories: developed (*'amira*) land, undeveloped (*mawāt*) land and the protected zone (*harīm*).² He designated *ḥimā* as undeveloped land or as a specifically protected area.³

Othman Llewellyn has further outlined several areas of Islamic law which pertain to environmental conservation:- *'iḥyā* (the acquiring of unowned land via reclamation), *'iqṭā* (land granted to farmers by the state), *'ijārāh* (land leased for cultivation), *harīm* (protected zone), *ḥimā* (reserves of land), *waqf* (land given charitably for the public good) and *ḥisbāh* (the office of public inspector, a position designated to ensure the correct use of public and private land, resources and property).⁴

Furthermore, there are five Islamic institutions for the conservation and sustainable development of natural resources.⁵ These are :- land reclamation or revival

² Dutton, Yassin, 'Natural Resources in Islam' in *Islam and Ecology*, by Khalid, Fazlun and O'Brien, Joanne (ed. al.), Op. cit., p. 51.

³ Ibid, p. 53.

⁴ Llewellyn, Othman, 'Desert Reclamation and Conservation in Islamic Law' in *Islam and Ecology*, by Khalid, Fazlun and O'Brien, Joanne (ed. al.), Op. cit., p. 92.

⁵ Bagader, Abubakr Ahmed; El-Sabbagh, Abdullatif Tawfīk El-Chirazi; Al-Glayand, Mohamad As-Sayyid; and Samarrai, Mawil Yousuf Izzi-Deen, *Environmental Protection in Islam*, IUCN Environmental Policy and Law Paper no. 20, second revised edition. Cambridge, UK, 1994, pp.24-27.

(*'Ihya' al-Mawat*); reserves (*al-ḥimā*); the two inviolable sanctuaries (*al-ḥārāmu*an); inviolable zones (*al-harīm*); and charitable endowments (*waqf*).

In order to distinguish between the institution of '*iḥya*' and the institutions of *harīm* and *ḥimā*, one must consider their main aims and functions. '*Ihya al-Mawāt*' relates to the preparation of land so that it is suitable for cultivation, but Izzi Dien has stressed that this is dependant upon the creation of human settlements by either building or cultivation. An important factor that must be addressed in the area of '*iḥya*', is the possibility of adverse environmental effects which may be sustained from the pursual of long-term projects. Cultivation of land should therefore be regulated by careful assessment of whether or not there is any chance of the occurrence of environmental damage.⁶

Apropos, all this the researcher will analyse the purpose and scope of *harīm*, *ḥimā* and *ḥisbā* in relation to Islamic conservation.

5.2 *Harīm* (An Inviolable Zone)

5.2.1 The Meaning of *Harīm* (An Inviolable Zone)

⁶ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 41.

This term is derived from the root *ḥ.r.m*, the adjective of the Arabic word meaning any action or object prohibited in Islam. Literally, this means a protected or prohibited zone. The concept of *harīm* has been widely extended to cover the resources of life, such as water and its facilities. Therefore, both wells and rivers have a *harīm*, because they constitute areas that no one should violate.⁷

Gibb has defined the term *harīm* as ‘forbidden’, particularly with reference to women’s apartments and their occupants.⁸ It also means certain pieces of ground, which are withdrawn from cultivation or building without the owner’s consent, such as the *Harīm Dār al-Khilāfa* and the *Harīm al-Tahirī* in Baghdad, which included whole stretches of the town.

5.2.2 The Practice of *Harīm* (An Inviolable Zone)

According to Ibn Majah, the Prophet Muhammad, peace be upon him, said “the territory of the well is as long as the rope inside it”.⁹ He is also reported to have cursed anyone who soils and thus violates the following three places; the high road, the shade of trees and the riverbank. He also forbade a person to relieve himself in a water source or on a path, or in a place of shade, or in the burrow of a living creature.¹⁰

⁷ Ibid, p. 184.

⁸ Gibb, H.A.R. and Kramen, J.H., ‘*Harīm*’ in *Shorter Encyclopaedia of Islam*. Leiden: E.J. Brill, 1974, p. 134.

⁹ Ibn Mājah, *Sunan Ibn Mājah*. Dār Ihyā’ al-Tutāth al-‘Arabī, *hadīth* no. 2/831.

¹⁰ Abu Daud in kitab al-Ṭahārah, *Sunan Abī Daud*. Beirut : Al-Maktabah al-‘Ariyyah.

Sa'īd ibn al-Musayyīb states: "The territory of the new well is twenty-five cubits from all sides, and for the old one, fifty cubits from all sides, and as for the well of irrigation, it is three hundred cubits¹¹ from all sides. I have heard people saying that the territory for the springs are five hundred cubits".¹²

Abū Yūsuf illustrates this further: "And I make a territory for the canal, whose water does not overflow its banks, as I do for the well. No one has a right to enter the territory of the well of one who dug it, nor his spring or canal. One is not allowed to dig a well in it. If someone does, he has no rights to it. The owner of the well and spring has a right to stop the offender and fill in what he dugthe owner is not liable for any destruction he causes, but the intruder has liability because he does not own the property".¹³

Scholars of the Ḥanafī school of thought have classified five types of *harīm*.¹⁴:-

- a. The *harīm* of spring water, which protects the area within a radius of five hundred cubits from every angle.
- b. The *harīm* of a well, which protects the area within a radius of forty cubits from every angle.
- c. The *harīm* of irrigation, the protected area being dependant on the circumstances.

¹¹ A cubit is between 18 and 22 inches

¹² Al-Sawwaf, Mujahid, *Water In Islam*. Chicago: The Muslim World League, p. 11.

¹³ Abu Yusuf, *Al-Kharaj*. p. 120.

¹⁴ Az-Zuhaily, Wahbah, *Al-Fiqh Al-Islamī Wa 'Adillatuh*, vol 5. Dimashq: Dar al-Fikr, 1989, pp. 565-567.

- d. The *harīm* of a river, its protected area also depending on its surroundings.
- e. The *harīm* of trees, which protects the area within a radius of five cubits from every angle.

The Maliki school provided principles concerning the zone *harīm*, in which the protection of a well is granted :- ‘whatever causes harm to the water is a cause for banning, and in the case of a drinking well, any action that impedes drinking from the drinking well is banned’.¹⁵

The Muslim ruler ‘Umar b. ‘Abd al-‘Aziz is reported to have ordered a well to be dug in the desert on the request of a camel driver. He subsequently declared it a public well with a *harīm* equal to the length of its bucket’s rope. The depth of the well related to its use and the relevant *harīm* for a drinking well seems to vary between 25 and 50 cubits, depending on age, depth and the demand for its use.¹⁶

5.3 *Ḥimā* (A Reserved Land)

5.3.1 The Meaning of *Ḥimā* (A Reserve Land)

¹⁵ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 36.

¹⁶ Ibid.

The literal definition of this term is protected or forbidden place.¹⁷ ‘Reserve’ refers to an expanse of ground which possesses some vegetation, access to and use of which are declared forbidden by the person or persons who have appropriated it for themselves.

Izzi Dien has defined *ḥimā* as literally meaning that which is guarded or forbidden. Originally this title was given to the land reserved by the landlord for grazing purposes.¹⁸

5.3.2 The Practice of *Ḥimā* (A Reserve Land)

Historically, the institution of *ḥimā* was inherited from the pre-Islamic era, *Jahīliyyāh*¹⁹. Islam, however, has recognised and allowed this practice and implemented it. Prior to the arrival of Islam, this practice of *ḥimā* came under the protection of the tribal deity and allowed the reservation of the grazing and watering rights in certain fertile pastures. In addition, the inviolability of the *ḥimā* of the idols *Fals* and *Jalsad* was renowned.

¹⁷ J. Chelhod, ‘*Ḥimā*’ in *The Encyclopaedia of Islam*, new edition, vol. III, by Lewis, B. (ed. al.). Leiden: E.J. Brill, 1971, p. 393.

¹⁸ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 184.

¹⁹ The terms used by Muslim scholars to denote the period of the Prophet Muhammad’s mission.

The Prophet Muhammad, peace be upon him, agreed to the continuation of the practice of *ḥimā* and cited the following:-²⁰

“That which is lawful is plain and that which is unlawful is plain and between the two of them are doubtful matters which not many people know. Thus he who avoids doubtful matters clears himself in regards to his religion and his honour, but he who falls into doubtful matters falls into that which is unlawful, like the shepherd who pastures around a sanctuary, all but grazing therein. Truly every king has a sanctuary, and truly Allāh’s sanctuary is His prohibitions. Truly in the body there is a morsel of flesh which, if it be whole, the body is whole and which, if it be diseased, all of it is diseased. Truly it is the heart”

(Narrated by al-Bukhārī and Muslim)

In this tradition, ‘Truly every king has a sanctuary, and truly Allah’s sanctuary is His prohibitions’ refers to the practice of what is and is not lawful in Islam. However, this may be interpreted in terms of the practice of *ḥimā*, the literal translation of the word ‘sanctuary’ being *ḥimā*.

The practice of *ḥimā* as a system was restricted to Makka and Medina and the two inviolable sanctuaries were entitled al-Ḥārāmaan. It was the custom of the Prophet , peace be upon him, and the early caliphs to reserve land for the grazing of the horses

²⁰ An-Nawawī, *Forty Hadith*, translated by Ibrahim, Ezzeddin and Johnson-Davies, Denys. US: The Holy Koran Publishing House, 1976. Hadith no. 6, p. 42.

used by their armies, the camels acquired by the Treasury and the herds belonging to impoverished Muslims.²¹

Furthermore, the implementation of *ḥimā* was continued by the Prophet's successors. For instance, 'Umar, the second caliph, decided to apply the principle of *ḥimā* not on individual authority, as had happened in pre-Islamic times, but on public need, *maṣlaḥa*. Ibn Qudama informed him of the approach of an Arab who questioned the validity of 'Umar's reserving of a piece of land. The following conversation took place between the two;

'O prince of believers, we fought for our land before Islam and when Islam came we became Muslims whilst standing on it, why do you protect it?' 'Umar looked down, twisting his moustache and puffing air as was his habit when concerned with a grave matter. The man kept repeating his question when he noticed 'Umar's concern, whereupon 'Umar responded, saying 'Wealth belongs to God, the creatures belong to God, by God, had it not been for those mounts that I use for the sake of God, I would have not protected one (hand's) span of it'.²²

Ibn Qudama, quoting Malik, explained that the number of mounts that 'Umar used every year represented 40,000 cubits. This provides some idea of the scale of the *ḥimā*. Needless to say, the reserving and protection of such a large area required some policing and the system of *ḥimā* may have developed from the formation of a

²¹ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 43.

²² Ibid.

rudimentary warden system which was implemented to prevent poaching. Ibn Qudama also recorded ‘Umar’s instruction to Haniyy, the person in charge of the *Rabdha Himā*. This reflects the Islamic tendency to place the interests of the community over those of individuals and, echoing the Arab’s argument, ‘Umar instructed:

‘O Haniyy take the public under your wing, and beware of the oppressed person’s prayer. It is a prayer which God will answer. Only allow the animals of God to enter and don’t let the animals of Ibn ‘Awf and Ibn ‘Affan, for if their cattle perish, they have lots of property, but if the poor man’s cattle die he will come to me, crying, ‘O Prince of believers’. Which is more important, the vegetation or the gold that people will give me? It is their land which they fought for before Islam and when Islam came they became Muslims while they were standing on it. They think that (by protecting the land) we are being unjust, but I only protect the land because of the mounts.²³

The practice of *himā* has current application and is significant in the realms of modern conservation, contributing in a variety of forms to the positive support of the environment. Izzi Dien maintains that the institution of *himā* is responsible not only for the creation of sanctuaries for domestic animals, but also for the conserving of areas which protect many forms of wildlife and promote the continuance of endangered species.²⁴ Support from the governing authorities is vital, because these bodies have the right and obligation to establish and implement *himā* for purposes pertaining to the

²³ Ibid, p. 44.

²⁴ Ibid, p. 42.

public good, such as the conservation and management of rangelands, forests and woodlands, watersheds and wildlife.²⁵

5.4 The Roles of *Harīm* and *Himā*

It is evident that the definition of *harīm* as ‘prohibited’ or ‘forbidden’ areas evolved for the protection of natural resources. Therefore, any impingement in the name of ‘development’ is totally prohibited and unlawful.

i. *Himā*

- a. As a reserve
- b. Solely for the conservation of wildlife and forest
- c. To preserve its special function

The conditions of *himā* are stated by Izzi Dien, as follows:-²⁶

- i. It should be created in response to definite public need
- ii. It should not cause harm
- iii. It should be in an undeveloped location i.e. a place without buildings or cultivation
- iv. Most importantly, the purpose of *himā* is to protect public interest.

ii. *Harīm*

²⁵ Bagader, Abubakr Ahmed (et al.), *Environmental Protection in Islam*. Op. cit., p. 25.

²⁶ Ibid, p. 44.

- a. To prohibit development
- b. To protect natural resources
- c. The area must remain untouched

The primary objective of the protection is the preservation of public areas from misuse by people, pollution and congestion.²⁷

The Committee on National Parks and Protected Areas (CNPPA) of the International Union for the Conservation of Nature and Natural Resources (IUCN) is the world's leading organisation concerned with the selection, establishment and management of protected areas. The following criteria have been specified by this body:-²⁸

- i. Areas where CNPPA monitors and provides technical advice;
 - a. Scientific reserve/strict nature reserve
 - b. National Park
 - c. Natural monument/national landmark
 - d. Nature conservation reserve/managed nature reserve/wildlife sanctuary
 - e. Protected landscape or seascape
- ii. Areas of particular importance with some CNPPA involvement;
 - f. Resource reserve
 - g. Anthropological reserve/Natural Biotic Area

²⁷ Ibid, p. 36.

²⁸ Pope, Stephen; Appleton, Mike and Wheal, Elizabeth-Anne, *The Green Book*. London: Hodder and Stoughton, 1991, pp. 233-234.

- h. Multiple use management area/Managed resource area
- iii. Sites that are part of international programmes, which may have conservation importance;
 - i. Biosphere reserve
 - j. World Heritage Site.

5.5 Theological Islamic Principles of *Harīm* and *Himā*

It is important to discuss the theological Islamic principles of *harīm* and *himā*. *Tawhīd* is the basis of Islam. The statement of '*La illa ha ill Allah*' (There is no God but Allah) specifies that there is only one true God and that He alone deserves to be worshipped. This understanding of *tawhīd* reveals Allah as Creator and all except Him are His creation; acceptance of this is fundamental to Islam. Therefore, from this foundation stone of *tawhīd* emerge the concepts of *khalīfah*, *amānāh*, *ḥalāl*, *ḥarām*, *ʿadl*, *ʿitidal*, *ʿistiḥsan* and *ʿistiṣlah*.²⁹ In addition, there are also important frameworks for Islamic theology: the divine origins of all Creation; constancy (*thabat*); comprehensiveness (*shumūl*); balance (*tawāzun*); positivism (*wāqifīyya*); realistic perception; the oneness of God (*tawhīd*) and responsible trusteeship.³⁰

²⁹ These are some of the framework of environmental ethics in Islam outlined by Ziauddin Sardar in 'Towards an Islamic Theory of Environment' in *Islamic Futures The Shape of Ideas to Come*. London: Mansell Publishing Limited, 1985, pp. 225- 228.

³⁰ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. Cit., pp. 58-79.

5.5.1 Qur'ānic Sources Relating to the Environment (*Ḥarīm* and *Ḥimā*).

This section offers a collection of relevant evidence taken from the Qur'ān, the following verses being vital to the understanding and upholding of that which is *ḥarīm* or *ḥimā*. The researcher has chosen sources that illustrate the importance of environmental conservation and emphasise the responsibility of every Muslim to protect that which Allah has created. Therefore, *ḥarīm* and *ḥimā* are essential tools to achieve this end.

a. Soil:

‘And Allah sends down rain from the skies, and gives therewith life to the earth after its death: Verily in this is a sign for those who listen’ (An-Naḥl, 16: 65)

‘Seest thou not that Allah sends down rain from the sky, and forthwith the earth becomes clothed with green? For Allah is All-subtle, All-aware’ (Al-Ḥajj, 22: 63)

‘A sign for them is the earth that is dead: We do give it life, and produce grain therefrom, of which ye do eat. And We produce therein orchards with date-palms and vines, and We cause springs to gush forth therein: That they may enjoy the fruits of this (artistry): It was not their hands that made this: Will they not then give thanks?’ (Yāsīn, 36: 33-35)

‘... So eat and drink of the sustenance provided by Allah, and do no evil nor mischief on the (face of the) earth...’ (Al-Baqarah, 2: 60)

‘It is He who produceth gardens, with trellises and without, and dates, and tilth with produce of all kinds, and olives and pomegranates, similar (in kind) and different (in variety): eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. But waste not by excess: for Allah loveth not the wasters’ (Al-’An‘ām, 6: 141)

b. Water:

‘It is He Who sends down rain from the sky from it ye drink, and out of it (grows) the vegetation on which ye feed your cattle. With it He produces for you corn, olives, date-palms, grapes, and every kind of fruit. Verily in this is a sign for those who give thought’. (Al-Naḥl, 16: 10-11)

‘And We send down water from the sky according to (due) measure, and We cause it to soak in the soil; and We certainly are able to drain it off (with ease). With it We grow for you gardens of date-palms and vines; in them have ye abundant fruits; and of them ye eat (and have enjoyment)’. (Al-Mu’minūn, 23: 18-19)

c. Sea:

‘It is He Who has made the sea subject, that ye may eat thereof flesh that is fresh and tender, and that ye may extract therefrom ornaments to wear; and thou seest the ships therein that plough the waves, that ye may seek (thus) of the bounty of Allah and that ye may be grateful’. (Al-Naḥl, 16: 14)

‘Your Lord is He that maketh the ship go smoothly for you through the sea, in order that ye may seek of His Bounty, for He is unto you most Merciful’. (Banī ‘Isrā’īl, 17: 66)

d. Mountains:

‘And He has set up on the earth mountains, standing firm, lest it should shake you, and rivers and ways; that ye may guide yourselves’. (Al-Naḥl, 16: 15)

e. Flora:

‘And We send down from the sky rain charged with blessing, and We produce therewith gardens and grain for harvest; and tall (and stately) palm-trees, with shoots of fruit-stalks, piled one over another;-as sustenance for (Allah’s) servants;- and We give (new) life therewith to land that is dead; thus will be the Resurrection...’ (Qāf, 50: 9-11)

f. Fauna:

‘Verily, all things have We created in proportion and measure...’ (Al-Qamar, 54: 49)

‘And Allah has created every animal from water; of them there are some that creep on their bellies; some that walk on two legs; and some that walk on four. Allah creates what He wills; for verily Allah has power over all things’ (Al-Nūr, 24: 45)

‘There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you....’ (Al-ʿAnʿām, 6: 38)

‘And thy Lord thought the bee to build its cells in hills, on trees, and in (men’s) habitations’. (Al-Naḥl, 16: 68)

5.5.2 The *Sunna* Sources Pertaining to the Environment (*Ḥarām* and *Ḥimā*).

The Prophet Muhammad, peace be upon him, declared, “If any Muslim plants a tree or sows a field, and a human, bird or animal eats from it, it shall be reckoned as charity from him”. *Ḥadīth* of sound authority, related by al-Bukhārī and Muslim on the authority of Ānas.

“If anyone plants a tree, no human being nor any of God’s creatures will eat from it without its being reckoned as charity from him”. *Hadīth* related by the Imam Aḥmad in the *Musnad*, and by at-Ṭabārānī in *al-Muʿjam al-Kabir*, on the authority of Abū ad-Darda’, with a reliable chain of transmission.

“If the day of resurrection comes upon anyone of you while he has a seedling in hand, let him plant it”. *Hadīth* of sound authority, related on the authority of Ānas ibn Mālīk by the Imam Aḥmad in the *Musnad*, and by al-Bukhārī in *al-Adāb al-Mufrād*, and by Abū-Dawud in his *Musnad*.

The approach of Islam toward the use and development of the earth’s resources was put thus by ʿAlī ibn Abī-Talīb, the fourth Caliph, to a man who had developed and reclaimed abandoned land: “Partake of it gladly, so long as you are a benefactor, not a despoiler; a cultivator, not a destroyer”. *Āthār* related by Yaḥyā ibn Adam al-Qurashī in *Kitāb al-Kharāj*, on the authority of Saʿīd ad-Dabbi

The Prophet Muhammad said, “Muslims are to share in these three things: water, pasture, and fire”. *Hadīth* related by Abū Dawud, Ibn Majāh, and al-Khallāl.

It is related that the Prophet, peace be upon him, passed by his companion Saʿd, who was washing for prayer, and said, “What is this wastage, O Saʿd?” “Is there wastage even in washing for prayer?” asked Saʿd; and he said, “Yes, even if you are by

a flowing river!” *Hadīth* related by the Imam Aḥmad in the *Musnad* and by Ibn Majāh on the authority of ‘Abd-Allah Ibn ‘Amr , with a transmission of weak authority.

The Prophet Muhammad, peace be upon him, declared “The whole earth has been created as a place of worship for me, pure and clean”. *Hadīth* of sound authority, related by al-Bukhārī, Muslim, and at-Tirmidhī, on the authority of Jābir ibn ‘Abd-Allah and others.

The Prophet Muhammad, peace be upon him, was sent by God as “a mercy to all beings”. (Al-‘Anbīya’, 21: 107). He said, “The merciful are shown mercy by the All-Merciful. Show mercy to those on earth, and He Who is in heaven will show mercy unto you”. *Hadīth* related by Abū Dawud and at-Tirmidhī on the authority of ‘Abd-Allah ibn ‘Amr.

He warned that a person who causes an animal to die of starvation or thirst is punished by God in the fire of hell. *Hadīth* of sound authority, related by al-Bukhārī and Muslim on the authority of ‘Abd-Allah ibn ‘Umar and Abū-Hurayrah. Furthermore, he directed human beings to provide for needy animals in general, telling of a person whose sins God pardoned for the act of giving water to a dog in desperate thirst. Then when the people asked, “O Messenger of God, is there a reward in doing good to these animals?” He said, “There is a reward in doing good to every living thing”. *Hadīth* of sound authority, related by al-Bukhārī and Muslim on the authority of Abū Hurayrah.

The Prophet, peace be upon him, cursed anyone who uses a living creature as a target, taking a life for mere sport. *Hadīth* on sound authority, related by al-Bukhārī and Muslim on the authority of ʿAbd-Allah ibn ʿUmar.

Likewise he forbade that one prolong an animal's slaughter. *Hadīth* of sound authority, related by al-Bukhārī and Muslim on the authority of ʿAbd-Allah ibn ʿUmar; and *hadīth* related by Abū Dawud on the authority of ʿAbd-Allah ibn ʿAbbas and Abū Hurayrah.

He declared, "God has prescribed the doing of good toward every thing: so when you kill, kill with goodness, and when you slaughter, slaughter with goodness. Let each one of you sharpen his blade and let him give ease to the animal he is slaughtering". *Hadīth* of sound authority, related by Muslim and Abū Dawud on the authority of Shaddad ibn Aws.

The Prophet Muhammad, peace be upon him, forbade that a fire be lit upon an anthill, and related that an ant once stung one of the prophets, who then ordered that the whole colony of ants be burned. God revealed to him in rebuke, "Because an ant stung you, you have destroyed a whole nation that celebrates God's glory". *Hadīth* of sound authority, related by al-Bukhārī and Muslim and others on the authority of Abū Hurayrah.

He once ordered a man who had taken the nestling of a bird from their nest to return them whence he got them, to their mother who was trying to protect them.

Hadīth related by Abū Dawud on the authority of ʿAmir ar-Ram.

He forbade that one needlessly and wrongfully cut down any tree which provides valuable shelter to humans or animals in the desert. *Hadīth* related by Abū Dawud on the authority of ʿAbd-Allah ibn Hubshi.

The Prophet Muhammad forbade the killing of bees and any captured livestock, for killing them is a form of corruption included in what God has prohibited in His saying, “And when he turns away, he hastens through the land to cause corruption and to destroy the crops and cattle: And God loves not corruption”. (Al-Baqarah 2: 205)

5.6 The Purpose and Scope of *Harīm* and *Ḥimā*

This section aims to focus on and evaluate the purpose and scope of *harīm* and *ḥimā* today. Basing his considerations on Qur’ānic sources, Prophetic tradition and the fundamentals of Islamic law, the researcher will attempt to review whether or not modern concepts in the field of conservation are permissible.

The definition and the role of *harīm* and *ḥimā* are clearly specific, the former being an inviolable or protected zone and the latter being a reserved area. The aim of

both is the conservation of natural resources and the preservation of their special functions.

Is the implementation of *harīm* and *ḥimā* still relevant to modern practice? If so, do these practices meet with Islamic principles, based on the *Sharīʿah* (Islamic Law)? In an attempt to answer these questions, one may consider the current wide usage of *harīm* and *ḥimā* under the following three categories: public purpose, commercial purpose and a combination of both. The scope of *harīm* and *ḥimā* is large-scale and thus of great importance within the area of ecology and conservation, embracing land use in the fields of sport and recreation, knowledge or scientific research, ecotourism, educational visits and many others. These forms of use are supported in the Qurʾān:-

Nor did We send before you (as Messengers) any but men, whom We did inspire – (men) living in human habitations. Do they not travel through the earth, and see what was the end of those before them? But the home of the Hereafter is best, for those who do right. Will you not then understand?. (Yūsuf, 12: 109)

In this verse, the words '*Do they not travel through the earth, and see what was the end of those before them?*', reflect the importance of man's quest to explore the glories of Allah's creation while he is still on earth. The following quote further supports the permissibility of human enjoyment of and curiosity about the environment:

'Do you not see that Allah has subjected to your (use) all things in the heavens and on the earth, and has made His bounties flow to you in exceeding measure, (both) seen and unseen? Yet there are among men those who dispute Allah,

without knowledge and without guidance, and without a book, to enlighten them'. (Luqmān, 31: 20)

5.7 Modern Implementation of *Harīm* and *Hīmā*

Certain areas already come under the heading of 'protected' or 'reserved' :-

- a. Parks and gardens
 - i. local areas
 - ii. national parks
 - iii. international areas
 - iv. botanical gardens
- b. Lands
 - i. Highlands: mountains and hills
 - ii. Wetlands: swamp and mangroves
- c. Forests
- d. Waters
 - i. marine areas
 - ii. estuaries

The Islamic word '*jannah*' is translated 'garden' and it is also synonymous with '*bustān*', '*rauḍah*' and '*ḥadīqa*'. The word '*jannah*' itself has been used 147 times in

the Qur'ān.³¹ The researcher theorises that this term refers not only to the colourful beauty of the physical world, but also to the garden in the hereafter, whose glory can only be imagined.

Modern botanical gardens play a large role in the education of those who visit them. The practical preservation and nurturing of plants, shrubs and trees may be viewed as a reflection of the care necessary to nurture all living creatures who share the environment. Gardens are not merely locations of visual splendour, but offer restful sanctuary to those who appreciate the tranquillity and sensory stimulation of the glory of the natural world. In such an environment, one can learn about exotic or endangered species of plants, such information being a valuable means of bringing the need for conservation to a wider public. A further role of botanical gardens is the provision of refuge for endangered plants whose natural habitats cannot themselves be preserved. They house gene or seed banks and can nurture plants that will not survive cold storage in hothouse conditions. Moreover, botanical gardens may be viewed as a forum for the international pooling of expertise and the formulation of strategies for long-term plant regeneration. The experts here have their opportunity to change ideas and stimulate public awareness.³²

Future implementation of *harīm* and *ḥimā* is crucial in many areas e.g. space, the oceans, the atmosphere, the rainforests, Antarctica and numerous other

³¹ See: *Mu'jam al-Qur'an*, Op. cit., pp. 180-182.

³² Pope, Stephen; Appleton, Mike and Wheal, Elizabeth-Anne, *The Green Book*. Op. Cit., p. 38.

environmental systems that require urgent protection before they become endangered or destroyed.

5.8 *Ḥisbā* (The Office of Public Inspection)

The Islamic ethical attitude towards the environment may be analysed through the practice of *ḥisbā*. This section will explore this practice from historical and contemporary perspectives. According to Izzi Dien, the concepts of *ṣālih*, goodness, and *taqwā*, reverence of God, have evolved within an Islamic framework to participate in the development of an advanced administrative system which is termed *ḥisbā*.³³

5.8.1 The Meaning of *Ḥisbā*

The Arabic word *ḥisbā* is a noun. Its verb is *ḥasaba*, from the root *ḥ s b*.³⁴ According to ‘Abd Al-Ḥamīd, there are six meanings of this word *ḥisbā*, namely ‘to anticipate reward’, ‘to test’, ‘to forbid’, ‘to expect’, ‘to have confidence in’ and ‘to plan’.³⁵ And the *muḥtasib* who is at the helm of *ḥisbā* affairs is charged with enforcement responsibilities.

³³ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. Cit., p. 93.

³⁴ Ibn Manẓūr, *Lisān al-‘Arab*, vol. 1, Op. cit., p. 630.

³⁵ Al-Shāijī, ‘Abd Al-Ḥamīd, *Critical Study and Edition of Al-Ṭuruq Al-Hukmiyya Fi’l-Siyāsa al-Shar‘iyya Ḥisba chapter of Ibn Qayyim al-Jawziyya*. Unpublished PhD Dissertation. University of Wales, Lampeter, 2001, pp. 48-49.

The nature and aims of *ḥisbā* are based on the principle of enjoining the good and forbidding the evil. In Arabic this is called *al-amr bi'l ma'rūf wa'l-nahī 'an al-munkar*. Good is called in Arabic *al-Ma'rūf*, which means the good prevalent practice, be it at an individual level or in society. It is a word which is found in the Qur'ān 39 times. Therefore, all Muslims are expected to practice the good, *al-Ma'rūf*, in all aspects of their life. In contrast, they also have a duty to oppose all kinds of evil, which is called *al-Munkar*.³⁶

The foundation of enjoining the good and the evil is in the Qur'ān and *Hadīth*. The Qur'ān says,

The believers, men and women, are '*Auliya*' (helpers, supporters, friends, protectors) of one another, they enjoin (on the people) *al-Ma'rūf* and *al-Munkar*. (At-Tauba, 9: 71)

Let there arise out of you a group of people inviting to all that is good, enjoining *al-Ma'rūf* and forbidding *al-Munkar*. (Āl-ʿImrān, 3: 104)

A *hadīth* emphasises this,

Whosoever of you sees an evil action, let him change it with his hand; and if he is not able to do so, then with his tongue; and if he is not able to do so, then with his heart – and that is the weakest of faith.³⁷

³⁶ Izzī Dien, Mawil, 'Islamic Ethics and The Environment' in *Islam and Ecology*, by Khalid, Fazlun and O'Brien, Joanne (ed.), Op. cit., pp. 31-32.

³⁷ Al-Nawawī, *Matan al-Arbāʿīn al-Nawawīyyah (Al-Nawawī Forty Ḥadīth)*, tr. by ʿIzz al-Dīn Ibrāhīm and ʿAbdullāh Wadūd), Op. cit., *hadīth* no. 34.

The above quotes indicate that *ḥisbā* should be exercised with the full intention that it is only for the sake of God, and accordingly such actions will be added to the good deeds of the person who executes them. In fact, the notion of public responsibility started in the form of individual concerns about the righteousness of the community. Thus if a man encounters a wrong deed he should try to correct it as best he can,³⁸ as practised by the Prophet Muhammad, who was walking in the market of Medina, when he saw a man selling dates. The Prophet placed his hand in the pile of dates, discovering that it was wet and going bad underneath. “What is this?” the Prophet enquired. The man replied “It has been affected by the rain”. The Prophet said, “You should expose it for everyone to see. He who cheats is not from among us”.³⁹

Therefore, according to Izzi Dien, the definition of *ḥisbā* is an Islamic administrative system based on the prevalent ethics of Islam, supported by prolific and detailed writings on the subject. It intends to supervise and control human behaviour both at an individual and at a group level. Ordering good and prohibiting evil, for the sake of God, can be practised at both a voluntary and an official degree.⁴⁰ He added that the action of *ḥisbā* by the volunteer is called *muḥtasib muṭāṭwi*. Today they exist in Saudi Arabia but they are restricted to supervising and enforcing rituals, especially prayer.⁴¹

³⁸ Izzi Dien, Mawil, ‘Islamic Ethics and The Environment’ in *Islam and Ecology*, by Khalid, Fazlun and O’Brien, Joanne (ed.), Op. cit., p. 32.

³⁹ Muslim, *Ṣaḥiḥ Muslim*.

⁴⁰ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. Cit., p. 93.

⁴¹ Izzi Dien, Mawil, ‘Islamic Ethics and The Environment’ in *Islam and Ecology*, by Khalid, Fazlun and O’Brien, Joanne (ed.), Op. cit., p. 32.

Another definition of *ḥisbā* is the term given to the administrative institution that monitors achievement of the objectives of the law: to enjoin what is good and forbid what is bad according to the *Sharīʿah*. Like many concepts that are rooted in Islam, *ḥisbā* covers in its widest application many areas beside the environment.⁴²

5.8.2 The Role of *Ḥisbā* on Environment

In the context of environment, the role of *ḥisbā* can be examined within three categories: the role of individual and social conscience; the role of the governing authorities; and thirdly the office of *muḥtāsib*.⁴³ The mandates for the individual; the principles governing public policy and legislation; and the mandate of the governing authorities are similar.⁴⁴ Currently, the role of environmental non-government organisations also involves *ḥisba*. In this section, the researcher intends to analyse three aspects; namely individual and collective actions, the role of governing authorities, and the role of environmental non-governmental organisations.

⁴² Ahmad, Ali, *Cosmopolitan Orientation of the Process of International Environmental Lawmaking: An Islamic Law Genre*. Maryland; USA: University Press of America, 2001, p. 121.

⁴³ Llewellyn, Othman Abd Ar-Rahman, 'The Basis for a Discipline of Islamic Environmental Law' in *Islam and Ecology* by Foltz, Richard C. (ed. al.). Massachusetts; USA: The President and Fellows of Harvard College, 2003, pp. 220-221

⁴⁴ Ba Kader, A.B., Sabbagh, A.L., Glenid, M.S. and Izzi Dien, M.Y., *Islamic Principles for the Conservation of the Environment*, IUCN Environmental Policy and Law Paper no. 20. First published 1983, republished 1989. Second edition 1994 by O. Llewellyn and M.Izzi Dien (Gland, Switzerland), pp. 17-24.

5.8.2.1 The Role of the Individual

The first category is the obligation by both individuals and collective groups. On the individual level, each man and woman is responsible for his or her own behaviour and obliged to influence family, neighbours, and society at large in accordance with an enlightened conscience. On the collective level also, social conscience can be immensely powerful, and when functioning effectively, obviates much of the need for coercion by the governing authorities.⁴⁵

Therefore, the conservation of the natural resources is a moral and ethical imperative. Environmental problems cannot be solved through knowledge and technology alone. While incentives such as equitable allocation of rights to benefit from natural resources in return for their conservation are essential to motivate people to use them wisely, enlightened self-interest does not motivate people to do more than is convenient and profitable for themselves. Only moral conviction and ethical consciousness – on both individual and social levels – can motivate people to forgo some of the short-range profits of this life, and to make personal sacrifices for the common good.⁴⁶

⁴⁵ Llewellyn, Othman Abd Ar-Rahman, 'The Basis for a Discipline of Islamic Environmental Law' in *Islam and Ecology*. Op. Cit., p. 220

⁴⁶ *ibid.*

Furthermore, the people should be made to realise that the conservation of the environment is a religious duty demanded by God. These duties have been described in the Qur'ān, as follows,

And do good as Allah has been good to you, and seek not mischief in the land.

Verily, Allah likes not the *mufsidūn* (those who commit great crimes and sins, oppressors, tyrants, mischief-makers, corrupts and etc.). (Al-Qaṣaṣ, 28: 77)

And eat and drink but waste not by extravagance, certainly He (Allah) likes not the extravagants. (Al-Aʿrāf, 7: 31)

And follow not the command of *al-musrifūn*. Who make mischief in the land, and reform not. (Ash-Shuʿarā, 26: 151-152)

And do not do mischief on the earth, after it has been set in order. (Al-Aʿrāf, 7: 56)

In other words the *ḥisbā* of the individual is important to determine any deliberate damage to the natural resources and environment. It is a kind of corruption which is forbidden in Islam. In fact, it is a kind of despicable foolishness, which every Muslim should shun and avoid.

In addition, religious awareness and Islamic guidance should employ all possible means at all levels to call individuals to commit themselves to Islamic ethics, morals, and manners in dealing with nature, the environment and natural resources for their sustainable use and development for present and future generations. Some of the obligations are,

- a. No wastage or over-consumption of natural resources

- b. No unlawful obstruction or destruction of any component of the natural resources
- c. No damage, abuse, befoulment or distortion of the natural environment in any way
- d. Sustainable development of the earth, its resources, elements and phenomena through the enhancement of natural resources, the protection and conservation of them and all existing forms of life, bringing new life to the land through its reclamation, and the rehabilitation and purification of the soil, air and water.⁴⁷

The role of *muhtasib* in the community was caring for the environment. For instance, water should not be wasted even when a Muslim takes an ablution, *wuḍu*. An ablution is the ultimate symbolic action the Muslim performs every time he prepares for prayer. Water therefore is one of the main sources of purity and life. It should not be wasted even when it is used to prepare for prayer, according to the tradition of the Prophet Muhammad.⁴⁸

⁴⁷ Ba Kader, A.B., Sabbagh, A.L., Glenid, M.S. and Izzi Dien, M.Y., *Islamic Principles for the Conservation of the Environment*, Op. cit., p. 18.

⁴⁸ Izzi Dien, Mawil, 'Islamic Ethics and The Environment' in *Islam and Ecology*, by Khalid, Fazlun and O'Brien, Joanne(ed.), Op. cit., p. 33.

5.8.2.2 The Role of the Governing Authorities

The second is the role of the governing authorities, such as administrative, municipal, or judicial authorities. Their aims are to secure the common welfare and to avert and eliminate injuries to society as a whole. This includes protection and conservation of the environment and natural resources.⁴⁹

From the history of Islam, many of the responsibilities of environmental protection and conservation have come under the jurisdiction of the office of the *ḥisbā*, a governmental agency charged specifically with the establishment of good and eradication of evils. The *muḥtasib*, who headed this office, was required to be a jurist thoroughly familiar with the rulings of Islamic law, which pertained to his position. He was responsible for the inspection of markets, roads, buildings, watercourses, reserves (*ḥimā*) and so on. Among his duties were supervision and enforcement of regulations and standards pertaining to safety, hygiene, and cleanliness; the removal and disposal of wastes and pollutants; the prevention and elimination of hazards and nuisances; the protection of reserves (*ḥimā*) from violation and trespass; and the prevention of abuse and ill treatment of animals. He was responsible for assessing damages and imposing fines and other penalties. In addition, he had wide discretionary authority to take necessary measures to ensure the public welfare.⁵⁰

⁴⁹ Ba Kader, A.B., Sabbagh, A.L., Glenid, M.S. and Izzi Dien, M.Y., *Islamic Principles for the Conservation of the Environment*, Op. cit., p. 21.

⁵⁰ Ibid.

In fact, the protection and conservation of the environment and natural resources involves two major aspects; first is the remedy of damage, and secondly is prevention of damage.⁵¹ Therefore, the governing authorities have the obligation to take all necessary measures and actions associated with the elimination of existing damage, repair of its effects, and provision of indemnity for it in application of the relevant Islamic law.⁵² At the same time, they also have the obligation to take all necessary measures and actions to avoid, prevent or minimise damage before it occurs.⁵³

In contemporary society, the institution of *hisba* has been transform into the modern context, whether local, national and international. It can be seen also through a variety of laws, acts, rules, agreements, conventions, aspects and so on. It also covers various elements of the environment, such as roads, seas, rivers, lakes, airs, animals, plants, transport and so on. In terms of official implementation, it also involves departments, bodies, commissions, enforcement, municipalities, environmental protection agencies, wildlife conservation agencies and so on. Therefore, the important point Muslim jurists should consider is the need to be more efficient and effective towards implementation of the institution of *hisbā* in accordance with Islamic law.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Ibid.

5.8.2.3 The Role of Environmental Non-Government Organisations (NGOs)

In contemporary times, a further important factor requiring the implementation the *ḥisbā* is the role of non-government organisations. This refers to any group or agency operating independently of governments. The term is used with particular reference to those, often international, organisations that are accorded official status by the United Nations, enabling them to send delegates and observers to important meetings and to communicate views or data through an international forum.⁵⁴

NGOs are voluntary bodies, often able to make up in dedication, charitable contributions or moral authority what they lack in official backing. They cover a multitude of fields, including professional associations concerned with codes of practices and religious bodies, but the best known and most effective NGOs have been those campaigning on specific issues.⁵⁵

Since the mid-1950s, there has been a world wide explosion of NGO activity on local, national and international levels. Therefore, environmental protection and conservation has become a major, perhaps the major, field of NGO operations. For instance, Friends of the Earth (FoE), World Wide Fund for Nature (WWF) and

⁵⁴ Pope, Stephen; Appleton, Mike and Wheal, Elizabeth-Anne, *The Green Book*, Op. cit., p. 190.

⁵⁵ Ibid.

Greenpeace have stressed the ecological priorities of their work. They are powerful and well organised. They have fought effectively campaigns aimed at saving the planet earth. Their influence has been considerable and their work instrumental in putting the global environment on the political agenda. They have also fought important campaigns on single issues, such as whaling, waste, dumping, nuclear and so on, and have thereby tapped a very fertile source of public sympathy.⁵⁶

To focus the role of an Islamic NGO on *hisbā*, the researcher will explore the Islamic Foundation for Ecology and Environmental Sciences (IFEES)⁵⁷. Currently, Mr. Fazlun Khalid is a founder for the IFEES. The foundation is a very special venture and the first comprehensive socio-ecological project to be set up anywhere in the world. According to Mr. Fazlun, the IFEES is helping to establish an Islamic ecological institution in Indonesia.⁵⁸ Among its distinctive features are:

- a. An emphasis on resolving current concerns through the application of the Qur'ān and the *Sunna*
- b. The multi-functional skills and experience of the core team which is already working on this project
- c. Involvement in the International Alliance for Religion and Conservation (ARC)
- d. Acting as a consultancy to various organisations such as the WWF and the International Consultancy on Religion, Education and Culture; plus an ongoing

⁵⁶ Ibid.

⁵⁷ The official address of IFEES is 93, Court Road, Balsall Heath, Birmingham B12 9LQ UK.

⁵⁸ An interview with Mr Fazlun M. Khalid, on 15 April 2001 at Seminar Room, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia.

liaison with Muslim Aid and Islamic Relief, the two major European Muslim relief agencies.⁵⁹

Therefore, the vision of IFEES covers four main areas: research and resource, training, organic farming and intermediate technology.

Although IFEES is not as active as Western environmental NGOs, it seems a good example of the role as *ḥisbā*. The responsibilities of IFEES to give an environmental awareness among Muslims are much appreciated. This can be examined by looking at the project of IFEES in Indonesia. According to Fazlun, IFEES has working together in partnership, to establish one centre of ecology in accordance with the Qur'ān and *Sunna*. This centre also is a basis for understanding the social dimensions of environmental issues. The programme is designed to activate those properties inherent in Islam capable of remedying the social-ecology imbalance now. The centre also involves a dedicated core of people with a range of expertise and skills, such as administrative, research, technical, agricultural, crafts and training, who are working together as a community, with a total round-the-clock commitment, to the goals outlined and to one another as Muslims.⁶⁰

⁵⁹ *The Islamic Foundation for Ecology and Environmental Science*. Birmingham: IFEES, n.d., p. 2.

⁶⁰ The information was given by Mr Fazlun M. Khalid, on 15 April 2001 at Seminar Room, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia, on his way to Indonesia to set up the Islamic ecological centre.

5.9 Conclusion

In order to sustain and preserve the environment, it is necessary for all those in positions of power to address the causes and effects of man's actions. Whether involved directly in ecological affairs or not, it is surely the duty of those who have influence to educate the next generation, so that public awareness of the value and fragility of the environment becomes a way of life rather than a topic of study. Islam places huge importance on the care and conservation of the earth and reviles those who abuse and corrupt its delicate balance. Islam believes that everyone should participate in the preservation of the environment and contribute to the moulding of the framework of *harīm*, *himā* and *ḥisbā* in order to conserve the earth for present and future generations.

PART B

THE MANIFESTATION OF ISLAMIC ENVIRONMENTALISM AND ETHICS

CHAPTER SIX: MALAYSIA AND ISLAMIC ENVIRONMENTALISM

6.1 Introduction

The aim of this section is to elucidate the commitment of both the Government and people of Malaysia to the demonstration of environmental ethics from the Islamic perspective. The Malaysian Government has participated in the agreements in Stockholm in 1972, the 1992 World Summit in Rio and also the 2002 World Summit in Johannesburg. Furthermore, in 1989, the Government itself organised the *Langkawi Declaration*.

This section also aims to evaluate the manifestation of Islamic environmental ethics regarding the environmental problems that surround the issue of development. It covers the impact of environmental problems within various sectors, such as agriculture, forestry, industry and energy. In addition, this chapter will analyse the effectiveness of the manifestation of Islamic environmental ethics in Malaysia, the focus being on three main areas, namely education, environmentalism and environmental management in Malaysia. The role of the Environmental Quality Act

1972, Malaysia, which involves the practice of environmental impact assessment, will be examined. Prior to this, the researcher will give a brief indication of both the physical geography and contemporary developments of Malaysia from the perspective of physical development. This will then relate to the above focus.

6.2 Malaysia, Islam and the Environment in Perspective

The awareness of the Malaysian people towards environmental issues has grown. From independence in 1957 until today, environmental issues have become important to everyday life. Although the awareness is not comparable to that of developed countries, such as the United Kingdom, Sweden, France and others, the Malaysian people and government are nevertheless committed to achieving a better quality of life through a better environment.

6.2.1 The Physical Environment in Malaysia

Malaya¹ achieved independence from the British Government on August 31, 1957. Then on July 9, 1963, Malaysia was formed. This included two more states Sabah and Sarawak.² Malaysia covers an area of about 336,700 sq. kilometres (130,000 sq. miles) and comprises the Malay Peninsular, Sabah and Sarawak. The Peninsular is

¹ The Malaya includes the following states in Peninsular Malaysia Perak, Selangor, Pahang, Negri Sembilan, Kedah, Perlis, Kelantan, Trengganu, Penang, Johore, Malacca and Federal Territory.

² Sarawak and Sabah are located on the Borneo Island.

situated south of Thailand, and Sabah and Sarawak in north-western Borneo. These latter are separated from the Peninsular by the South China Sea.³

The Peninsular coastline measures about 740 kilometres (700 miles) from Perlis in the north to the Straits of Johor in the south. Its coastline extends to some 1,930 kms (about 1,200 miles). It has a series of mountain ranges, the highest peak being the Mountain of Tahan (2,190 metres or 7,186 feet). The heavy rainfall gives rise to many rivers, the largest of which are the River of Kelantan and the River of Pahang.⁴

Sarawak and Sabah extend to about 1,120 kms (about 700 miles) from Tanjung Datu in Sarawak to Hon Point in Sabah. They have a coastline of about 2,253 kms (about 1,400 miles). Both are crisscrossed by low mountains. Mount Kinabalu in Sabah, rising to 4,100 metres (13,455 feet), is Malaysia's highest peak. The Crocker Range in Sabah, which culminates in Mount Kinabalu, has an average elevation of 762 to 914 metres (2,500 to 3,000 feet) with some peaks rising to over 1,219 metres (4,000 feet). It includes Mount Murud (2,438 metres or 8,000 feet) in Sarawak. The most important rivers in Sarawak are the River of Sarawak (113 kms or 70 miles long), the River of Rajang (563 kms or 350 miles) which is the largest and longest in Malaysia,

³ Cheong Mei Sui and Faridah Ibrahim (eds), *Information Malaysia*. Kuala Lumpur: Berita Publishing, 1984, p. 286.

⁴ Ibid.

and the River of Batang Lupan (228 kms or 142 miles); and in Sabah, the River of Kinabatangan (563 kms or 350 miles) and the River of Sungut are the longest.⁵

The temperature in Malaysia varies from 21 Celsius to 32 C (70 F to 90 F). Humidity is high. The average rainfall is 254 cm (100 inches) a year. Higher rainfall is recorded in Sabah and Sarawak. Constant high temperatures and the high rainfall have provided excellent conditions for the growth of swamp forests, both mangrove and fresh-water. The country is covered by tropical rain forest.⁶

In terms of population, Malaysia has a diversity of races in a population of over 20 million. In the Peninsular, the population is made up of three main races: Malay, Chinese and Indian. Sarawak's population comprises Malay, Chinese, Sea Dayak or Iban (the largest group), Land Dayak, Melanau and other minority groups. In Sabah, the people are mainly Malay, Chinese, Kadazan (the largest group), Bajau, Kedayan and other minority groups.⁷

6.2.2 The System of Malaysian Government

Malaysia has a unique system of government that reflects the country's former status as a British colony. Hence, being similar to the system in the United Kingdom,

⁵ Ibid.

⁶ Ibid, p. 287.

⁷ Ibid, p. 306.

the Malaysian government practises Parliamentary democracy, with a constitutional monarchy that has His Royal Highness as the Paramount Ruler. The Federal Constitution was set up by legislation with the setting up of conditions for this democratic system to exist, one such condition being the tripartite division of the administrative power into: Legislative, Judiciary and Administrative or Executive.⁸

Malaysia also practises a system of democracy based on a Federal system. In accordance with this the various states, Perlis, Kedah, Pulau Pinang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Pahang, Terengganu, Kelantan, Sarawak and Sabah, have agreed to this concept of organising the country as a whole. Each state involved has surrendered part of its power whether related to finance, defence, education, or foreign affairs as laid down in the Malaysian Constitution which is administered by the Central Government. There are other matters that come under the control of the states and each administers power over these matters.⁹

The institutions of Seri Paduka Baginda Yang Di-Pertuan Agong (the Paramount Ruler), the hereditary rulers of the nine states and the Council of Malay Rulers are all administered by the constitution. His Royal Highness has the power to safeguard the customs and traditions of the Malay people and the administration of the

⁸ See the official website on <http://www.parlimen.gov.my> accessed on 3rd March 2004.

⁹ Ibid

Islamic Religion in each state. Yang Di-Pertuan Agong is the head of the Islamic Religion for the states of Pulau Pinang, Sabah, Sarawak and the Federal Territories and as Paramount Ruler of the country; he is also the Commander in Chief of the Armed Forces. His Royal Highness carries out his constitutional duties on the advice of the Prime Minister and the cabinet ministers. Meanwhile, the hereditary rulers are Heads of their own states and administrate on the advice of their own Ministers or Chief Ministers (Menteri Besar).¹⁰

The Malaysian Parliament represents the fountain head of the system and is organised thus:-¹¹

1. The Council of rulers elect Yang Di-Pertuan Agong as the Paramount Ruler for a period of five years.
2. The Senate (Dewan Negara) consists of 69 members, who are appointed either by the States or the Paramount Ruler.
3. The House of Representatives (Dewan Rakyat) consists of 193 members, who are elected by the people in a general election. Each member represents one election area.

The party which wins the election forms government by appointing the cabinet. It is headed by the Prime Minister, currently the Right Honourable Abdullah Ahmad

¹⁰ Ibid.

¹¹ Ibid.

Badawi, who is assisted by the Deputy Prime Minister together with several other Ministers. The members of the cabinet are either from the Senate or the House of Representatives. The cabinet has executive power to govern the country.

At present there exists one body that is directly responsible for environmental affairs, namely the Ministry of Science, Technology and the Environment, Malaysia (MOSTE). This was established in 1973 as the Ministry of Technology, Research and Local Government and subsequently in 1976, the Ministry assumed its present name to reflect the more targeted role it began to play in promoting and developing science and technology in the country.¹² Currently, the Minister is the Right Honourable Law Hieng Ding, under whose ministry comes the Department of Environment, Malaysia (DOE), the role of which will be discussed below in further detail.

6.2.3 The Malaysian Legal System

Historically, the Malaysian legal system is based on laws that emerged from three significant periods. These date from the Malacca Sultanate, to the spread of Islam to Southeast Asia and the absorption of the indigenous culture into British colonial rule, the latter introducing a constitutional government and the common law.

¹² See the official website on <http://www.moste.gov.my> accessed on 4th March 2004.

According to Ahmad Ibrahim, Malaysian laws emanate from five sources:¹³

- a. Written Law: the Federal and State Constitutions and legislation passed by Parliament and the State Legislative Assemblies.
- b. Judicial Decisions.
- c. English Law.
- d. Islamic Law.
- e. Customary Law.

The Federal Constitution is the supreme law and specifies, among other things, the duties and powers of the Federal and State Governments and their inter-relationship. This is stated clearly in Article 4 clause (1), which sets out an emphatic fundamental constitutional proposition:¹⁴

This Constitution is the supreme law of the Federation and any law passed after Merdeka Day, which is inconsistent with this Constitution, shall, to the extent of the inconsistency, be void.¹⁵

It can be claimed that the direct absorption of English law by the Malay States was brought about by introduction of the Civil Law Enactment in 1937 and this marked

¹³ Ahmad Ibrahim and Ahilemah Joned, *The Malaysian Legal System* (second edition, revised). Kuala Lumpur: Dewan Bahasa dan Pustaka, 1995, pp. 4-5.

¹⁴ Wu Min Aun, RH Hickling, *Hickling's Malaysian Public Law*. Kuala Lumpur: Longman, 2003, pp. 56-57.

¹⁵ Article 4 (1), *The Federal Constitution of Malaysia*.

the formal reception of English Law and Rules of Equity. In 1956, the Civil Law Act was introduced to implement the application of English law in all the Malay States. Section 3 clause (1) of the Civil Law Act 1956 states:

The said common law, rules of equity and statutes of general application shall be applied so far only as the circumstances of the States of Malaysia and their respective inhabitants permit and subject to such qualifications as local circumstances render necessary.¹⁶

Thus English law became the law of the Malay States and replaced the application of Islamic and customary laws.

Islamic law is only applicable to Muslims and is enacted under the Federal Constitution. Under Schedule Nine List II (State List) of the Federal Constitution, there is reference to:

....., Islamic law and personal and family law of persons professing the religion of Islam, including the Islamic law relating to succession, testate and intestate,¹⁷

Such laws are administered by a separate Court system, the *Syarī'ah* Courts.

The structure of Malaysian Courts is also influenced by the English Court system, whereby there is a division between the Subordinate Courts and the Superior

¹⁶ Section 3 (1), *The Civil Law Act, Malaysia, 1956*.

¹⁷ Schedule Nine List II – State List clause (1), *The Federal Constitution of Malaysia*.

Courts. The Subordinate Courts consist of the *Penghulu* Courts and the Native Courts, which represent the lowest level. At the intermediate level are the Magistrate's Courts, which deal with minor criminal and civil cases. The highest of the Subordinate Courts are the Sessions Courts. Then the Superior Courts consist of the High Court, the Court of Appeal and the Federal Court the latter being the highest in the land.

In this connection environment-related legislation has long been in force in Malaysia. According to Jamaluddin Md Jahi, there are presently at least 46 examples of environment-related legislation in the country.¹⁸ An example is the Environmental Quality Act, Malaysia, 1972, a comprehensive piece of legislation to provide a stable basis for the coordination of all activities relating to control of the environment and thus it has formed the foundation for all relevant legislation in Malaysia.¹⁹ Any legislation relating to the environment is instigated under the jurisdiction of either Parliament and/or the State Legislative Assemblies. The Environmental Quality Act, Malaysia, 1972, will be discussed later in this chapter. Disputes concerned with environment-related legislation can be brought either to the Subordinate or to the Superior Courts, depending on the weight of the issue in hand. However, if a matter taken to the

¹⁸ Jamaluddin Md. Jahi, *Environmental Policies, Laws and Institutional Arrangements: A critique and Suggestions in The State of The Environment in Malaysia*. Penang: Consumers' Association of Penang, 1997, p. 458.

¹⁹ Ibid.

Subordinate Courts remains unresolved, then it will go on to be heard in the Superior Courts.

6.2.4 Islam in Malaysia

The Federal Constitution of Malaysia, article 3 (1) states that Islam is the official religion in Malaysia.²⁰ Although there is a debate whether or not Malaysia is an Islamic State, it could be claimed that the practice of Islamic law shows that Malaysia is a Muslim state.²¹

From the 1970's, the domination of secularism in Malaysia has been challenged by the Islamic resurgence movements. These movements can be regarded as an attempt made by Malay-Muslim groups to re-establish Islamic values, Islamic practices, Islamic institutions, Islamic laws and above all an attempt to restore the comprehensiveness (*al-Dīn*) of Islam in the lives of Muslim people.²² In addition in 1981, Dr. Mahathir Mohammad, the Prime Minister of Malaysia, launched an Islamisation policy, that placed the government firmly on a more Islamic path by giving greater emphasis to Islam both domestically and internationally.²³

²⁰ Article 3 (1), *The Federal Constitution of Malaysia*.

²¹ Esposito, John L, *Islam and Politics*. New York, 1991, pp.96-97.

²² Abdul Rahim, Rahimin Affandi, *Islamic Legal Reform in the Administration of Islamic Law in Malaysia: A Critical Analysis*. Unpublished PhD thesis, University of Birmingham, 1999, p. 271.

²³ Ibid, p. 272.

Following on from this, Islam and the environment has become a new area of concern in Malaysia. The Institution of Understanding of Malaysia (IKIM) organised a national seminar on the environment on 27-28 October 1998 in Kuala Lumpur, Malaysia. The theme was 'A smart environmental management: A gift from God'. The seminar had gathered policy makers, environmentalists, academicians, students and others to examine the Malaysian environment from an Islamic perspective. There was insufficient input from the Islamic perspective, however, as only two of the eleven topics were related to the Islamic environment. These were 'Islam and Environment' by Muhammad Uthman El-Muhammady and 'The Principle of Ecology in Islam' by Zaini Ujang. Therefore the need to research environmental ethics in Malaysia from the Islamic perspective remains very urgent. A rapprochement between Islam and environmental ethics would contribute to the awareness of Malaysians of their surroundings.

6.3 The Environmental Consequences of Development in Malaysia

6.3.1 Development in Malaysia

Development in Malaysia has been extremely rapid since Independence. Sham Sani divides development into two categories: Pre-Independence Development and Post-Independence Development.²⁴ While the Portugese were the first European power

²⁴ Sani, Sham, *Environment and Development in Malaysia*. Kuala Lumpur: ISIS Malaysia, 1993, pp. 9-10.

to conquer Malacca in 1511, followed by the Dutch in 1641, it was the British who made the greatest changes to the country's environmental resources, through their colonial policies. Before the arrival of the British in 1786, economic activity was basically a primitive subsistence economy such as dry paddy, with relatively little significant impact on the environment, which was cultivated on sloping terrain. Rice was the staple food, supplemented by fruits fish and other edible wild food.²⁵

During the British colonial era, large-scale economic development was introduced. Tin and rubber became the key economic activities. The Malay Peninsular became well known for the production of these as it produced more than half the total world production. Tin was recovered by a variety of techniques, such as ground sluicing and open pit mining. These contributed to environmental degradation in the form of disturbed and scarred landscapes, tailing dumps and a deterioration in the quality of the rivers draining the mining areas. As for rubber, the area of land devoted to this grew enormously. In 1905, there were an estimated 38,000 acres of rubber estates; within a year the figure rose to 100,000 acres and by 1910 there were 500,430 acres of rubber in the Peninsular Malay. By 1920, there were 2,475,000 acres of rubber estates or plantations.²⁶

²⁵ Ibid.

²⁶ Ibid, p. 8.

In the post-independence period, with the change to a more diversified and industrialised economy, Malaysia's dependence on rubber and tin has declined. Furthermore, the development process since Independence has gone through two major phases, namely, a period of growth for transformation (1957-1969), and a period of growth with distribution (1970-1990). During the first phase of development, the government concentrated development programmes on agriculture, land development and the provision of basic infrastructure, while the private sector was left to expand industry and commerce. Emphasis was also given to the diversification of agriculture in order to avoid over-reliance on rubber and tin. The second phase was characterised by a government policy of privatisation to accelerate the growth of private investment and private entrepreneurship.²⁷

According to Sham Sani, there are several aspects of development, which bear directly on the quality of the environment in Malaysia. These include agriculture, forestry, industry, energy, urbanisation and related issues.

6.3.1.1 Agricultural Development

In agriculture, the key programmes included land development, drainage and irrigation, and rubber planting. A number of government agencies such as the Federal

²⁷ Ibid, pp. 10-11.

Land Development Authority (FELDA)²⁸, the Federal Land Consolidation and Rehabilitation Authority (FELCRA), the Rubber Industries Smallholders Development Authority (RISDA), and the State Economic Development Corporations (SEDCs). For instance, FELDA has developed a total of 660,036 hectares of agricultural land during 29 years since its inception in 1956.²⁹

The impact of agriculture has contributed significantly to environmental deterioration. The immediate consequence of agricultural activities is increased soil erosion and river siltation. This also has resulted in change in land use from undisturbed forest, especially following the open burning forest to clear the ground for agriculture, which caused air pollution. Another environmental problem arising from agricultural activities is the use of pesticides. The most common pesticides are *paraquat*, *dalapon*, *diuron*, *2-4D*, *methamidophos* and *malathion*, of which approximately 90 per cent are used for rubber, palm oil and rice cultivation.

6.3.1.2 Forestry

Forest in Malaysia is tropical rain forest. However, logging and agriculture affect the forest. For instance, during the Second Malaysia Plan (1971-75), logging in the Peninsular was carried out at a rate of 366,660 hectares per year, then in the Third

²⁸ The present researcher's parents come from one of these schemes namely FELDA Bukit Aping Timur, Kota Tinggi, Johor, Malaysia from 1978 till now.

²⁹ Sani, Sham, *Environment and Development in Malaysia*. Op. cit., pp. 12-13.

Malaysia Plan 318,000 hectares per year, in the Fourth Malaysia Plan 223,000 hectares per year, and in the Fifth Malaysia Plan 152,140 hectares per year.³⁰ According to the Sixth Malaysia Plan, the annual felling rate of logs increased by 5.8 percent annually during the Fifth Plan period to 41 million cubic metres in 1990. Sabah and Sarawak contributed 73.2 per cent of the total production. The output from the Peninsular rose to 11 million cubic metres, while sawlog exports from Sabah and Sarawak also remained high at 20.3 million cubic metres in 1990. The major markets were Japan, Taiwan and Korea.³¹

6.3.1.3 Industries

Since independence the industry sector has experienced widespread growth till now. The development of the manufacturing and industrial sector was greatly bolstered by the Industrial Master Plan (IMP). The IMP provided a long-term plan for the development of specific sectors of industries, policy measures, and areas of focus. One of the main objectives was to encourage private investment. For instance, in the Fifth Plan period, 3,210 projects with a total proposed investment of RM 58,575 million were approved. The six sub-sectors of industry are electrical and electronic products, basic metal products, textiles and apparel, rubber products, wood products and food manufacturing.³²

³⁰ Ibid, p 14.

³¹ Ibid, pp. 14-15.

³² Ibid, pp. 18-19.

Undoubtedly, the industrial activities represent significant sources of environmental degradation, contributing to both air and water pollution. For instance, there were a total of 205 raw natural rubber factories and 254 crude palm oil mills discharging about 11 tonnes of biochemical oxygen demand (BOD) daily into the water courses around the country. The industry also contributes to environmental deterioration through the production of hazardous wastes. The Department of Environment, Malaysia, estimated that Malaysian industries generated about 380,000 m³ of toxic annually. Beside that, the motor vehicles have also been identified as a significant source of air pollution. Emissions of particulate especially from the cement and quarrying industries are other major contribution.³³

6.3.2 The Environmental Consequences in Malaysia

Growth in Malaysia as a developing country has created threatening consequences for the environment. Although the country has had an environmental legal system that goes back for nearly half a century, in practice it was unable to prevent the negative exploitation of the natural resources. Since independence and the transformation into an industrialised economy, pollution and resource contamination have increased in Malaysian river systems, wetlands, marine environments and urban

³³ Ibid, p. 20.

centres. This increase has been so alarming that some environmentalist have described Malaysia as being at an environmental crossroad.³⁴ In this part I will highlight the impact of development in Malaysia on some selected environmental issues and attempt to suggest solutions.

6.3.2.1 Forests Depletion

Malaysia's rainforest contains a rare and unique ecosystem that contains a complex habitat which is essential for the stability of environment not only for Malaysia but also for the entire world by acting as air provider and a home for so many rare species. The natural forests play a vital role in the conservation of soil, water, plant and animal life. However, development deforestation and encroachment upon water catchments areas continue to threaten to destroy these forests, by soil erosion, flooding and sediment pollution of river systems.³⁵

In the mid-1990s the major types of natural forest as shown in the table 6.1 consisted of dipterocarp forests, mostly on the slopes of Malaysia's hills from 300 metres asl to 1,200 metres asl, which constitute the greatest share of 51 % of the total land area; swamp forests, consisting of both freshwater and peat swamp habitats, occur in low-lying areas and account for about 5 % of the land. Making up less than 2 %, the fragile but important mangrove forests hug the country's coastline. All these important

³⁴ Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001. p. 5.

³⁵ Ibid, p. 17.

and environmentally vital areas are severely threatened under the pretext of modernisation and economical development of the region (See Table 6.1: Distribution and extent of natural forest by major forest types in Malaysia, 1994 (million hectares). The table shows the state of endangered Malaysian forests. If we compare the land with the forest we observe that the total of Malaysian land mounts to 32.86 million hectares while the forest land is only 19 million hectares. The loss of forest is not uniform in all the country but largely concentrated in the regions which underwent the so called “development” such as Peninsular Malaysia 13.6 million hectares and Sarawak 12.33 million hectares. Although other areas such as Sabah do not appear to be affected at present, the “development” is taking place and unless serious measures are taken it will have the same fate as the rest of the country. In addition to land development the excessive forest depletion is attributed to the construction of dams, mining, logging and shifting cultivation.³⁶ A clear example of that is the development on the Main Range of Peninsular Malaysia which contains the montane forest habitats which are environmentally important due to their biodiversity and critical ecological functions. Aligned along a north-south direction, these highlands make up the sturdy ridge that runs from the Thai border at Belum Forest Reserve, and form the interior wall down to Bukit Tampin in Negri Sembilan. However, the Highland Resort Highway touted in the late 1990s to connect the three main resorts³⁷ has seriously destroyed these areas

³⁶ Sani, Sham, *Environment and Development in Malaysia*. Op.cit., p. 30.

³⁷ The three main resorts are located in Genting Highlands, Fraser’s Hill and Cameron Highlands, at an altitude of 1,000 metres and traversing a distance of 221 kilometres.

environmental value. The potential ecological damage is huge, considering that the route will climb up 25 to 55% degree slopes, sever 21 river basins and bulldoze 85 % of its route through undisturbed montane forest.³⁸

6.3.2.2 Threat to Biodiversity.

Biodiversity or biological diversity encompasses all species of plants, animals and micro-organisms, and the ecosystems of which they are part. The forest habitats are home to a wide array of these species and ecosystems. Moreover, as a tropical country with a favourable climate, Malaysia supports a rich mixture of life forms, from larger mammals, birds and fishes to microscopic organisms like plankton and bacteria³⁹ (See: appendix 1). One can observe that the loss of natural forests, wetlands and other pristine habitats causes irreversible reductions in the biodiversity store. This is despite the fact that most of the threatened areas are under the protection of the law. Such a threat to Malaysian biodiversity and natural habitats is seriously caused by the construction of roads, industries, and agriculture which have no respect to the law either due to the difficulty of implementation, lack of severity or lack of ethical conviction that the environment and its elements provide worth while protection on account of economical losses and development interests. This threat extends to many species which are

³⁸ Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Op. cit., pp. 33-35.

³⁹ Ibid, p. 38.

considered by environmentalists as a “most endangered” such as Sumatran rhino, Asian elephant, tiger, Orang-utan, leatherback turtle, green turtle and painted terrapin.⁴⁰

6.3.2.3 Decrease and Pollution to Freshwater Resources

Malaysia is a water-rich country. The annual rainfall over the Malaysian land mass amounts to 990 billion m³, of which some 556 billion m³ appears as surface runoff and about 64 billion m³ recharged groundwater, which make up the water resources. The balance of about 360 billion m³ returns to the atmosphere through evaporation and transpiration. The river systems are an integral part of the water resources system. There are more than 150 river systems in Malaysia which contribute about 97 % of the raw water supply source.⁴¹ The demand for water is constantly on the rise. In 1980, Malaysians used up 8.7 billion m³ to irrigate paddy fields, fill up the residential water tanks, wash vehicles, and cool and clean the engines of industry and manufacturing. In 1990, the demand for water was 11.6 billion m³ and in the year 2000 was expected to reach 15.2 billion m³ (See Table 6.3: Water demand in Malaysia (billion m³))

However, Malaysians with old habits have treated the rivers, wetlands and estuaries as dumping depots to discard the unwanted waste products of progress and

⁴⁰ Ibid, pp. 47-48.

⁴¹ Abdullah, Hj Keizrul and Jusoh, Juhaimi, An Appraisal of Malaysia's Water Resources: Problems and Prospects in *State of the Environment in Malaysia*, p. 133.

prosperity. The rivers are unhealthy, if not critically polluted. In the mid 1990s, sewage dumping was considered to be the worst culprit, accounting for up to 70 % of the pollution load, followed by industrial discharges 13 % and agricultural runoffs 8 %. Moreover, rivers and wetlands are further damaged by sedimentation and siltations caused by land development, forest clearing and soil erosion. These factors transform the clear waterways into a cloudy mess that eventually reduce the natural flow rates. In terms of the water quality of Malaysian rivers, in 1998 there were 33 clean rivers out of 120, as compared to 49 out of 86 back in 1989 and a low of 24 out of 116 in 1997 (See Table 6.4: Water quality of Malaysian rivers). From the above it appears that the environmental problem needs to be addressed at two levels: one to re-educate the current population with the environmental awareness. Also such an awareness should be initiated early in the life of individuals. Such a task can be helped enormously by resorting to Islamic environmental principles which should meet the approval of the majority of Muslim population.

6.3.2.4 Environmental Life Threats to Urban Environment

Another main threat to the environment in Malaysia is urban growth. The unplanned uncontrolled population growth in the cities of Malaysia has seriously damaged the environment. When urban communities were unable to cope with the demands of life, the environment had to suffer in order to meet the needs of these communities and had to pay by taking the pressure of housing, transport and the

employment of new residents, leading to squatter settlements, traffic congestion and the rise in noise and dust pollution. The cities' main threats to the environment may be identified as solid waste and sewage, air pollution, industrialisation and hazardous waste and transportation.⁴² By the end of the 1990s urban homes, factories and businesses tossed out over 13,000 tonnes of garbage into bins and flushed over 2,500 m³ of sewage into drains every day. A report indicated that domestic and commercial waste piled up to weigh a total of 5.5 million tonnes and per capita rates of 0.77 kilogram per person per day. In the year 2000, there were waste rises of up to 7 million tonnes annually and per capita rates of almost one kilo per person per day. In the city of Kuala Lumpur, the capital of Malaysia, the rise in refuse reached 8,000 tonnes per day in 2000 and will reach 11,700 tonnes per day in 2010.⁴³

Added to all of that is the haze problem which we noted in the introduction chapter. The haze catastrophe of 1997 in Malaysia was the worst environmental, economic and health disaster ever to occur in the region. It was a combination of local pollution sources and the result of runaway burning in forests and oil palm plantations (See Table 6.5: Severe haze episodes in Malaysia). The haze pollution caused severe environmental, economic and public health costs. For example, the estimate costs for 1997 haze episode totalled US\$321 million, a very conservative estimate based only on

⁴² Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Op. cit., pp. 83-88.

⁴³ Ibid, p. 84.

available data such as illnesses, flight cancellations, fish landing declines, fire fighting and productivity losses. In addition, some the data cannot be measured, for example, in terms of public safety, cancer risks and the confidence in governments to prevent periodic recurrences.⁴⁴

6.3.3 Islamic Conservation in Malaysia

Like many parts of the world, the main root for the ecological problem in Malaysia is created by need and greed: the need of the poor and the greed of the investors. While the need of the poor could be fulfilled and balanced against the needs of environmental conservation by controlled planning, the economical investor's greed is difficult to control. This is particularly so when such investors are ethically convinced that such a control is unjustified. However such a problem could be reduced if not completely ended by resorting to the economical and social ethics of Islam which represent the faith of a large section of the Malaysian society. In the past Islam was able to influence the masses to change their social behaviour relevant to many aspects of their life such as food etiquette, and what is acceptable and what is not acceptable in the society.

⁴⁴ Ibid, p. 86.

Similar to that the environmental ethics such as the prevention of exaggerated logging could be introduced into the Malaysians culture by emphasising the fact that theologically Islam prohibits the misuse of all elements of life including trees. Also by tapping into the main principals of Islamic economics, many investors could be convinced that the misuse of the environmental elements could render all their gain to be Islamically unlawful just like dealing in prohibited commodities such as alcohol, pig flesh or stolen commodities which Islam strongly condemns. There is a need for religious scholars to address this problem by clarifying that there is no difference between the act of stealing the environmental elements and the ordinary crime of stealing. In fact the latter could be seen as less harmful since it only harms a limited number of people while the theft of environmental element threatens the whole of humanity.

In the past, the religious effect on people and the economy has been evident in many practices prevalent among Malaysian Muslim inhabitants, such as economy in the use of water while making *wuḍhu*, following the footsteps of the Prophet in doing so. Also the practice of charity to animals, that many Malaysians consider important because Islam has enjoined it. Many Malaysians particularly those who live in the villages would not kill a snake if they found it in the jungle because it is considered to be a creature of God similar to them. Many of them might not know why this practice exists among them, but one can trace such a practice to the Islamic prohibition of

killing an animal if it is found in particular habitats because such a habitat is created by God for it.

The same idea could be applied to deal with forest depletion in Malaysia which is growing at an alarming way. Islam views the hills and mountains as part of God's creation that should be maintained and not destroyed to achieve immediate gains for a few individuals. The Muslim scholar Ibn al-Qayyīm maintains that one of the main benefits of hills and mountains is that they have been made by God as pegs for the earth, stabilising it, like a ship's anchors.⁴⁵ In addition, one of the Prophet's traditions which related to the mountains as the mountain of *Uḥud*, says: That is a mountain that loves us and that we love.⁴⁶ The mutual love here is a clear indication of the symbiotic relationship between the earth, as represented by a mountain, and humans. Therefore, to realise such a relationship, Muslims are expected to cut if not completely stop all development projects that could cause severe destruction to the mountains and forests such as the highland highway. The Malaysian government must seriously consider legislation to minimise the building of development projects on the hills and mountains. The Muslim inhabitant will be sympathetic to such a legislation if reminded of the position that Islam takes regarding the creations of God including the mountains.

⁴⁵ Al-Qoz, Abdul Hameed, *Men and the Universe Reflections of Ibn Al-Qayyīm*, tr. by Abdul Latif AL-Khalat. Riyadh: Darussalam, 2000, p. 278.

⁴⁶ This *ḥadith* is transmitted by al-Bukharī, Aḥmad and Al-Tirmidhi.

Will they not regard the camels, how they are created? And heaven, how it is raised? And the mountains, how they are set up? (Al-Ghāshiah, 88: 17-19).

There is little doubt that the contemplation of the creation of God would be not possible if such elements were severely altered.

Species biodiversity too is important in Islam both for present and future generations of humans and other forms of life on earth. Humans are requested to learn a lesson from biodiversity. Therefore, special guidelines to avoid the loss of species are vital to keep biodiversity alive and maintain its ecology. The Qur'ān states:

And in the earth are tracts (diverse though) neighbouring, and gardens of vines, and fields sown with corn, and palm trees-growing out of single roots or otherwise, watered with the same water, yet some of them We make more excellent than others to eat. Behold, verily in these things there are Signs for those who understand. (Surah al Ra'ḍ, 13: 4).

The concept of the animal nation is also important in Islam which represent species diversity. In one of the Prophet traditions, he forbade that a fire be lit upon an anthill, and related that an ant once stung one of the prophets, who then ordered that the whole colony of ants be burned. God revealed to him in rebuke, "Because an ant stung you, you have destroyed a whole nation that celebrates God's glory".⁴⁷ In my opinion the important message here is to preserve the populations of fauna and flora. This could be

⁴⁷ This *Hadīth* is transmitted by al-Bukhārī and Muslim and others on the authority of Abū Hurayrah.

achieved by designating protected areas for them. We previously highlighted *harīm* and *ḥimā* which represent the Islamic practice of protected zones that can be implemented by legislation in order to enhance biological diversity to ensure their long-term survival. For instance, the National Park in the Peninsular, namely Taman Negara, covers an area of 434,300 hectares with 57 % being in Pahang, 24 % in Kelantan and 19 % in Trengganu, and with 58 % lowland forest below 300 m asl and the rest hill and upper dipterocarp forests between 300 to 1,200 m asl.⁴⁸ The table of 6.2 shows the areas under protected and protection status in Malaysia (See Table 6.2: Areas under protected and protection status in Malaysia).

Resorting to the Islamic instruction could also help in conserving water. Water is wasted even for the purpose of worship. When the Prophet, passed by his companion Sa'd, he observed that Sa'd was using too much water. The Prophet said, "What is this wastage, O Sa'd?" "Is there wastage even in washing for prayer?" asked Sa'd; the Prophet replied, "Yes, even if you are by a flowing river!"⁴⁹ This example can be good motivating factor to stop water wastage which is a very serious problem in Malaysia. Therefore the Muslims must be vigilant that there is a relationship between their worship and daily life.

⁴⁸ Manokaran, N., An Overview of Biodiversity in Malaysia in *State of the Environment in Malaysia*, Op. Cit., p. 203.

⁴⁹ This *Hadīth* is transmitted by the Imam Aḥmad in the *Musnad* and by Ibn Majāh on the authority of 'Abd-Allah Ibn 'Amr , with a transmission of weak authority.

Could Islamic conservation work in Malaysia? To elaborate on how Islamic conservation can resolve environmental problems in Malaysia, it would be useful to consider the following points. The acceptance by the Malays of Islamisation has been proven in many areas of their life including banking, insurance, education and health. Therefore, to approach conservation from an Islamic perspective could similarly contribute in resolving the environmental problems in Malaysia which the law can not achieve through sanction and legislation. The idea is supported by the fact that the Malaysian Federal Constitution acknowledges Islam as an integral part of the Malay identity. It states that:

A Malay is a person who professes the religion of Islam, habitually speaks the Malay language and conforms to Malay custom.⁵⁰

Therefore, it is essential to propose Islamic conservation to fill the gap for Muslims in implementing Islamic practices.

Islam can be also useful as an environmental conservation motivator by involving various Islamic institutions such as the Department of Islamic Development or the Department of Islamic Affairs of every state. The mosque too could play an important role to enhance people's awareness of the environment. This could be part of the Friday mass or daily preaching as a real and practical good deed that every Muslim should practice.

⁵⁰ Article 160 (2), *The Federal Constitution of Malaysia*.

The question that remains to be answered here is would such an Islamic ethics be effective among non-Muslims too? It is hoped that by developing the sense of the environment amongst Muslims on the basis of Islam, a similar sense would also developed in the rest of society as part of the general change in the pattern of behaviour of society. Islamic conservation may influence both Muslims and non-Muslims in Malaysia. A good approach to find an answer for the above question would be by tapping into similar previous practices by which Islamic instruction was given preference when society disagreed with it despite the fact that such a practice that could provide gain to the society although it was in conflict with Islamic principles. The example of Muslims and non-Muslims acceptance of Islamic Banking could be advanced as a previous model by which Muslims developed new economical and social system for their society on the ground of their faith. The Islamic interest free Banking, on the surface, appears materialistically less beneficial than the conventional form of interest based banking because most of its gains do not provide an immediate gain. However, non-Muslims in Malaysia were prepared to adopt interest free banking and risk investing their savings into it because they felt that it was socially correct and would lead to profit in the long run. This is unlike the conventional form of banking which could provide more profits on the base of interest but is considered unIslamic. Respect and conservation for the environment can be approached on a similar ground. Conservation could appear to cause immediate financial disadvantages to people yet it

is ethical and would fulfil a long term life maintenance for all members of the society. Like the benefits of Islamic banking such as free interest banking, environmental conservation might not give immediate gain but it would help to give solidarity to the society which will provide welfare to all in the end. In other words, non-Muslims and Muslims can work together by sharing a common value. The universal values such as 'keep tidy', 'living together in harmony', 'save our planet', 'keep our area green' and many others may bring benefits for both of them.

6.4 Environmental Ethics in Malaysia

In the researcher's view, the discussion of environmental ethics in Malaysia is growing slowly. However, environmental ethics among the Malaysian people is still a new subject. Therefore, because Malaysia is a developing country the awareness of the people of the manifestation of environmental ethics has been spreading and increasing. In this part, the researcher will analyse three main aspects of environmental ethics, namely, environmental ethics and Islamic education, environmentalism and environmental management in Malaysia.

6.4.1 Environmental Ethics and Islamic Education

Education has a major role in training people to be aware of the environment. From childhood it is important to nurture an awareness of environmental issues, as this

can reduce degradation of the earth and promote an understanding of what constitutes both positive and negative actions. Therefore, people must think of the effect of environmental degradation on their lives. In other words, environmental ethics can influence people through education. The researcher will now focus on and relate environmental ethics to Islamic education in Malaysia.

In this part the researcher intends to identify environmental ethics and Islamic education from two points of view: firstly, environmental education in secondary and primary schools and secondly, environmental education in the higher institutes of learning.

6.4.1.1 Environmental Education in Secondary and Primary Schools

The Malaysian education system at secondary and primary levels is compulsory. In primary school, the children are between 7 and 12 years old, then in secondary school between 13 and 17 years old. Prior to this, the pre-school or nursery is not compulsory. The government through the Ministry of Education introduced the New Curriculum for Primary Schools (KBSR) at the end of 1970. Therefore, the new subject 'Man and Environment' is obligatory for pupils of years four, five and six. The subject aims at nurturing knowledge, perception and a positive attitude towards the environment through a holistic approach. Later on, the government decided to introduce

the integrated curriculum for primary and secondary schools in 1993. The subject of Islamic education was further revised in 2000.⁵¹

However, the researcher will focus on environmental aspects in Islamic education in primary and secondary schools. In terms of the subject of Islamic education, there are four elements: the basic reading of the Qur'ān, the basics of *shar'īah*, the basics of *akhlāq* and the writing of *jāwī*. For instance, the subject of the basics of *akhlāq* for year six is related to environmental education. The subject has introduced the importance of rivers and the environment from the Islamic perspective.⁵²

At secondary level, the government also revised the subject of Islamic education. There are three aspects of Islamic education here, namely, the learning of the Qur'ān and *Ḥadīth*, the learning of *shar'īah* and the learning of *akhlāq*.⁵³ For instance, in form five at secondary school the conservation of nature from the Islamic perspective is on the curriculum.

6.4.1.2 Environmental Education in Higher Institutions

⁵¹ Jabatan Pendidikan Islam dan Moral, *Kertas Dasar Semakan: Kurikulum Pendidikan Islam KBSR dan KBSM 2000*. Kementerian Pendidikan Malaysia, 2000, p. 1.

⁵² Jabatan Pendidikan Islam dan Moral, *Nota Pendedahan Bidang Adab dan Akhlak Islamiah*. Kementerian Pendidikan Malaysia, 2000, p. 28.

⁵³ Jabatan Pendidikan Islam dan Moral, *Kertas Dasar Semakan: Kurikulum Pendidikan Islam KBSR dan KBSM 2000*. Kementerian Pendidikan Malaysia, 2000, p.4.

At the higher institution level, many universities in Malaysia offer a more academic type approach towards educating the students with environmental values. The majority of them are in the form of degree courses offered in the various faculties or schools: for example, the Faculty of Science and Environmental Education at Universiti Sains Malaysia and Universiti Putra Malaysia or under the Faculty of Engineering at Universiti Malaya, Universiti Kebangsaan Malaysia and Universiti Teknologi Malaysia. The curriculum content encompasses pollution control and environmental management, and environmental control technology.⁵⁴

According to Marsuki, environmental education in Malaysia's universities may be classified into four categories:⁵⁵ firstly, degrees in environmental studies; secondly, joint degrees between environmental studies and various subjects such as social science, economics and others; thirdly, courses in environmental studies; finally, topics or sub-courses in environmental studies.

In the context of this research, the writer will focus on environmental education in Universiti Teknologi Malaysia.⁵⁶ There is one department in the Faculty of Civil Engineering that offers an environmental engineering degree, namely the Department

⁵⁴ Institute of Environmental & Water Resources Management, *Report on The Study on Pollution and Water Quality Improvement of Sg. Tebrau and Sg. Segget*. Universiti Teknologi Malaysia, pp. 7-2.

⁵⁵ Marsuki, Mohd Zuhdi, *Etika Alam Sekitar: Satu Tinjauan Tentang Manifestasinya di Malaysia*, unpublished Master dissertation. Universiti Malaya, 1998, pp. 216-218.

⁵⁶ The present researcher has worked as a lecturer at the Centre for Islamic Studies and Social Development, Universiti Teknologi Malaysia, Johor, Malaysia since 1994.

of environmental engineering.⁵⁷ The department focuses on environmental technology such as environmental microbiology, water chemistry and analysis, water quality management and others for the fourth year student. Only one subject is identified and related to environmental ethics. The subject is environmental management for the fourth year students. Indeed this subject has been also offered for the Master of Science (Construction Management)'s post-graduate students. During the researcher's interview with Associate Professor Zainudin Mohamed Shamsudin, who teaches this subject, he agreed that the subject of environmental ethics from the Islamic perspective is vital to educate students who will be involved in environmental engineering.⁵⁸

The other method for teaching environmental ethics from the Islamic perspective to all students at Universiti Teknologi Malaysia is through the service subjects which are offered by the Centre for Islamic Studies and Social Development⁵⁹, UTM. For example, the Centre has offered the subject of Islam and Current Issues for second year students, of which one of the sub-topics is Issues of Economic Development and the Environment. Beside that, the Centre also offers the subject of the Philosophy of Science and Social Development for post-graduate students, of which

⁵⁷ This information had been given by Associate Professor Dr Mohd Ismid Mohd Said, the Head of Department of Environmental Engineering, Universiti Teknologi Malaysia at 2.00 pm on 6th November 2002.

⁵⁸ The researcher interviewed him at his office in the Department of Environmental Engineering, Univeristi Teknologi Malaysia at 10 am – 12 pm on 6th November 2002.

⁵⁹ The researcher interviewed Associate Professor Dr Osman Sabran, the Head of Department, Centre for Islamic Studies and Social Development, at his office on 10 November 2002.

one of the sub-topics is the Concept of Development and the Environment. In the researcher's view, the subject only considers the concept of the environment in general.

6.4.2 Environmentalism

A comparison of environmentalism in Malaysia with Western countries shows that there are differences in the manifestation of environmental ethics. The researcher studies and lives in the United Kingdom, a country where awareness among the people is high.⁶⁰ They are aware that it is vital for their daily life. The role of environmentalism in making the importance of the environment clear has grown among Malaysians. This is because of the effectiveness of some environmentalist organisations in promoting understanding of environmental ethics among Malaysians. In this part the researcher intends to study some of Malaysia's non-governmental organisations which are concerned to manifest and practise environmental ethics. The researcher will focus on Sahabat Alam Malaysia (SAM), the World Wide Fund for Nature, Malaysia (WWF Malaysia) and the Malaysian Nature Society (MNS).

Generally, the activities of environmental NGOs in Malaysia can be divided into six categories, as follows:

⁶⁰ During the time the researcher was lived in the County of Carmarthenshire, Wales, United Kingdom from April 2001 until May 2004, the County has introduced three colours of bin bags for rubbish. There are black, pink and brown. For instance, the rubbish in pink bags is for papers, cans and plastics which will be recycled.

1. The conservation and protection of the environment.
2. Publications on environmental issues.
3. Research and campaigns.
4. Consultation and advice.
5. Supportive programs.
6. Environmental education.

Consequently, their activities assist and help the government and people to protect the environment in Malaysia.

6.4.2.1 Malaysian Nature Society (MNS), Malaysia

The Malaysian Nature Society was established in 1940⁶¹. It is the oldest scientific and non-government organisation in Malaysia dedicated to nature conservation and appreciation. Its mission is to promote the study, appreciation, conservation and protection of Malaysia's Natural Heritage, focusing on biological diversity and sustainable development.

The objectives of this society are to

- Motivate appreciation and care for the Malaysian Natural Heritage
- Get people involved in nature and healthy outdoor pursuits through various activities.

⁶¹ The official website of Malaysia Nature Society can be reached at <http://www.mns.org.my>.

- Promote realisation of the need to sustain and conserve this gift from Mother Nature for future generations.⁶²

To achieve the objective, the society stresses the education projects program that relates to the environment. The success of the society's work is predicated on the quality of its programmes. In this aspect, the MNS is happy to note that it is actively involved in many such projects which directly benefit the targeted communities concerned. Participation by individuals and the community in such activities is crucial in mobilising conservation initiatives at ground level.⁶³

Currently, the society works throughout Malaysia. There are 12 branches, served by a secretariat in Kuala Lumpur. Altogether there are about 5,000 members, both Malaysians and non-Malaysians, who share the society's vision and passion. Activities are organised by Branch Special-interest Groups (Pathfinders, Marine, Birdwatching, Photography, etc). The secretariat has a Science and Conservation Department, an Education Department, a Park's Unit, a Publications Division and a shop offering books and merchandise. The society also manages a number of nature education centres and parks.⁶⁴

⁶² Ibid

⁶³ Ibid

⁶⁴ Ibid.

6.4.2.2 World Wildlife Fund for Nature Malaysia

The World Wildlife Fund for Nature, Malaysia (WWF Malaysia), was formed on March 6, 1972, as a national charity that works for nature conservation and is WWF International's 19th chapter.⁶⁵ Many Malaysians will surely be familiar with the organisation's panda logo that is used worldwide by all chapters - it is the fourth most recognised symbol in the world. Now, more than 30 years later WWF Malaysia has grown from a two-person staff to over a hundred. Besides its headquarters in Petaling Jaya, the organisation has offices in Perlis, Kedah and Sabah as well as a nature education centre at Fraser's Hill, Pahang, and an ongoing project in Cameron Highlands, Pahang.⁶⁶

Its mission is to stop and eventually reverse the accelerating degradation of the planet's natural environment and to help build a future in which humans live in harmony with nature; WWF Malaysia has come a long way since its humble beginnings.⁶⁷ There are about 40 projects and several other programmes in WWF Malaysia. These include: ⁶⁸

a) Turtle Conservation

⁶⁵ The official website of World Wildlife Fund for Nature, Malaysia, can be reached at <http://www.wwfmalaysia.org>.

⁶⁶ Ibid

⁶⁷ Ibid.

⁶⁸ Ibid.

The turtle's fragile existence is under threat from human folly - egg poaching, sea and coastal pollution, declining nesting sites and stray fishing nets which eventually kill them. WWF Malaysia is working in partnership with BP Amoco and the Department of Fisheries, Malaysia, in the development and execution of turtle education and awareness programmes at the Paka-Kerteh green turtle and painted terrapin hatchery.

b) Tiger Conservation

Malaysia's magnificent wild cats are on the run, not from poachers' bullets, but from encroaching development, as their forest home keeps getting smaller. WWF Malaysia supports field research and works with the authorities and other NGOs to ensure that there are more safe havens for the tigers. WWF Malaysia advocates the establishment of more parks, reserves and sanctuaries to ensure the survival of this magnificent animal and other inhabitants of the forest.

c) Semporna Islands Project

The Semporna Islands Project site is at the entrance to Darvel Bay off the south-east coast of Sabah, Malaysia. The nearby islands and their reefs are spectacular and special, but are under threat from human activities. Much will be lost if they are allowed to deteriorate. Together with Sabah Parks, Marine Conservation Society UK and Nature Link Brussels, WWF is working to promote nature conservation and

sustainable use of island and reef resources. The initiative also plans to produce an effective management plan for the island.

d) Partner for Wetlands

The Kinabatangan floodplain is one of the most exceptional areas in Sabah. This region of unparalleled beauty and value is sadly under threat. Due to conversion of forests for agriculture and other uses, the Asian elephant, Sumatran rhino and orang-utan have become endangered. Working together with several conservation bodies, the Sabah government with WWF are taking steps to stem this irreversible loss of valuable biodiversity.

e) Mobile Education Unit

WWF Malaysia has been bringing the forest into classrooms through the WWF/BATA Mobile Education Unit, launched way back in 1977. Funded by BATA, this well-equipped unit visits both primary and secondary schools throughout Peninsular Malaysia to provide interesting hour-long programmes consisting of slide shows, songs and an Educational Quiz sessions.

6.4.2.3 Sahabat Alam Malaysia (SAM)⁶⁹

Sahabat Alam Malaysia (SAM) also known as Friends of Earth (FoE) Malaysia is a grassroots, community non-governmental organisation involved in environment and development issues, based in Malaysia. Since its inception in late 1977, SAM has worked closely with numerous affected communities throughout Malaysia, such as supporting the indigenous peoples of Sarawak against deforestation and the seizing of the ancestral lands, or the villagers of Bukit Merah against the illegal production of radioactive substances in their village, a landmark environmental battle in this country.⁷⁰

The SAM has 3 main objectives:⁷¹

- To educate the public on the need for ecologically sound development.
- To assist communities which have been adversely affected by so-called development.
- To advocate a development model that is ecologically sustainable, socially just and fulfils the human needs of the majority.

SAM's operations involve people from all walks of life. The organisation is active to help farmers whose crops have been destroyed by pollution and pests, estate

⁶⁹ The official website of Sahabat Alam Malaysia can be reached at <http://www.surforever.com/sam/intro>

⁷⁰ Ibid.

⁷¹ Ibid.

workers whose health and safety are affected by the use of pesticides and toxic chemicals and fishermen whose livelihood is threatened by depleting marine resources and the encroachment of trawlers. The scope of work is unrestricted by political boundaries or geological confines; SAM is also the co-ordinator of the Asia-Pacific People's Environment Network (APPEN), a coalition of over 300 non-governmental organisations. Since 1983, APPEN's main objectives have been the collection and dissemination of information on development and environment issues in this vast region. Therefore, the organisation have been awarded the Global Honour Roll in 1987 by the United Nations Environment Programme (UNEP), and the Right Livelihood Award (popularly known as the Alternative Nobel Prize) in 1988 and the Goldman Environment Prize in 1991. SAM was the recipient of the Conde Nast Travel Environment Award in 1998.⁷²

SAM also actively seeks to make sure that people do not forget to care about the environment. It believes that through education people will be more aware of the environment. Therefore, SAM has been continuously producing various publications such as books and newsletters. Furthermore, they have organised conferences and seminars relating to environmental issues.

⁷² Ibid.

6.4.3 Environmental Management

This part will study the government organisations that are involved directly or indirectly in environmental management in Malaysia. The ministries involved are the Ministry of Science, Technology and Environment (MOSTE) and the Ministry of Housing and Local Government (MHLG), Malaysia.

6.4.3.1 Environmental Quality Council, Ministry of Science, Technology and the Environment, Malaysia.

The Environmental Quality Council (EQC), Malaysia, was established under Section 4(1) of the Environmental Quality Act, 1974. EQC was launched on April 12, 1977, as a body to advise the Minister of Science, Technology and the Environment on matters pertaining to the Act and also on any matter referred to it by the Minister.⁷³ The Council also provides policy guidance to the Department of Environment (DOE) in the formulation of policies and strategies towards a more holistic approach to environmental management.

The Sixth Malaysia Plan 1991-1995 outlined the objectives of National Environmental Policy which were spelt out in Chapter XI on 'Development and the Environment' of the Third Malaysia Plan, as follows:⁷⁴

⁷³ Section 4 (1), *The Environmental Quality Act, Malaysia, 1974*.

⁷⁴ Sani, Sham, *Environment and Development in Malaysia*, Op.cit., p. 71.

1. To maintain a clean and healthy environment.
2. To maintain the quality of the environment relative to the needs of the growing population.
3. To minimise the impact of the growing population and human activities relating to mineral exploration, deforestation, agriculture, urbanisation, tourism, and the development of other resources on the environment.
4. To balance the goals of socio-economic development and the need to bring the benefits of development to a wide spectrum of the population, against the maintenance of sound environmental conditions.
5. To place more emphasis on prevention through conservation rather than on curative measures, inter alia by preserving the country's unique and diverse cultural and natural heritage.
6. To incorporate an environmental dimension in project planning and implementation, inter alia by determining the implications of the proposed projects and the costs of the required environmental mitigation measures through the conduct of environmental impact assessment studies.
7. To promote greater co-operation and increased co-ordination among relevant federal and state authorities as well as among the ASEAN governments.

In the Seventh Malaysia Plan (1996-2000), the Government has once again declared its commitment to the principle of sustainable development, stating "Malaysia

will continue to take appropriate action to ensure that development is sustainable and balanced. Towards this end, environment and conservation considerations will increasingly be integrated with development planning”.

6.4.3.2 The Department of Environment (DOE), Malaysia

The Department of Environment (DOE), Malaysia,⁷⁵ is headed by a Director-General who is appointed by virtue of Section 3(1) of the Environmental Quality Act (EQA), 1974.⁷⁶ Currently, Mrs Hajjah Rosnani Ibrahim is Director-General of the Department of Environment, Malaysia. The vision of the department is that the uniqueness, diversity and quality of the environment are conserved for maintaining health, prosperity, security and well-being for the present and the future. Therefore, the mission of the department is to promote, ensure and sustain sound environmental management in the process of nation building.

Under the EQA, 1974, the duties of DOE include co-ordination of all activities relating to the discharge of wastes into the environment, prevention and/or control of pollution, and protection and enhancement of the quality of the environment through the formulation of emission standards, issuing licences for waste discharge and emissions, and the dissemination of information and educational materials to the public.

⁷⁵ The official website of Department of Environment, Malaysia can be reached at <http://www.jas.sains.my>.

⁷⁶ The Department of Environment, *Annual Report 2000*. Kuala Lumpur: Department of Environment, Malaysia, 2000, p. 15.

6.4.3.2.1 The Environmental Quality Act 1974, Malaysia⁷⁷

The Environmental Quality Act 1974 (EQA) is a Federal Act.⁷⁸ The Act forms the basic instrument for achieving national environmental objectives. The Acts provides for an advisory Environmental Quality Council (EQC) and an appointment of a Director-General, Department of Environment, Malaysia.

The role of this Act relates to the prevention, abatement, control of pollution and enhancement of the environment. It contains specific provisions with respect to various aspects of the environment, including air pollution (section 22), noise (section 23), pollution on land (section 24), pollution of inland waters (section 25), pollution caused by oil or mixtures containing oil in Malaysian waters (section 27), and discharge of wastes into Malaysian waters (section 29). In addition, section 34 (A) of the EQA (Revised) 1985 requires that a report of the impact on the environment resulting from certain 'prescribed activities' be submitted to the Director-General of the DOE, who shall decide whether to accept or reject the report. The explanation of EIA in Malaysia will be discussed in the next part.

⁷⁷ *The Environmental Quality Act 1974* (Act 127) and Subsidiary Legislation (Laws of Malaysia). Kuala Lumpur: International Law Book Services, 1997.

⁷⁸ In Malaysia, the laws made by Parliament (at federal level) are called Acts. Whereas the laws made by State Legislatures such as Sarawak Legislatures are called Enactments. And the laws made before the formation of Malaysia for Sarawak and Sabah are called Ordinances.

The EQA also specifies certain powers to the Director-General of DOE. For instance, under the section 31 of the Act⁷⁹, the Director-General is empowered to require the occupier of premises to install, operate, repair or replace control equipment and to direct the occupier of any premises to discharge or deposit pollutants as he specifies. In addition, section 51 of the EQA allows the Minister in charge of the environment, after consultation with the EQC, to make various regulations in order to protect and enhance the environment⁸⁰. The regulations can prescribe standards or criteria, prohibit discharge, emissions or use of any equipment which is likely to endanger the environment, and determine the quantum of fines to be imposed.

6.4.3.2.2 Environmental Impact Assessment in Malaysia

The EIA was formally established in the USA in 1969 and has since spread in various forms to most other countries. The US National Environmental Policy Act 1969 (NEPA) was the first legislation to require EIA and has become an important model for EIA system whether in developed or developing countries. In Malaysia, the Environmental Quality (Amendment) Act 1985 amended the Environmental Quality Act 1974. Amendments to include the insertion of Section 34A which requires any person intending to carry out any prescribed activity to submit a report on the environment to the Director-General of Department of Environment for examination.

⁷⁹ Section 31, *The Environmental Quality Act, Malaysia, 1974*.

⁸⁰ Section 51, *The Environmental Quality Act, Malaysia, 1974*.

The amendment of the Act was gazetted on 9 January 1986.⁸¹ The detail of Section 34A⁸² is in the appendix 4.

According to the Malaysian Department of Environment, EIA may be described in a simple definition as “a process designed to identify and predict the impact man’s health and well being of development projects, and to interpret and communicate information about the impacts”.⁸³

According to Justin, there are five kinds of benefit of EIA in Malaysia.⁸⁴ These include the information required by authorities to obtain permits and approvals. Then, EIA uses an interactive design tool that allows the project team to evaluate potential environmental problems. The EIA may also have significant long term financial advantages to reduce costs and time on projects. In addition, there are groups or individuals that are interested in environmental hazards and effects posed by new activities. Their involvement is important as third parties. Lastly, the EIA will assist in informing the management of their present and future position with regard to the effect and the environmental risks associated with their activities.

⁸¹ Sentian, Justin and Mohd Tuah, Piakong, *Environmental Impact Assessment: Legislations, Procedures and Issuse in Malaysia*. Kota Kinabalu: Universiti Malaysia Sabah, 2001, pp. 1-2.

⁸² Section 34A, *The Environmental Quality Act, Malaysia, 1974*.

⁸³ Department of Environment, Malaysia, *A Handbook of Environmental Impact Assessment Guidelines*, third edition. Putrajaya: DOE, p. 46.

⁸⁴ Sentian, Justin and Mohd Tuah, Piakong, *Environmental Impact Assessment: Legislations, Procedures and Issuse in Malaysia*, Op. cit., pp. 15-16.

In contrast, there are some disadvantages of EIA. For instance, a weakness of the EIA Order is that prescribed activities are listed according to size, for example, the projects covering more than 50 hectares or more than 500 hectares, according to category. It is possible for a developer to avoid doing an EIA by splitting one project into several smaller units, each of which is less than the critical size.⁸⁵ Although public participation and consultation are fully acknowledged, in some development projects in Malaysia such as the Bakun dam and others, the public do not on the whole participate in the EIA process.⁸⁶

6.4.3.3 Local Agenda 21, Malaysia⁸⁷

Another commitment by the Malaysia Government towards environmental management is to implement the Local Agenda 21 (LA 21). It is an initiative implemented by the Ministry of Housing and Local Government (MHLG) with support from the United Nations Development Programme (UNDP) and in co-operation with the Economic Planning Unit (EPU) of the Prime Minister's Department. Local Agenda 21 (LA21) is not only being implemented in Malaysia. According to a report prepared in 1997 by the International Council of Local Environmental Initiatives (ICLEI), more

⁸⁵ Abdul Kader, Mohideen and Faiez, Shahridan, Land Use Laws and Policies and Environmental Degradation in *State of the Environment in Malaysia*, p. 469.

⁸⁶ Sentian, Justin and Mohd Tuah, Piakong, *Environmental Impact Assessment: Legislations, Procedures and Issue in Malaysia*, Op. cit., p. 76.

⁸⁷ The information about Local Agenda 21 in Malaysia can be reached from the official website at <http://www.mhl.gov.my/jkt/la21>

than 1,800 local authorities across 64 countries have been involved in LA21. Most of these local authorities are in 11 countries, namely Australia, Bolivia, Denmark, Finland, Japan, the Netherlands, Norway, Republic of Korea, Sweden and the United Kingdom.⁸⁸

The objectives of the Local Agenda 21 (LA21) Pilot Project are:⁸⁹

- To broach sustainable development issues and LA 21 with local communities and the private sector.
- To emphasize that achieving sustainable development is the responsibility of all stakeholders.
- To formulate LA 21 Strategies and Action Plans to address local sustainable development issues.
- To actualise LA21 Action plans through sustainable development programs and activities.
- To replicate the LA21 process in other interested local authorities in the country.

It is important that the LA21 should manifest itself through physical programs for its benefits to be appreciated by the community and other stakeholders; LA21

⁸⁸ Ibid.

⁸⁹ Ibid.

should therefore manifest itself through tangible programs and activities that improve their quality of life. For example, programs could be developed to address the following issues:

1. Pollution
2. Resource management
3. Recycling
4. Cleanliness
5. Social development
6. Social integration

In mid-1999, the Ministry of Housing and Local Government invited applications from all local authorities to participate in the LA21 Pilot Project. The applications were scrutinised and the following local authorities were selected based upon their capacity and interest shown:⁹⁰

1. Miri Municipal Council represents local authorities in Sabah and Sarawak which operate slightly differently from those in Peninsular Malaysia.
2. Petaling Jaya Municipal Council represents the central region of Peninsular Malaysia and also large local authorities with complex issues.

⁹⁰ Ibid.

3. Kerian District Council is in the northern part of Peninsular Malaysia and represents District Councils which make up the majority of local authorities in the country.
4. Kuantan Municipal Council represents local authorities from the East Coast and medium sized local authorities.

The most important mechanism in the LA21 Pilot Project is the LA21 Committee set up at each pilot site. This committee is chaired by the Mayor of the local authority and comprises representatives from the local community, businesses and relevant government agencies. Typically, the membership of an LA21 Committee comprises:⁹¹

1. Mayor (as Chairman)
2. LA21 Officer from the local authority (as Secretary)
3. Community Liaison Consultant

and representatives from:

1. Local Community Based Organisations (CBO)
2. Local Non-Governmental Organisations (NGO)
3. Local businesses and industries
4. Relevant departments of the local authority
5. Relevant government agencies outside the local authority

⁹¹ Ibid.

6. Other local authorities
7. Project Co-ordinator and Communications Consultant when necessary

The roles of LA21 Committees, which comprise representatives from the local community, private sector and local authority, cover the following functions: ⁹²

- To review local sustainable development issues with the community
- To raise awareness about local sustainable development issues
- To formulate LA21 Action plans jointly with the community
- To promote co-operation between stakeholders
- To establish sustainable development indicators
- To publicise the results of the LA21 partnership
- To implement the LA21 Action Plans
- To monitor indicators and establish triggers
- To popularise LA21 Action Plan activities and development among the local community

At the national level, the Chair of each LA21 Committee reports to a Technical Co-ordination Committee. The National Project Director, who is the Director General of the Department of Local Authority, Ministry of Housing and Local Government (MHLG), chairs this committee. The Technical Co-ordination Committee in turn

⁹² Ibid.

reports to the National Steering Committee chaired by the Economic Planning Unit (EPU) of the Prime Minister's Department.⁹³

6.5 Conclusion

The awareness of the environment among Malaysians has grown. The impact of development affects Malaysians in searching for the best method to solve environmental problems. Therefore, this chapter has discussed various environmental issues in Malaysia. It is also evident that Malaysians and their government have a commitment to care for the environment and a better future. This could be attributed to the deep Islamic commitment to the environment, which is part of the local culture.

⁹³ Ibid.

CHAPTER SEVEN: A CASE STUDY OF THE BAKUN HYDRO ELECTRICAL PROJECT (HEP), SARAWAK, MALAYSIA FROM THE PERSPECTIVE OF ISLAMIC ENVIRONMENTAL ETHICS.

7.1 Introduction

The aim of this section is to study the practice of environmental ethics from the Islamic perspective and therefore this specific case study has been chosen to highlight such a relationship. The Bakun Hydro Electrical Project (HEP), Sarawak, Malaysia, is surrounded by controversy, thus the researcher intends to analyse the arguments between the groups who support the Bakun BHEP and the groups who oppose this project. At the same time the researcher will analyse the Islamic point of view regarding a method of solving the dispute. It is felt that a study of this case will emphasise the differences of interest between the development and the environment.

7.2 Locations and Land Area

7.2.1 Sarawak

Sarawak is located in the central part of South East Asia. It is located north of the Equator between latitude 0° 50° and 5°North and longitude 109° 36' and 115° 40'

East. It stretches some 800 km along north-west coast of the Island of Borneo. It is separated from Peninsular Malaysia to the west by about 600 km of the South China Sea and directly adjoins the State of Sabah to the north-east where the Sultanate of Brunei forms a double enclave. Inland, the State borders with Kalimantan, Indonesia.¹

Sarawak also is the largest state in the Federation of Malaysia with an area of approximately 124,449 sq. km, which accounts for about 37.5 % of the area of Malaysia. It gained independence from the United Kingdom in 1963. It is one of the thirteen states in Malaysia. The City of Kuching is the capital of the State of Sarawak. Administratively, the State is divided into nine Divisions, namely, Kuching, Sri Aman, Miri, Limbang, Sarikei, Kapit, Samarahan and Bintulu. Each division or administrative region is again subdivided into between two to four districts.²

7.2.2 Kapit Division and Bakun³

This Division of Kapit is the largest with an area of approximately 38, 934 sq km. In general, the population in this division is 124,00 people. The divisional town is Kapit and the district town is Belaga and Song.⁴ It is well known for an abundance of natural resources in timber, coal and hydroelectric power potential. It can be regarded

¹ See official website for the State of Sarawak Government on <http://www.sarawak.gov.my>.

² Ibid.

³ According to the indigenous people, Bakun is namely for one of the waterfall rapid located in the Rajang river.

⁴ State Planning Unit, *Development in Sarawak: An Aerial Perspective*. Sarawak: State Planning Unit, n.d., p. 121.

as the powerhouse of Sarawak. Bakun Hydroelectric Project (HEP) is located inside the Division of Kapit.

Beside that, Kapit's potential as a power-producing area is further accentuated by the coal mining activities centred on Nanga Merit. Full-scale operation of this open cast mine began in 1991, and it produces between forty and sixty thousands metric tonnes of medium grade coal each year. The mine sits on four hundred million tones of coal, not counting under-ground reserves.⁵

7.3 The Bakun Hydro Electrical Project (HEP), Sarawak, Malaysia

7.3.1 A Historical Perspective

The Government of Malaysia through the Federal cabinet on 8th September 1993 gave approval to the proposed development of Bakun Hydro Electrical Project (BHEP) in Sarawak. The project is considered crucial in meeting the long term power and energy requirements of the nation.⁶

The proposal for the Bakun project follows a series of studies begun most seriously in the 1970s, to assess the hydroelectric potential (both theoretical and

⁵ Ibid, p. 125.

⁶ Ekran Berhad, *Bakun Hydroelectric Project Environmental Impact Assessment Interim Report*, November 1994, p. 1.

practical) of Sarawak's rivers. This was in conjunction with the production of the general "Electricity Master Plan for Sarawak" undertaken by the Sarawak Electricity Supply Company (SESCO). In 1979, 155 potential dam sites with a total capacity of 80 000 MW were identified. 51 sites were short listed and 11 were further found to be the best in terms of exploitable hydroelectric capacity, including the Bakun, Murum, Pelagus and Baleh in the Upper Rajang basin. In 1980, the SAMA Consortium, a joint venture of German and Swiss consultants together with the Malaysian power generating and supplying authorities, was commissioned to conduct feasibility studies centring on the hydro-power potential of Rajang River in Sarawak.⁷

Four possible dam sites were identified. There were at Bakun, Murum, Pelagus and Baleh, estimated to have the power generating capacity of 2 400 MW, 900 MW, 770 MW and 900 Mw respectively. Bakun was originally proposed to be built in the 1980s. The SAMA study confirmed the technical feasibility of the proposed Bakun dam, 37 km upstream from Belaga on the Batang Rajang. The dam would have a capacity to generate 2 400 MW. It was recommended then that the Bakun dam should be the first of the four dams in this general vicinity to be developed.

However, the Federal Government at that time decided to shelve the project due to the following reasons. The recession and slow economic growth that occurred during

⁷ Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*. Kuala Lumpur: Insan, 1996, p. 1.

the 1985 to 1986 period resulted in the Government being less optimistic about the growth of electricity demand. Then, the availability of gas for electricity generation caused the Bakun HEP to lose its status as the least-cost option for Peninsular Malaysia until the year 2000.⁸

A review of the project undertaken in 1992 concluded that the project was economically viable and should be implemented, for commissioning by the year 2005. Based on this review, the Government agreed in September 1993 that the project be implemented.

A public-listed company, Ekran Berhad⁹, submitted a conceptual proposal to the Government to implement the project on a privatised and fast-track basis for commissioning by the year 2003. Subsequently, the Government issued an invitation to Ekran Berhad to submit a detailed project proposal for consideration. The Government reviewed the latter with the assistance of a reputable international consulting firm, Harza Engineering L.P. of the United States. Subsequently, a letter of intent was issued to Ekran Berhad to undertake preliminary works to implement the project, including the preparation of tender documents, pre-qualifications of contractors, invitations to bid and submission of Environmental Impact Assessment (EIA) reports.

⁸ Economic Planning Unit, *Bakun Green Energy for the Future*, access on <http://www.epu.jpm.my/epu-pub-bakun.html>.

⁹ Ekran Berhad is located at Suite 8.03 – 8.04 Level 8, Amoda, No 22, Jln Imbi, 55100 Kuala Lumpur, Malaysia.

In March 1994, Universiti Malaysia Sarawak (UNIMAS) was appointed by Ekran Berhad to be the main consultant for the Environmental Impact Assessment of the Project. UNIMAS, through its Centre For Technology Transfer and Consultancy (CTTC), had to ensure that all environmental considerations of the project were comprehensively addressed and organised into a framework which guaranteed that the Bakun HEP would be implemented in an environmentally acceptable manner.¹⁰

In view of the huge capital outlay involved, the Government decided that the project should be undertaken by a joint-venture company. The Government invited the State of Sarawak, Tenaga Nasional Berhad (TNB), Sarawak Electricity Supply Corporation (SESCO), Malaysia Mining Corporation Bhd (MMC) and others to participate in this joint-venture company to be led by Ekran Berhad. This joint venture company was called Bakun Hydro Corporation (BHC).

Due to the economic crisis between 1997-98, this Bakun HEP has been undertaken by the Government's own company. Currently, the project manager is

¹⁰ Ekran Berhad, *Bakun Hydroelectric Project Environmental Impact Assessment Interim Report Project Description*, Op. cit., p. 1.

Sarawak Hidro Sdn Bhd,¹¹ which was formerly known as Bakun Hidro Sdn Bhd. A brief on the important chronology of the Bakun HEP is as follows:¹²

- Early 1960 The hydro potential of Bakun was first surveyed by Snowy Mountains Hydro-Electric Authority of Australia under the Colombo Aid Programme.
- 1977 Bakun was identified by Sarawak Electricity Supply Corporation as one of the numerous potential hydroelectric sites.
- 1981 Bakun was selected for feasibility studies.
- 1985 Bakun dam was postponed in the aftermath of recession
- Sept 1993 The Government approved construction of Bakun HEP with power generating capacity up to 2,400 MW where the power is mostly for Peninsular Malaysia via submarine cable.
- Jan 1994 The project was awarded to Bakun Hydroelectric Corporation (BHC) led by Ekran Berhad.
- 1995/96 Environmental Impact Assessment reports prepared by a consortium headed by Universiti Malaysia Sarawak was approved by the Natural Resources & Environmental Board.

¹¹ The official address of Sarawak Hidro Sdn Bhd is Level 6, Block F, Kompleks Bukit Kerajaan Bukit Perdana, Jalan Dato' Onn, 50480 Kuala Lumpur, Malaysia.

¹² This information and briefing was given by Mr. Ir. Tan Chuan Ngan (General Manager Construction), Mr Sim See Sheng (Senior Resident Manager) and Mr Wan Mohamad Su'ut Wan Moss (Resident Manager) during the researcher's visit at the Bakun HEP site on 2nd November 2002.

Mar 1996	The River Diversion Works (RDW) contract was signed between BHC and Dong Ah Construction Industrial Co. Ltd (DACI).
Sept 1997	The dam project was shelved following the onset of the economic crisis.
Nov 1997	Ministry of Finance, Malaysia took over the project from BHC.
Nov 1999	Sumber Hydro Management Sdn Bhd (SHM) provided engineering services and project management for the RDW contract.
May 2000	Bakun Hidro Sdn Bhd (BHSB) was appointed by the Government to take over from SHM as the project manager.
May 2000	Signing of RDW contract between BHSB and DACI.
Oct 2000	BHSB changed its name to Sarawak Hidro Sdn Bhd (SHSB)
Feb 2001	The Government decided to revive the dam project.
Currently	The main civil works on progress.
Sept 2007	The Project should be completed.

7.3.2 The Bakun HEP: The Environmental Impact Assessment (EIA) Report

The proposed Bakun HEP involves three activities prescribed under the Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order 1987. These are:¹³

¹³ Ekran Berhad, *Bakun Hydroelectric Project Environmental Impact Assessment Interim Report Project Description*, Op. cit., p. 3.

- i. clearing of vegetation/land for access road, dam and power transmission line installations which is subjected to Schedule 6a (Conversion of hill forest land to other land use covering an area of 50 hectares or more)
- ii. clearing of bio mass within the reservoir area prior to flooding, subjected to Schedule 6c (Logging covering an area of 500 hectares or more), and
- iii. construction of the dam which is subjected to Schedule 13b (Dams and hydroelectric power schemes with dams over 15 meters high and auxiliary structures a total area in excess of 40 hectares and/or reservoirs with a surface area in excess of 400 hectares).

A technical proposal for the Environmental Impact Assessment study was prepared by UNIMAS in collaboration with ten other sub-consulting firms and institutions. There were nine parts of the Interim Report under separate covers:¹⁴

- a. Part 1: Technical Summary & Project Description
- b. Part 2: Bintulu-Tubau- Bakun Access Road
- c. Part 3: Land Use (Rajang River Basin)
- d. Part 4: Physical Environment (Rajang River Basin), containing reports on
 - Climate
 - Geology and Hydrogeology
 - Existing Water Quality

¹⁴ Ibid, p. 2.

Hydrology of Bakun Catchment

Potential Soil Erosion during Bio mass clearing

Downstream Hydrology

- e. Part 5: Biological Environment (Bakun Catchment), containing reports on

Vegetation and Forest Resources

Wildlife

Aquatic Life

- f. Part 6: Public Health & Quantitative Risk Analysis

- g. Part 7: Environmental Accounting Costs and Benefits & Environmental

Management Plan

- h. Part 8: Power Transmission Line (On-Land Sarawak Sector)

- i. Part 9: Power Transmission Line (Submarine Sector)

In this connection, UNIMAS has outlined four main objectives of the environmental impact study. There are:¹⁵

- a. To examine and describe the existing status of the various biophysical and human environmental components surrounding the project area. These include:

- i. along the proposed Bintulu/dam-site access road,

- ii. immediate upstream areas from the proposed dam,

¹⁵ Ibid.

- iii. within and in the vicinity of the dam area,
 - iv. downstream stretch of the river basin including the estuarine areas and adjoining coastline, and
 - v. along the proposed route of HVAC and HVDC power transmission lines on land in Sarawak and Peninsular Malaysia and undersea from Tanjung Datu, Sarawak to Tanjung Sedili, Johore.
- b. To predict potential significant impacts of the project on the surrounding environment during the site investigation, construction (dam and transmission lines), operation and maintenance stages and advise on appropriate mitigation and abatement measures against potentially adverse impacts for incorporation into the project plan.
 - c. To identify the environmental costs and benefits of the proposed HEP development, and
 - d. To identify residual impacts of the project, and thereon advise on appropriate short and long term catchment management, contingency plan (Emergency Response Plan/Disaster Management), and the overall Environmental Plan.

7.3.3 The Environmental Effects in the Bakun HEP

The environmental effects in the Bakun HEP site may be classified into three types: the physical environment, the biological environment and the existing human environment. In this section the researcher will analyse the environmental effects based on the reports, especially the EIAs on Bakun HEP.

7.3.3.1 The Existing Physical Environment¹⁶

The physical environment of the reservoir is critical to the various stages of preparation and operation and to the integrity of the reservoir. The physical environment of the catchment determines the ability and the long term viability of the reservoir to retain and deliver water.

a. Climate

The climate of Sarawak falls under the category of humid tropical, characterised by high temperatures, heavy rainfall and high relative humidity throughout the year. Climatic conditions in the reservoir and catchment area show variation in temperature and humidity depending on land use, aspect and elevation. The temperature range in this area is between 22 °C – 36 °C, and the humidity is between 35- 88%.¹⁷

According to the Department of Irrigation and Drainage (DID), Sarawak, the mean annual rainfall for the area is 4,070 mm. The maximum rainfall centres on

¹⁶ Ekran Berhad, *Privatisation of The Bakun Hydroelectric Project Environmental Impact Assessment for Reservoir Preparation*, p. 3-1.

¹⁷ Ibid, p.3-1.

November-December and March-April. The minimum rainfall occurs during the months of June, July and August. Rainfall in this area is predominantly caused by thunderstorms. In terms of wind, there are two patterns of winds in this area. Firstly, during the Southwest monsoon period (May-September) the winds are predominantly south-easterly with some strength from the north-east. Secondly, during the Northeast monsoon period (November-March) the winds are mainly northerly, but followed quite closely by the south easterly.¹⁸

b. Geology

The reservoir area and the greater part of the Balui Basin are formed by intensely folded sediment of the Belaga formation, part of the Rajang Group. The Rajang Group was deposited from the late Cretaceous to the early Tertiary in the Northwest Borneo Geosyncline. Most of the rocks are highly compacted, but microscopically they do not show any indication of distortion. The lithological conditions on both riverbanks are almost the same, as the beds are striking nearly at right angles to the river valley, with a steep inclination.¹⁹

The whole sequence has been subdivided into three predominant rock types; predominant sandstone and conglomerate, predominant shale and interbedded shale, siltstone and sandstone. Sandstone is the predominant rock type in the dam site,

¹⁸ Ibid, p. 3-2.

¹⁹ Ibid, p. 3-2.

characterised by intensely folded massive beds, and can be classified as greywacke consisting of angular and poorly sorted quartz and feldspar grains. Rock fragments are mostly shale and quartzite.²⁰

c. Hydrology and Water Quality

The catchment to the reservoir is approximately 1.5 million hectares comprising 20 subcatchments. Twelve of the subcatchments will be affected by the reservoir. The main stream of the reservoir and catchment is the Batang Balui which is fed by three big tributaries, namely Murum river (397,000 ha), Linau river (262,500 ha) and Bahau river (165,500 ha). The other nine subcatchments include two less than 5,00 ha, six less than 100,000 ha and one over 100,000 ha.²¹

There are large variations in water level within every month of the year but there is no distinct dry season. Annual average water yield from the catchment is about 2,800 mm. Long term discharge at the dam site in the reservoir is 1,314 cumecs. The net run-off is approaching 70% of the mean annual precipitation. Variation in annual stream flow of the Batang Balui is 830 cumecs in August and 1,720 cumecs in December.²²

²⁰ Ibid, p. 3-3.

²¹ Ibid, p. 3-6.

²² Ibid.

The existing water quality of the major rivers in the dam and catchment area is turbid. The water quality in the smaller tributaries is generally better. Suspended solid levels between 170 to 300 mg/L were measured during a low flow period and 290 to 1,400 mg/L during a high flow period.²³

7.3.3.2 The Biological Environment ²⁴

The biological environment includes floral, wildlife and aquatic resources. Tropical terrestrial and aquatic biodiversity is diverse, luxuriant and abundant. Sarawak is typical of this resource and exceptional because of the magnitude of endemism that has evolved in the isolated island environment of Borneo.

a. Vegetation (Flora and Fauna)

There is very little published information pertaining to the floristic resource of the catchment and reservoir. From observation, the types of vegetation in the reservoir are associated with land use, i.e. shifting cultivation, mainly hill paddy and cash/subsistence crops, secondary forest from prior shifting cultivation and logged over Mixed Dipterocarp (MDF), including riparian and remnant virgin MDF components.²⁵

²³ Ibid, p. 3-7.

²⁴ Ibid, p. 4-1.

²⁵ Ibid, p. 4-1.

Approximately 37% of the Bakun reservoir area is logged over MDF. Three remains remnant virgin dipterocarp and non-dipterocarp stands within the larger logged over type. The stands are largely confined to the steepest slopes and isolated locations. Typically, very large dipterocarp trees (20-80 cm DBH) up to 50 m in height dominate the emergent canopy. *S. macroptera* (*meranti melantai*), *S. argentifolia* (*meranti binatoh*), *S. parvifolia* (*meranti sarang punai*), and *S. amplexicaulis* (*engkabang pinang*) are dominant and are all very highly valued commercial species. Protected species identified were *Ficus microcarpa*, *Gamua beccarina*, *F. aurata* and *F. lamponga*.²⁶

A total of 67 protected species and one totally protected species were found in the reservoir area. Protected species such as *Ficus spp.*, *Phalaenopsis spp.* (*Normah orchid*), *Calanthe spp.*, *Aquilaria spp.*, *Eurycoma longifolia*, *Goniothalamus velutinus* and *Nepenthes spp.* were found in the reservoir area. The only totally protected species found in the reservoir area is *Ensurai*.²⁷

Beside that one thousand two hundred and thirty plant species that are used by the local people were inventoried in the reservoir. They include ornamental plants, medicinal plants, fibre plants, spices and condiments, rattans, latex producing plants,

²⁶ Ibid, p. 4-2.

²⁷ Ibid, p. 4-5

cereals, root and tuber plants, starch producing plants, plants producing poison, plants used for making handicrafts, furniture and forage.²⁸

The most important is the Bakun catchment which is one of the largest sources of log production in Sarawak. It contains one third of the remaining unlogged forest in Sarawak. There is approximately 50 million m³ of biomass in the reservoir consisting of²⁹

1 million m³ export quality saw log >40 cm DBH

10 million m³ baby and super baby saw log >20 cm DBH

12 million m³ small chip wood between 15-20 cm DBH

27 million m³ non-merchantable biomass.

b. Wildlife

The reservoir and catchment area have not been comprehensively inventoried for wildlife, but consist of mammals, birds, amphibians and insects. A total of 35 birds and 8 mammal species are protected or totally protected under the Sarawak Wildlife Ordinance 1990. Three birds and two mammal species have IUCN recognition as being rare or vulnerable. Several protected species are endemic to Borneo such as Hose's

²⁸ Ibid.

²⁹ Ibid, p. 4-6.

langur, *Borneon* gibbon, Thomas flying squirrel and *Borneon* yellow *muntjak*, large billed blue flycatcher, *Borneon* blue flycatcher, dusky *munia* and blue headed *pitta*.³⁰

c. Aquatic Resources

The Rajang River is the main drainage system for central Sarawak and is the longest river in the state. A total of 14 families represented by 39 genera and 104 species were caught from the main rivers of the upper Rajang river basin and its tributaries. Cyprinidae accounted for 54% of the number of species caught. Carp-like fish were found such as the *empurau*, *semah*, and *mengalan*, and catfish, namely the *tapah* and the *labang* with weights ranging from 5 gram till as high as 10 kilogram. These fish are important to indigenous people as one of the main sources of protein.³¹

At least 28 phytoplankters genera were recorded which consist of diatoms with 22 genera, green algae with 4 genera and 2 genera from the blue green algae. The density of the phytoplankton was relatively low. Chlorophyll is often used to estimate phytoplankton biomass in order to determine nutrient richness in the fish habitat.³²

³⁰ Ibid.

³¹ Ibid, p. 4-8.

³² Ibid, p. 4-9.

7.3.3.3 The Existing Human Environment³³

The residents of the reservoir and its surround are important to the Bakun HEP. In this regard the State Government of Sarawak officially tackled the issue of resettlement. Therefore during the researcher's visit to the Bakun HEP, one section called the Special Task Section for Resettlement had been set up under the Office of State Planning Unit, Sarawak. This section has led by Mr Liman a/k Numpang.³⁴

There are 9,428 permanent residents in 1,639 apartments housing 2,141 families, and include 5 different ethnic categories – Kayan, Kenyah, Kajang (Lahanan), Buket and Penan within reservoir and more outside of the reservoir within the upper catchment.³⁵ They reside in 15 longhouse communities where each community is separate and distinct from the next and located close to a major watercourse. Each community practises communal long house living around the household consisting of residence, extended family group and recognised tenured territory. These groups had occupied the reservoir and catchment for between a few decades and more than 100 years. (See Table 7.1: Population Census of the Affected Communities, April 1995). In

³³ Ibid, p. 5-1.

³⁴ The researcher had an interview with him in his office on 3rd November 2002.

³⁵ Lembaga Pembangunan dan Lindungan Tanah, *Bakun Resettlement Project, Environmental Impact Assessment Socio-Economic Study, Final Report*, January 1997. Sarawak: UP Environmental Services Sdn Bhd, p. 4.

1998, the government launched an “Operation Exodus” to transfer the affected people from their homes to the new resettlement area at Sg. Asap³⁶.

7.3.4 The Development in Bakun HEP

According to the environmental impact assessment of the Bakun HEP, there are four considerations to the hydropower potential of Bakun. They are technical feasibility, economic feasibility, environmental feasibility and ‘no project’ option.³⁷

In terms of technical feasibility, the proposed Bakun HEP is expected to be a low-cost hydroelectric project, and when implemented will supply the nation with electricity that is cheap, clean and reliable, and will not be subject to fluctuating international fuel prices. The feasibility study results on geological and rock mechanical investigations indicate that the Bakun dam and reservoir area is situated in a seismically and tectonically stable block. The foundation rockmass at the Bakun dam site consists predominantly of massive quartzitic greywacke with thinly interbedded shale, siltstone and greywacke alterations. High quality construction materials are therefore available at the site, and the greywacke has been proven to be durable and strong when used as concrete aggregates.³⁸

³⁶ Interview with Mr Liman a/k Numpang on 3rd November 2002 at Menara Bapa Malaysia, Sarawak, Malaysia.

³⁷ Ekran Berhad, *Bakun Hydroelectricity Project Environmental Impact Assessment Interim Report Project Description*. Centre for Technology Transfer and Consultancy, University Malaysia Sarawak. November 1994, pp. 11-14.

³⁸ Ibid, p. 11.

In the respect of economic feasibility, the unit cost of electricity produced by the Bakun HEP would be very much cheaper than the alternative of thermal generation. The Bakun project will also contribute significantly towards strengthening the foreign exchange position of Malaysia, as the project will help reduce the import of fossil fuel for power generation.³⁹

The environmental benefits that will emanate from the Bakun HEP include the reduction and containment of global warming and acid rain, improvement of river water quality, regulation of river flow, mitigation of floods, improvements to ecotourism potential and the sustainability of resources.

The Bakun HEP is expected to emerge as a potent force that can accelerate the socio-economic development of the state of Sarawak and the country within a period that would not be possible if Bakun does not come into existence. The spin-off effects Bakun will have on smaller industries and businesses are equally immense. Some of the more obvious benefits of the Bakun project can be summarised as follows:⁴⁰

- a. It will enable a major indigenous and renewable energy source to be tapped.

³⁹ Ibid, p. 12.

⁴⁰ Ibid, pp. 13-14.

- b. It will contribute significantly to the saving of fossil fuels, diversification of energy sources, and reduction of dependence on fossil fuels for energy generation.
- c. It will provide much cheaper energy than could alternative thermal generation methods.
- d. The socio-economic well being of the 9,000 more affected local native inhabitants will be elevated when they move to new resettlement areas where they will be provided with modern infrastructure and social amenities and will have access to better employment and business opportunities.
- e. It does not produce as much green house gas as other fossil based thermal plants do.
- f. The development of the project will help to further develop local skills and expertise, particularly in the field of engineering and maintenance, and effect technology transfer on a wide range of research and development activities.
- g. The flood control capacity of the Bakun reservoir helps to regulate river flows and flood levels. River navigation can thus improved, and salinity intrusion and flood damage in the lower course of the Rajang river can be reduced significantly.
- h. The Bakun reservoir and the scenic landscape of the surrounding area (such as Batu Laga and Hose Mountain) can be developed and promoted as a

tourist attraction, particularly for those who favour adventure and eco-tourism.

In summary, the Malaysia Government believes that the Bakun HEP is needed to satisfy the long-term power and energy demand of this country. The availability of renewable, efficient and less polluting energy resources should be exploited to achieve a balanced long-term energy-mix plan for Malaysia. According to the EIA for the Bakun HEP, there are three main project components: firstly, the Bakun access road, secondly, the water reservoir and dam site, and thirdly, the power transmission lines.

7.3.4.1 Road Access

The access road to the Bakun HEP is from Bintulu via Tubau. The total stretch of road to be upgraded is estimated to be 125 km starting from KM 51 of Bintulu-Miri road. The road construction and upgrading are divided into three sectors;

Sector 1: KM 51 Bintulu-Miri to Tubau	47 km (new road)
Sector 2: Tubau-Bakun sector	78 km (on existing logging road)
Sector 3: Bakun-Belaga feeder road	30 km (new road)

The Bintulu-Bakun road was designed for a minimum load of 170 tonnes i.e. the estimated of the converter transformer to be transported and installed near the Bakun dam.⁴¹

7.3.4.2 Water Reservoir and Dam

The 2,400 MW of Bakun HEP is located in the Upper Rajang river basin in the interior of the State of Sarawak. The dam site is situated along the Balui river at 37 km upstream of Belaga town. The catchment of the dam site covers an area of 14,750 km², and lies in the Belaga District. The Bakun reservoir will have a surface area of approximately 700 km². More than 80 % of the proposed inundation area has been logged over or is at various stages of regeneration following shifting cultivation.⁴²

7.3.4.3 Power Transmission

The Bakun Power Transmission System is conceived to be a high voltage direct current (HVDC) system with a long transmission distance, consisting about 1,000 km of overhead lines and 650 km submarine cable. The transmission system comprises:⁴³

- a. Four 275 kV AC double circuit overhead transmission lines 3 km in length, connecting Bakun Power House and the AC/DC converter (rectifier) station at Bakun.

⁴¹ Ibid, p. 16.

⁴² Ibid.

⁴³ Ibid, pp. 16-17.

- b. AC/DC Bakun Converter Station which is about 3 km away from the power plant, downstream to the north-west.
- c. Two parallel 400 kV DC (monopole and bipole) overhead transmission lines of minimum length of 675 km, connecting the Bakun AC/DC converter station with the overhead lines/submarine cable transition yard at the cable departure point at Teluk Melano, Sarawak.
- d. Three submarine cables (400 kV, 568 MW capacity, 650 km) cross the South China Sea up to the landing point and submarine/overhead line transition yard at Teluk Mahkota, Johore.
- e. Two 400 kV DC overhead transmission lines of a minimum length of 325 km connecting the Teluk Mahkota Transition Yard with the DC/AC converter (inverter) at Semenyih, Kuala Lumpur.
- f. DC/AC Converter Station at Semenyih.

All Power Transmission System components are designed for maximum operation at 500 kV voltage level to be able to transmit more power for future expansion.

7.4 The Bakun Hydro Electrical Project (HEP): The Tension between Development and Environmental Interests

In this part, the researcher will analyse the arguments between the groups who support this project and the groups who oppose this project. The conflict among these

groups is important to show the practice of environmental ethics. In addition, the researcher will analyse both groups' arguments in the light of Islamic environmental ethics.

7.4.1 Points to Be Examined Which Support the Bakun HEP

In this part, the researcher will explore the argument on behalf of the Malaysian Government to support the Bakun HEP.⁴⁴ Beside the reports of EIA to support the government's arguments, a government agency called the Economic Planning Unit (EPU), Prime Minister Department, Malaysia published a book called 'Bakun: Green Energy For The Future'. In reply a counter attack come from the group who opposed the Bakun HEP, the EPU who published this book on-line through their web site. This official web site is <http://www.epu.jpm/epu-pub-bakun.html>. The Government arguments to support the development of Bakun HEP may be analysed in relation to three aspects. There are the usage energy in Malaysia; the project is positive and has environment friendly characteristics; and this Bakun HEP is safe and efficient.

7.4.1.1 Malaysia's Energy Policy

Malaysia's national energy policy is centred around the four-fuel diversification strategy of utilising oil, gas, hydro and coal with emphasis on non-oil domestic resources in order to reduce dependence on oil. Following industrial growth, and

⁴⁴ Ekran Berhad, *Bakun Hydroelectricity Project Environmental Impact Assessment Interim Report Project Description*. Op. cit., pp. 7-11.

greatly reduce dependence on oil imports, it is important to look at alternative energy resources such as natural gas and hydro.⁴⁵

Therefore, the Malaysian Government set up the National Energy Policy to achieve the following long-term objectives:⁴⁶

- a. To provide the nation with adequate and secure energy supplies by reducing dependence on oil and developing and utilising alternative sources of energy.
- b. To promote and encourage the efficient utilisation of energy, and to discourage wasteful patterns of energy consumption.
- c. To ensure that factors pertaining to the environment are not neglected in the development of the energy sector.

Beside that, the development of energy resources in Malaysia will have to keep pace with the acceleration of the nation's industrial growth, particularly the growing emphasis on the development of energy-intensive and energy-based industries. To achieve that, sustainable development has gradually become the central concept of formulating strategies for future economic progress. The strategies for sustainable development pertaining to energy development are as follows:⁴⁷

⁴⁵ Ibid, p. 7.

⁴⁶ Ibid, pp. 7-8.

⁴⁷ Ibid, p. 8.

- a. A reduction in total consumption through energy conservation and energy-efficient measures.
- b. An increase in energy supply which will help to ensure lasting economic growth of the country
- c. The design of transition strategies to achieve lower consumption by improving energy efficiency, developing new technologies and implementing energy-conservation measures
- d. The creation of energy-development strategies favouring renewable energy sources.
- e. Consideration of technological and environmental risks in the choice of development strategies, and prevention of specific types of pollution.

Another important point concerns the main energy resources of Malaysia. Currently, the energy resources are oil, natural gas, coal and hydropower. Based on the reserve-to-production ratio of 13 years at the current rate of production, oil reserves in Malaysia are expected to be depleted by the early part of this century. However, reserves of non-associated gas are still found in abundance and are expected to last for at least another 100 years. The hydro resources are therefore considered to be another potential source of power and energy for the country, and the potential areas of hydropower are located in the interiors of Sarawak and Sabah.⁴⁸

⁴⁸ Ibid, p. 9.

The Malaysian Government also believes that energy demand has grown at a faster rate than the growth of Gross Domestic Product (GDP). The final consumption of energy increased from an average growth rate of 7.7 per cent per annum during the Fifth Malaysia Plan to 9.3 per cent per annum during the first half of the Sixth Malaysia Plan. So that, demand for electricity increased at a rate of 13 per cent per annum from 3 840 megawatts (MW) in 1990 to 5 530 MW in 1993, and this rate is expected to remain at a high rate of 14 per cent per annum every year. The rapid expansion in electricity demand is largely attributed to increased demand by the industrial and commercial sectors.⁴⁹

In Malaysia there are three main utilities which are responsible for electricity, namely, Tenaga Nasional Berhad (TNB), the Sabah Electricity Board (SEB) and the Sarawak Electricity Supply Corporation (SESCO). The generation mix of electricity in Malaysia at present comprises oil, natural gas, hydro and coal. However, dependence on oil for electricity generation has declined significantly in recent years, in line with the government's policy to diversify power sources and to exploit the potential of renewable indigenous energy resources. The growing importance of the non-oil sources for electricity generation in Malaysia is illustrated in the generation mix for the period of 1990-1995. (See Table 7.2: The Electricity Sources in Malaysia 1990-1995)

⁴⁹ Ibid.

Therefore, the government insists that beside the greater utilisation of gas in electricity generation, the exploitation and development of hydro resources are also being emphasised by the government. Indeed, Malaysia has a large hydropower potential with an estimated energy output of 123 000 Gwh per year. The development of large hydro resources, especially the Bakun in Sarawak, will provide a potential source for a vast energy supply to meet the rapid increase in electricity requirements, particularly in Peninsular Malaysia and Sarawak.

On another point, hydropower is proven to be a safe, clean, efficient and renewable source of energy, compared to oil-based generation and natural gas-based generation. Unlike nuclear and fossil fuels, hydropower is by nature less damaging to the environment as the generation process does not result in continuous waste disposal and emission of air pollutants. The contribution of hydropower generation to global warming is estimated to be 24 times less than that of fossil fuel-based electricity generation. This has been shown by the Hydro Quebec study conducted on the James Bay Project. (See Table 7.3: Relative Emissions of Greenhouse Gases by Energy Systems (based on a 50-year life of the James Bay Project, Canada).

To conclude, the Malaysian Government argues that the Bakun HEP is important to generate energy in the country. This project will boost the rapid development of Malaysia.

7.4.1.2 The Bakun HEP is Positive to the Environment Protection and Enhancement

According to the Government source from the Economic Planning Unit, Prime Minister's Department of Malaysia, the Bakun HEP will undoubtedly have some impact on the environment. However, this impact is minimal compared to the numerous benefits that are expected to accrue from the project. In order to minimise the impact, the project promoter, Ekran Berhad, is required, under the Environmental Quality Act 1974 and the Natural Resources and Environment (Amendment) Ordinance, 1993 of Sarawak, to submit Environmental Impact Assessment (EIA) reports on the project, detailing the possible impact and the mitigating measures. The Natural Resources and Environment Board (NREB), Sarawak and the Department of Environment (DOE), Ministry of Science, Technology and Environment (MOSTE) are the responsible authorities to approve the EIA reports and ensure that the project promoter complies with the mitigation measures stipulated in the EIA reports.⁵⁰

⁵⁰ Economic Planning Unit, *Bakun Green Energy for the Future*, access on <http://www.epu.jpm.my/epu-pub-bakun.html>.

The Government argues that the Bakun HEP has environmental benefits which include the reduction and containment of global warming and acid rain, improvement of river water quality, regulation of river flow, mitigation of floods, improvements to ecotourism potential and the sustainability of resources.

Furthermore the Bakun HEP will reduce Malaysia's dependence on fossil fuels. Global warming and acid rain have been linked to the burning of fossil fuels. Therefore, it is believed that compared to fossil fuels, hydropower is much cleaner and friendlier to the environment and therefore its usage is very much in line with the objective of reducing and containing global warming as well as reducing acidity in rain at the local and regional level.⁵¹

The Bakun HEP will improve the quality in river water. The project will ensure that the suspended particles of the Balui River at the downstream boundary of the Bakun Dam site is maintained at levels not exceeding the existing level throughout the project life. High erosion risk areas will be clearly identified and cutting slopes will be minimised by all concerned. In the long term, the Bakun HEP will help improve downstream water quality in terms of lower suspended particles. In addition, clear and good quality water is expected to be discharged from the dam. The project will also help regulate downstream river flows, particularly during the dry periods, thus reducing

⁵¹ Ibid, p. 50.

river navigation problems during these periods. A continuous discharge from the dam, particularly during the dry periods, will also reduce salt water intrusion and damage due to flooding in the lower Rajang river. Beside that, water quality assessment for rivers, both upstream and downstream of the hydro dam, will be carried out and regularly monitored throughout the project life.⁵²

The Bakun dam will help mitigate and reduce floods, particularly during the wet period as well as increase the potential for irrigation schemes in the downstream regions. Hydrological stations equipped with on-line systems will be set up at the drainage and irrigation gauging stations at Kapit, Nanga Benin and Belaga for the purpose of maintaining a minimum flow downstream.⁵³

7.4.1.3 The Bakun HEP is Safe and Efficient

On the technical aspects of the Bakun HEP, particularly those relating to the safety of the dam and structures as well as the feasibility of transmitting electricity through long submarine cables, many studies have been undertaken to ensure that the dam is safe and efficient.⁵⁴

According to the feasibility study initiated by SESCO and carried out by a consortium of German consultants, commenced in October 1981, there are three types

⁵² Ibid, p. 51.

⁵³ Ibid, p. 52.

of dams to be considered for the Bakun HEP. The three types of dams were a rockfill dam, a concrete gravity dam, and a concrete arch dam. The government selected the concrete arch dam for the detailed feasibility design studies based on feasibility-level layouts and cost estimates prepared for each dam type alternative, and the length of time to complete each alternative. The general layout and major components of the project are highlighted below:⁵⁵

- a. A 204 metre high concrete arch dam with a crest length of about 1,100 metres and a total concrete volume of 3.9 million cubic metres (mcm). Four bottom outlets with a combined outflow capacity of 6,700 cubic metres per second (cumecs) were incorporated in the middle section of the arch dam, controlled by four radial gates,
 - b. An underground powerhouse with eight 300 MW Francis units, giving a total generating capacity of 2,400 MW. The main transformers and the switchgear were housed in a separate cavern situated downstream of the powerhouse cavern,
 - c. An inlet bay in front of the intake structure consisting of eight steel-lined pressure shafts and an outlet bay downstream comprising eight tailrace tunnels,
 - d. A concrete chute spillway with six radial gates situated at the left abutment.
- The spillway would have a capacity of 17,040 cumecs, and

⁵⁴ Ibid, p. 5.

⁵⁵ Ibid, pp. 6-7.

- e. A river diversion scheme comprising upstream and downstream cofferdams and two concrete-lined diversion tunnels located at the left abutment. The two tunnels have a combined discharge capacity of 5,175 cumecs.

For the Bakun dam's plan and design, a panel of experts comprised Dr. John Newberry, Ivor Pinkerton, et. al., designed an earth core rockfill dam (ECRD), provided suitable core material within economic haulage distance of the dam site could be found, and a concrete face rockfill dam (CFRD). Later on based on technical considerations, the Panel concluded that the CFRD was as good as the ECRD and the technology for the latter was 'well proven' for a 210 metre-high dam. The significant elements of the design of CFRDs included the details of the peripheral joint between the deck and the plinth, the rockfill in that area and the longitudinal joint details.⁵⁶

The rockfill dam is defined as an embankment dam that relies on rockfill as the major structural element. Historically, the rockfill dam is considered to have evolved from rock crib and timber face rockfill dams created by miners during the California gold rush in the United States of America in the 1860s and 1870s. The development of the CFRD began primarily in the United States of America in the early 1900s. Then, the use of compacted rockfill enabled dams to be designed with limited deformation and as a result many CFRDs were constructed throughout the world in increasing numbers and

⁵⁶ Ibid, pp. 8-9.

for increasing heights. From the year 1970 until the present, a major new development in their design was the use of a slipformed, nearly monolithic face slab, with no horizontal contraction joints. Following the construction of the 110 metre high Cethana Dam in Australia, the development of CFRDs progressed rapidly throughout the world. The performance of the many and increasingly high CFRDs has demonstrated that a substantial pool of experience exists which can be used to construct with confidence dams of more than 200 metres in height.⁵⁷ (See Table 7.4: World's Highest CFRDs)

Very important to the building of the Bakun dam is the safety of dam. Therefore, the designers of modern dams approach the 'defensive design' to guard against abnormal behaviour. The defensive design approach uses engineering judgement and experience to select and incorporate in the design of the dam measures that provide protection against catastrophic failure, mitigate the effects of unforeseen events and provide multiple lines of defence. The main function of a dam is to retain the reservoir. This is accomplished by incorporating a watertight element in the embankment. For CFRD design, watertightness depends on the upstream concrete face and the foundation. These two elements interface in the plinth or perimeter slab.⁵⁸

The other main point is that the Bakun dam is located in an area of low to very low natural seismic activity. This is confirmed by the fact that only twelve tremors have

⁵⁷ Ibid, pp. 11-12.

⁵⁸ Ibid, p.14.

been felt in the area in the last 100 years. The project area is located in a stable block far from the seismically active plate boundaries. Although the dam and reservoir are both very large, the probability that the project might trigger an earthquake is small because of the low natural seismicity of the area, and the watertightness of the reservoir. Even if an earthquake were triggered by the reservoir, that event will occur within the framework of the pre-existing low seismic activity. Several high CFRDs have been constructed in areas of moderate to high seismicity, which compare to the Bakun dam. (See Table 7.5: List of CFRDs in Seismic Areas)

To summarise the above points, the Malaysian Government is confident that the Bakun HEP can justifiably be developed and build. Although there are many comments and criticism, locally and internationally, the construction of this project begun January 1994 has continued until now. It will be completed on schedule in December 2007.

7.4.2 Points to Be Examined Which Oppose the Bakun HEP

The groups against the Bakun HEP are local, national and international. They include individuals, groups, politicians, non-governmental organisations and others. On December 2nd and 3rd, 1995, a seminar was held in Kuala Lumpur, Malaysia, entitled “The Bakun Dam: Feasibility, Impact and Alternatives”. This seminar was an effort by the opposition groups which are against the Bakun HEP. Some of their arguments

against this project raised many unanswered questions, directed much abuse at the government's own laws for allowing the project to proceed, secrecy and criticised the contradictions in official statements. For instance, regarding the Environmental Impact Assessment (EIA) for the Bakun HEP, by January 1996, Ekran Berhad still had little idea of the exact costing of the project. The available EIAs with no provision for public feedback were full of vague statements about the 'unquantifiable' effects of the dam on, for instance, public health, the environment, downstream populations and ecosystems, and the marine environment of the South China Sea. Indeed, the Malaysian public were denied access to the mass of data to which the government makes reference as 'justification' for the project, but which they keep locked away from the public under the Official Secrets Act (OSA).⁵⁹

The Bakun HEP was opposed by many in the indigenous communities, together with opposition political parties, a coalition of over 40 Malaysia NGOs, other NGOs and individuals. They attacked the project on just about every ground. Its necessity and viability were called into question and the cost of its social and environmental impact was deemed unacceptable. Among the NGOs against the Bakun HEP were Forests Monitor, Friends of the Earth (FoE), Global Witness, International Rivers Network (IRN), Sarawak Solidarity Campaign, The European Committee for Human Rights in Malaysia and Singapore (KEHMA-S).⁶⁰

⁵⁹ Insan, *Power Play: Why We Condemn the Bakun Hydroelectric Project*. Op. cit., p. vii.

⁶⁰ Friends of the Earth, *The Bakun Hydroelectric Project Malaysia, Briefing Sheet*, p. 1.

At international level, their reasons for supporting the groups opposed to the Bakun HEP, included, for example, Patrick McCully, Campaigns Director for International Rivers Network who argued,⁶¹

This EIA is a clear attempt to rubber-stamp a dam which the Malaysian authorities and their friends in big business have already decided to build, no matter the environmental or social costs. Our review shows the interim EIA to be a thick wad of glib assertions, pro-dam bias, and poor science.

The London financial consultancy Delphi International report entitled 'Bakun: High Dam High Risk?' commented,⁶²

The report warns that the Bakun will be a highly risky investment which would produce power at an uneconomic price and that many more exciting investment opportunities exist in the fast growing Malaysian economy.

Actually, when the Bakun HEP was first seriously proposed in the 1980s, protest from within the indigenous communities was sustained and widespread. Nearly half of the population signed a petition opposing the dam and there was general relief when it was cancelled in 1990. However, with the revival of the Bakun HEP in 1993, the Government has deflected and suppressed opposition to the dam by accusing critics

⁶¹ International River Networks, *IRN Press Release July 5, 1995* access on <http://www.irn.org>.

⁶² This quotation is found in *World Rivers Review* of September 1996 by Patrick McCully.

of being anti-development, unpatriotic and manipulated by western environmentalist thus making serious discussion of the issues very difficult. Nevertheless opposition has been consistent and widespread. Indigenous people and NGOs have petitioned the Government and companies involved to stop the project and over forty Malaysian NGOs have formed a coalition to campaign against the building the dam.

In April 1995, representatives from longhouses communities in the Belaga district formulated the Bakun Declaration which concluded; "The Government should cancel the proposed mammoth Bakun Dam project to save our Native Customary Lands, farms, crops and our property". In November 1995, a group of affected villagers managed to meet with British fund managers at the Bakun site to make clear their opposition to the dam. They presented a letter which stated; "We do not want to be resettled from our native lands because this land was given to us by our ancestors...We the poor people of Bakun, who make up the majority of the community, will die with this our ancestral land".

Their effort to oppose this project came to the Malaysian court in January 1996. Three indigenous residents of the Bakun area took Ekran Berhad and the Government to the Kuala Lumpur High Court over the legitimacy of the EIA process. On June 19th, 1996, the High Court ruled in favour of the three Bakun representatives, declaring that the Government had failed to comply with its own environmental laws in approving the

project. The judge declared that Ekran Berhad must comply with the Environmental Quality Act, 1974, before carrying out work on the project, and also declared as invalid the Environmental Quality (Prescribed Activities) (EIA Amendment) Order 1995 which transferred the approval of EIAs for projects in Sarawak, including Bakun, from Federal to State jurisdiction.

Among the voices from the indigenous people who were affected and who opposed the Bakun HEP were, Bawe Along of Long Geng,⁶³

It is untrue that we do not want to change or improve ourselves. But don't take away our native customary land rights, our rivers and our ancestral burial grounds. Don't force us to accept development that will not benefit us...I will carry on the struggle because without our land, we have no future. Even though I am tired from so many years of struggle, I have to think of my children and their children's future that they will always be able to reap the benefits from the land they work on.

Lime Nokong, 50, of Long Ukit,⁶⁴

I still have about 20 plots of land that won't be flooded by the dam in our old home. Before we came here, they said that we wouldn't have to farm, we'd be having jobs and salaries. But all the talk about facilities and development -

⁶³ *The Star*, dated 25 August 1995.

⁶⁴ International River Network, *Uprooted Lives, Unfulfilled Promises by The Borneo Project* access on <http://www.irn.org>.

where are they? The three acres that they gave to each unit in the longhouse is insufficient. The place here is not what they made it seem to be. Their talk is all sweet on the outside, but inside it is sour. There are thirteen people in my small longhouse unit, including two couples. We sleep side by side. Previously, we could sell game and fish. We could weave mats and baskets. I could even have some savings. Here, I can't even find rattan. There is also no job for my son here, even though he finished high school. I didn't send him to school for nothing, you know? I can't stand the pain here. It's like death.

Simon Jau, 30, of Long Lahanan,

I feel so unsettled, like I am at the end of a road. I hope that we will be freed, to go home. When the Government asked us to move to Asap, we obeyed and honored them. They promised us that everything would be good in Asap, but those promises have been broken. We would like to have our customary rights on our old lands back, those that won't be inundated with water. These rights are real. The authorities shouldn't only be stressing their rights. To begin life here, things should have been done step by step, so that we could learn. But the way we were asked to move, it was as if there were an emergency. Yet the dam still won't be finished for many years to come, if at all. We still need to return frequently to our old home to look for food. Now we live on about RM8 (GBP1.3) a day, but in the old house, I could easily find RM20 (GBP3) a day. Here, my wife goes out to gather vegetables, and what can she find? Pebbles?

People need to eat to live. I really feel like we have been ordered around. If only half of my fellow villagers dared to stay, I would have stayed back home. This so-called modernity is a burden.

Salina Tajang, 22, of Long Ukit,

Previously, when you were in trouble, everyone would help you. Here, one has to look after one's own affairs. You and yourself. Me and myself. We don't have the money to care for others. In our old village, if you got hold of a wild boar, everyone in the longhouse would get to taste it. Now, if your neighbor manages to catch a fish, you can only hope to smell it. Many times we have to eat rice only with salt. Then, when there is no rice, I have to find tubers instead.

Bunga Gani of Long Penan,

What is the good of Asap? There is no delight in staying here. You look right over there, that is another village's territory. Some people like bombing the fish in the river. After a bomb is used, forget finding fish, even the crocodiles are all killed. To buy food, we have to hire transport or walk an hour to the nearest shop. Even the vegetables are expensive. Look at all the written rules on the wall. We didn't have to write down rules before this, you know?

Anonymous woman in her thirties,

I want to return to my old home. Let the authorities be enraged, I can't be bothered. I have no money here, the fish are all gone, the vegetables finished. Unfortunately, had we refused to move here to Asap, we probably would have

been chased here anyway. The price of the house is unreasonable, and it's already damaged. In my old home, the quality of our houses was so much higher. We had cement floors. Everything costs money here. Before, we could sell our fish and save the money for the few bills that we had to pay. Now, I need at least RM10 (GBP1.67) to take my ailing mother to the clinic. She has been lying here, unable to rise for three days already. My children have stopped going to school because we can't afford it. Even the betel nut we chew has to be paid for. Look at my grandniece, she is so thin now. Doesn't the government care? I don't want to make more tuak wine. The men have been drinking excessively, then they fight. The women drink too". No wonders that the indigenous people who are directly affected by the Bakun HEP opposed it.

As for financing from foreign investors for the Bakun HEP undertaken by Ekran Berhad, some NGOs such as Friends of the Earth International which is UK based launched a campaign to persuade United Kingdom (UK) investment fund managers not to invest in a company planning to build a dam which would destroy the rainforest homelands of native people in Sarawak. This was because some of the UK investment companies are known to hold several millions shares in Ekran Berhad.⁶⁵ Simon Counsell, Forest Campaigner for Friends of the Earth said,⁶⁶

⁶⁵ Press release by Friends of the Earth, London on 9th May 1995.

⁶⁶ Ibid.

UK investors might be horrified to learn that they are helping finance an act of ecological vandalism and the abuse of native peoples rights, and should withdraw funds from Ekran Berhad. The Bakun HEP should be put on hold until a proper assessment of the ecological and social impacts has been carried out.

As part of an international lobbying effort, Friends of the Earth, UK, along with other groups such as the Berne Declaration (Switzerland), The Ecologist, The European Committee for Human Rights in Malaysia and Singapore, Forests Monitor, and the International Rivers Network (USA), sent letters to hundreds of institutional investors and fund managers in February 1997 warning them of the financial, environmental and social risks involved in the Bakun HEP. In one of the replies, J L Parrot of Commercial Union responded that,

We continue to consider that the project has too many high risk features to make Ekran Berhad attractive investments at the present time.

The Co-op Bank and Dutch Bank have written to the Friends of Earth stating that they have no intention of investing in this project, because of the greater risks of the Bakun HEP, which include the cost overruns and a substantial risk that the dam will produce less power than forecast; and possible long term technical problems with reservoir sedimentation and the unprecedented 670 km long undersea power line. And again Sarah Tyack of Friends of the Earth said;

It is clear that major institutional investors and financial analysts are beginning to realise that an investment in this Bakun HEP is not only unethical but carries a high financial risk due to expected long-term technical problems and overly optimistic performance forecasts. Ekran Berhad must take this warm luke response from potential foreign investors as a reflection of the lack of confidence in this project as a viable enterprise.⁶⁷

The impact of pressure from the international NGO's had made a Swiss company ABB pull out from the Bakun HEP, because they dispute the contracts that would cover cost overruns with Ekran Berhad.

The researcher then has analysed some of the reasons given by those opposed to the Bakun HEP, namely that the project is non-profitable, the Bakun dam and reservoir will destroy the surrounding environmental areas and that the Bakun HEP may cause seismic disturbances and earthquakes.

7.4.2.1 The Bakun HEP is Non-Profitable

Before the Bakun project began, the opposition argued that the electricity in Malaysia has more supply than demand. (See Table 7.6: Demand and Installed Capacity

⁶⁷ Ibid.

in Malaysia, 1990-94 (MW) and Table 7.7 Projected Peak Demand for Electricity, 1995-2000 (MW). Mr Ani Arope, ex-Executive Chairman of Tenaga Nasional Berhad (TNB), stated in an interview with Malaysian Business in March 1995 that the Malaysia's supply capacity stood at 9,700 MW with peak demand at 6,300 MW. By 1996, supply capacity will rise to 11,400 MW, with demand projected to reach 7,048 MW. By the year 2000, supply will be at 13,510 MW and demand at 10,380 MW. He indicated that current reserve margins are well in excess of what those in the industry would consider necessary: the extent of the over-supply is admitted to be hugely wasteful by 50 %. Mean time, Tenaga Nasional Berhad is forced to buy supply from the Independent Power Producers (IPPs) even if it is not needed.⁶⁸

Furthermore, instead of Tenaga Nasional Berhad owning the plant generation and supplying the electricity, there are IPPs⁶⁹ which supply the electricity. Therefore, there are many projects in Peninsular Malaysia to generate electricity. For instance, TNB itself had built two new large coal power plants in Yan, Kedah and Lumut, Perak, which will have a combined capacity of 6,000 MW. The IPPs have also built a new project, for example, in Johore's first privatised plant which will generate 500 MW.⁷⁰ S.M. Mohd Idris, the President of Sahabat Alam Malaysia (SAM), has therefore questioned the advisability and viability of building the Bakun HEP when YTL Power

⁶⁸ Ibid, p. 22.

⁶⁹ IPPs is the Independent Power Producers which the power generated by them will be sold to TNB

⁷⁰ Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*, Op. cit., p. 22.

Generation and Sikap Power could produce 2,470 MW for an estimated project cost of RM6.5 billion.⁷¹

In terms of the cost of the Bakun HEP, the opposition has inquired how much electricity the dam will actually produce, because this will directly affect the cost to the consumer. It is believed that there is actually no official cost breakdown of the Bakun HEP as it stands, because the Government awarded the contract in circumstances that denied public accountability and transparency. The official figure of the cost is RM 15 billion, but the Barclays de Zoete Wedd (M) Sdn Bhd has estimated the costs at RM 12 billion. (See Table 7.8: Barclays de Zoete Wedd (M) Sdn Bhd Estimates of the Bakun HEP Costs).

It is widely doubted whether Ekran Berhad submitted a full-fledged proposal for the project before it secured the contract. Certainly the process of awarding the contract, without any tender of any sort, has meant that there is no available breakdown of the project costing and no yardstick by which to measure what the true cost of the project may be. A critic pointed out that the Bakun HEP contract was overpriced by at least RM6 billion. Even in the early 1980s, the estimated cost of the project was RM8.1 billion, but now it has been suggested that project costs may be in the region of RM25 billion to RM30 billion. This means that the direct impact on electricity prices must be high and expensive.

⁷¹ Ibid, p. 47.

Then, there is the question of how much the electricity costs the consumer, as the Bakun HEP has argued that it is a necessary and cheap supply of electricity for Malaysians. If the Bakun HEP were to produce 18,000 GWh it is estimated that the cost to the consumer in Peninsular Malaysia would be 23-29 cents per KWh. But in an article in *Utusan Konsumer*, the newspaper of the Consumers' Association of Penang, Malaysia, we read, "According to reliable sources, to make a profit, electricity from Bakun HEP will have to be sold at about 31 cents (because the generation and transmission costs can be as high as 25 cents)". Consequently, it seems that the cost of electricity is uncertain and it could escalate from the estimated price. This may affect all Malaysian consumers who will have to pay high cost for the electricity. Indeed, while the Government has given the IPPs in their Power Purchasing Agreements (PPAs) with Tenaga Nasional Berhad a guarantee of sales of a fixed amount of electricity, irrespective of demand. In other words, they have been guaranteed profits, and it is TNB and consumers directly who bear the high cost of electricity.⁷²

7.4.2.2 The Bakun Dam and Reservoir Will Destroy the Environment

In June 1990, Datuk Seri Dr Mahathir Mohammed, the Prime Minister of Malaysia, announced that the Bakun HEP was cancelled due to ecological reasons.

⁷² Ibid, pp. 41-42.

According to him, the decision was 'proof that Malaysia cares about the environment' and was 'Malaysia's contribution towards preserving the global ecology and environment'. However, in September 1993 the Bakun HEP was resurrected without any of the original ecological concerns being adequately addressed.

In this part, the researcher will analyse the opposition arguments that the Bakun HEP, especially the dam and reservoir, would destroy and demolish the environment. Although the Government had approved the Bakun's HEP EIA reports presented by Ekran Berhad, those EIAs which are available do not give detailed information on the environmental impact. An independent assessment of the interim EIA by the International Rivers Network (IRN), for example, concluded that its usefulness is limited by basic methodological flaws and it does not provide an adequate assurance to potential investors and lenders to the Bakun HEP that the economic benefits of the project will be greater than overall costs. In addition, the Interim EIA also fails to address:

1. The forcible resettlement of the indigenous people.
2. The consequences the dam would have on the river estuary, especially the likely increase in coastal erosion and ecological changes caused by reduced flows of freshwater.
3. The ecological effects of a reduced frequency and duration of floods on the downstream floodplain.

4. The impacts of habitat fragmentation on wildlife populations upstream of the dam.
5. The loss of fish species upstream and downstream of the dam and how this loss would affect regional biodiversity and local subsistence fishing.
6. The downstream risks due to dam failure.⁷³

Regarding the efficiency of the dam, this is dependent on a number of factors, such as the site of the dam, flow fluctuations, local climate and siltation rates. The elements within these factors are complicated and inter-related. Therefore an attempt to predict such factors over a fifty year period cannot be more than speculation. However, while the Government had conducted the feasibility the studies but the data had been hidden from the scrutiny under the Official Secrets Act (OSA).⁷⁴

For instance, the sedimentation and water catchment area for the Bakun HEP is a problem. The contrast feasibility study conducted in 1983 and the EIA in 1994 represent an example of assumption masquerading as fact. The 1983 study reported that the level of sediment at the dam was not expected to exceed 77m above sea level (asl). According to the EIA (Interim Report) of 1994, the erosion rate had reached 740-1,480 million tonnes per annum by the early 1990s. This is already a huge increase, and, with

⁷³ Friends of the Earth, *The Bakun HEP: Environmental Impacts, Briefing Sheet*. pp. 1-2.

⁷⁴ Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*, Op. cit., pp. 26-27.

further logging activity, including clear-cutting the reservoir area, this rate is likely to increase even further.⁷⁵

The water catchment area of the Bakun Dam covers some 1.5 million hectares, much of which has been given out for logging. In other words, it covers 14,750 km² of a total 44,200 km² of the Batang Rajang watershed. Extensive logging has already been carried out, without a single Environmental Impact Assessment being submitted or approved. No water catchment management policy has been produced.⁷⁶

The clearance of the reservoir area will affect flora and fauna through loss of habitats and of food. Species that are able to migrate will increase pressure on food and habitat elsewhere. The detailed EIA on Reservoir Preparation makes no attempt to quantify the cost of the Bakun HEP in terms of biodiversity loss, other than to say that it is likely to be significant. The construction of the reservoir will involve the inundation of 69,640 hectares of terrestrial habitat, significantly affecting 115 species of animal which are 'protected' (which means, no person may collect, damage or sell these species) under Malaysian wildlife legislation. The habitats involved were those of the great leaf monkey, Bornean gibbon, and Malayan sunbear. Also 1,230 species of plants used for medicines, food, fibre and other social uses will be submerged by the

⁷⁵ *ibid*, p. 27.

⁷⁶ *Ibid*.

reservoir. The potential medicinal value of the plant species that will be lost alone could cost billions of Malaysian ringgit.⁷⁷

In addition, clearing and flooding the reservoir will also release greenhouse gases. Submergence will take place after the biomass (forest vegetation and wildlife) has been cleared, by removing the commercial logs and woodchips, and burning the rest. Biomass burning causes haze and releases carbon dioxide (CO₂), a greenhouse gas which is a major cause of global warming. Thus, flooded biomass will rot very slowly giving off CO₂ and methane, which is 21 times more potent as a greenhouse gas than CO₂ for decades to come.⁷⁸

The most important issue on which the groups opposed the Bakun HEP is regarding the forest in this area. Sarawak is home to tropical rainforests which are amongst the most biologically diverse and ecologically significant ecosystems in the world. The construction of the Bakun dam will involve the total clearance and flooding of an area the size of Singapore, some 69,640 hectares. The forest will be logged for timber and chipwood production and cleared of all significant vegetation, as set out in the Environmental Impact Assessment for the Biomass Removal Plan. In other words,

⁷⁷ Friends of the Earth, *The Bakun HEP: Environmental Impacts, Briefing Sheet*, p. 2.

⁷⁸ Ibid, pp. 2-3.

73.6% of the Bakun catchment area is stated as being primary forest and only 21% is said to have been selectively logged.⁷⁹

7.4.2.3 The Bakun HEP May Cause Seismic Tremors and Earthquakes

According to the International Rivers Network, the description of the earthquake or geological hazard facing the Bakun HEP at the proposed site is very superficial.⁸⁰ Some of the statements are contradictory or incorrect, suggesting a lack of up-to-date knowledge on the subject of earthquake hazard. For instance, the report of EIA under Technical Feasibility stated that the Bakun dam and reservoir area is situated in a seismically and tectonically stable block. However, in an appendix it says,

This region is dissected by several major faults connected regionally to major faults outside the region. In Sarawak, there have been reports of earthquakes of small to medium magnitude since 1870. The most intense tremor occurred recently between 12th-19th February 1994 with a magnitude of 5.1 and its epicentre located somewhere 100 km east of Sibu. Due to the lack of record of seismic events in the past, a seismic risk analysis of the Bakun dam project has to be based on seismic records from the neighbouring areas. The continuous compression in this region may have reactivated some of the old fault lines in this region and subsequently triggered the earthquake.⁸¹

⁷⁹ Friends of the Earth, *The Bakun HEP: Forests and Forest Management, Briefing Sheet*, pp. 1-2.

⁸⁰ International Rivers Network, *Comments on Excerpts from Reports Concerning Earthquake Hazard at the Bakun HEP in Sarawak, Northwestern Borneo* access on <http://www.irn.org>.

⁸¹ Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*, Op. cit., p.33.

Another contradiction in the EIA Interim Report, part 4, stated that 'there exist a series of fractures and probably fault zones in the vicinity of the dam site. These evidences were previously not highlighted in the SAMA Consortium Report'. It went on to say 'The design of the dam should take into consideration the worst seismic event that can be expected, *probably 6 on the Ritcher Scale*. The huge volume of water and the presence of faults and fractures within the reservoir may trigger off a certain degree of crustal adjustment'. The contradiction with statements that the area was free from any seismic activity and the obvious evidence contained in the EIA reports resulted in questions being asked in the Malaysian Parliament. It appears as though the Government has finally realised that there is a danger, so that the Bakun dam must be built to withstand an earthquake of at least 6.4 on the Ritcher scale and maximum peak ground acceleration of 0.15g.⁸²

According to the IRN, there are three types of earthquakes that could cause a damaging level of shaking at the Bakun HEP site which need to be considered: firstly, the distant very large earthquakes associated with the plate boundaries; secondly, the regional and possibly local intermediate-magnitude intra-plate seismicity; thirdly, the local earthquakes triggered by the reservoir itself.⁸³

⁸² *ibid.* p.33.

⁸³ International Rivers Network, *Comments on Excerpts from Reports Concerning Earthquake Hazard at the Bakun HEP in Sarawak, Northwestern Borneo* access on <http://www.irn.org>.

To conclude, although the Bakun HEP is a high-risk project, the Government intends to build, the pressure from the opposition groups has had an impact only to the international level, such as the company ABB pulling out from this project.

7.5 Discussion: An Analysis between Pro and Contra

In this section, the researcher will analyse the arguments between the supporting and opposing groups on the Bakun HEP.

7.5.1 Current Status of the Bakun HEP

Following the researcher's visit to the Bakun HEP's site, there are some considerations that need to be taken into account. Firstly, in terms of the spending on this project, which began in 1992 until the end of 2002, the Government of Malaysia, through the company, has spent an estimated RM 1 billion (Ringgit Malaysia: one billion)⁸⁴, around Pounds Sterling 170 millions⁸⁵. The spending includes:

- a. The access road from Bintulu to Bakun via Tubau which cost approximately RM 300 million (GBP 50 million).
- b. The Bakun dam site.
 1. Three tunnels: approximately RM 300 million (GBP 50 million)
 2. The coffer dam: approximately RM 400 million (GBP 66.67 million)

⁸⁴ This sum was given by Mr Sim See Sheng (Senior Resident Manager) and Mr Wan Mohamad Su'ut Wan Moss (Resident Manager)

⁸⁵ The exchange rate is RM1 for 17 pence on Jun 2003.

At the moment, as the Government of Malaysia has decided to proceed with this project, it will be completed in 2007.

Secondly, there is the question of the resettlement area for the people who are affected directly by this Bakun HEP at Sg Asap. A total of more than ten thousand people, which include various communities, has been resettled since 1998. Although some of the people do not wish to move from their home village, they must choose to either go far away or instead stay at their homes with danger because the area will be flooded to be a reservoir. Therefore, the Government itself has spent the money to provide the better facilities at Sg. Asap. This includes compensation, long houses, lands for cultivation and agriculture, schools, clinics and others. The Government's spending at Sg. Asap is ongoing and new area is becoming a developing town.

Thirdly, although the Bakun HEP is still on schedule, the impact of the development of the area has become increasingly rapidly, because the road Bintulu-Bakun has affected the traditional internal transportation in the State of Sarawak, which is the Rajang river.

Now, the question is whether this project should be stopped or continue? The next part is the researcher's point of view on either agreeing to stop or continuing this project. This analysis will be based on the Islamic perspective to resolve the conflict.

7.5.2 The Public Interest, *Maṣlaḥa*, on the Bakun HEP

Now, in the researcher's view, the Bakun HEP should continue until the project is completed and take up some suggestions. Before that, if this project has not yet started, the Government should hold a consultation or '*shūrā*'⁸⁶ before making a decision to build this project. Indeed, Islamic legislation is expected to contain provisions to protect the environment and guarantee its sustainability.⁸⁷ In addition, the Bakun HEP should not to build is based on some justifications. According to the Qur'ān, that outlines general principles such as justice, consultation and public interest, this project is a danger to the environment. For instance, the Qur'ān says,

Evil (sins and disobedience of Allah etc.) has appeared on land and sea because of what the hands of men have earned (by oppression and evil deeds, etc.), that Allah may make them taste a part of that which they have done, in order that they may return (by repenting to Allah, and begging His Pardon). (Ar-Rūm, 30: 41)

It is clear that human beings, for instance policy-makers, must accept the responsibility to be a good '*khalīfāh*' before make a decision to build this kind of project. It is important that human beings should not destroy and neglect the valuable natural world

⁸⁶ According to Abdur Rahman, *shūrā* is the mutual consultation of *sharī'ah*. It is described in the Qur'ān as foundation, '...., and who (conduct) their affairs by mutual consultation,...' (Ash-Shūra, 42: 38). Among important reasons of this *shūrā* is a concern of great responsibility to take decisions on matters relating to the rights and interests of others. See: I. Doi, Abdur Rahman, *Sharī'ah : The Islamic Law*. Kuala Lumpur: A.S. Noordeen, 1989, pp. 15-17.

⁸⁷ Izzi Dien, Mawil, *The Environmental Dimension of Islam*, Op. cit., p. 136.

of God's creation. Moreover, the Islamic law outlines that the actors of the destruction must be punished with a hard sentence, such as the punishment for the people who fight against God and His Messengers. The Qur'ān states,

The recompense of those who wage war against Allah and His Messenger and do mischief in the land is only that they shall be killed or crucified or their hands and their feet be cut off on the opposite sides, or be exiled from the land. That is their disgrace in this world, and a great torment is theirs in the Hereafter. (Al-Mā'idah, 5: 33)

In terms of the public interest, *maṣlaḥa*, in Islam, according to al-Ghazālī, As far as the term *maṣlaḥa* is concerned, in its root sense it means procuring something beneficial or removing something harmful, though this is not what we mean (by the legal definition); for seeking benefit and removing harm are the purposes at which the creation aims, and the goodness of creatures lies in the realisation of their purposes. But what we mean by the term *maṣlaḥa* is the safeguarding of the ultimate objectives of the revealed law; and the ultimate objectives of the revealed law with regard to God's creatures are five, which are : safeguarding for them their religion and morality, their lives, their reason, their progeny and their property. Whatever assures the preservation of these five

fundamentals is *maṣlaḥa*, and whatever causes the loss of these fundamentals is *mafsadah* and its removal is *maṣlaḥa*.⁸⁸

Based on the above statement, he elaborated that an unprecedented *maṣlaḥa* must meet three requirements. Firstly, it must be absolutely necessary and indispensable (*darurīyya*), preserving one or more of the five essential values. Secondly, the beneficial result must be definitely predictable (*qatʿī*) and not conjectural. Lastly, it must be universal (*kullī*), taking into consideration the welfare of God's creatures as a whole, and not benefiting part at the expense of the whole.⁸⁹

According to Izzi Dien, he classified the public interest, *maṣlaḥa*, into three categories, namely, the major interest, *maṣlaḥa darurīyya*; the needed interest, *maṣlaḥa hajiyya*; and the embellishing interest, *maṣlaḥa tahsiniyya*.⁹⁰ In the researcher's view, the Bakun HEP was not fulfilling any of the three public interest categories. For instance, in terms of the major interest, *maṣlaḥa darurīyya*, on the consideration of possession, *al-māl*, this project has destroyed natural resources. Natural resources, such as trees, lands, animals, flora and fauna and so on are valuable things. As aforementioned in the previous section, the area, in which the dam is to be built, may destroy the environment. In fact the Qur'ān observes that all property belongs to God.⁹¹

⁸⁸ Al-Ghazālī, Abū Ḥāmid Muhammad ibn Muhammad. *Al-Mustasfā min 'Ilm al-Uṣūl*. Beirut: Dār Ṣādir, n.d., pp. 286-287.

⁸⁹ Ibid, pp. 284-296.

⁹⁰ Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. Cit., pp. 140-143.

⁹¹ The Qur'ān said, 'To Him belongs whatever is in the heavens and whatever is on earth'. (Al-Baqarah, 2: 255).

Furthermore, this project is against the public interest in terms of the needed interest, *maṣlaḥa hajiyya*: for instance, the supply of electricity, which is surplus to the demand by the consumers. These arguments are supported by the group who oppose the Bakun HEP. Moreover, there are alternative ways that more electricity may be produced without building a big dam.

In addition, almost any action will result in a combination of benefit (*maṣāliḥ*) and harm (*maḥāsīd*). As quoted by Izzi Dien, Ibrahim b. Musa b. Muhammad al-Shaṭībī has defined the term *maṣlāḥa* as,

There is no absolute benefit, *maṣlāḥa muṭlaqā*, or absolute harm, *maḥāsada muṭlaqā*, since they should both be understood according to that which is common knowledge.⁹²

And he continues: 'however, when *maṣlāḥa* and *maḥāsada* conflict, judgement should only be passed when one value can clearly be seen to outweigh the other.'⁹³

Therefore, from the researcher's point of view, the arguments between the two groups, which support and oppose the Bakun HEP, should be taken into consideration. The arguments must be justified in order that the project is seen to benefit the people and the government. Furthermore, it is believed that the project should be evaluated by

⁹² Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 136.

⁹³ Ibid.

third parties to obtain an unbiased result, whether to permit this project or to cancel it. After consideration of the arguments from the groups who support this project, it appears that this project has a *maṣlāḥa*. Then, from the views of the groups who oppose this project, it seems that it has *mafsada*. According to Ibn ‘Abd al-Salam, ‘when interest and corruption is clear, there should be no hesitation in dealing with them promptly. If an interest clashes with another more important interest then the first should be suspended, with no harm resulting’.⁹⁴

Perhaps, the viewpoints of the groups who support the Bakun HEP may be examined. Islamic law permits the authority, particularly the government, to intervene and to control as well as to uphold the law for the advantage of human beings. However, in this case the government has overstepped the mark in allowing this project. It is believed that the government may have acted in accordance with the legal maxim, such as ‘the acts of leader is determined and is limited by the public interest’.⁹⁵ Based on this legal maxim, the government can justify its decision by asserting that the Bakun HEP has more advantages for the public, either directly or indirectly.

⁹⁴ As quoted in Izzi Dien, Mawil, *The Environmental Dimensions of Islam*. Op. cit., p. 137.

⁹⁵ Zaydan, Abd al-Karīm, *Al-Madkhal Li Dirasa al-Shar‘īyah al-Islamīyyah*. Iskandariah: Dār ‘Mar Ibn Al-Khaṭāb, u.d., p. 97.

However, in retrospect having studied the current status of this project, the Bakun HEP should be continued; the main reason is that the Qur'ān forbids human beings from wasting the earth's resources:

...But spend not wastefully (your wealth) in the manner of a spendthrift. Verily, spendthrifts are brothers of the devils, and the Devil (Satan) is ever ungrateful to his Lord. (Al-Isrā', 17: 26-27)

As previously mentioned, the government has spent RM 1 billion (approximately GBP 170 millions) on this project, therefore if cancelled, there would be a great wastage of expenditure. Such waste would include both material and non-material resources such as time, space, money, labour, buildings and so on.

In addition, according to the Islamic legal maxim, such as 'the greatest harm should be avoided with the lowest harm'⁹⁶ is important to justify the arguments that the Bakun HEP should continue. In fact, there are some suggestions that should be taken an account for the developer to proceed with this project. Firstly, the project should reduce expenditure to avoid greater loss. In my suggestion, this project needs modification, particularly regarding the technical elements. As a result, the budget may be reduced from RM 15 billion (approximately GBP 2.5 billion) to half that. For instance, the project to transmit a power supply from the Bakun HEP to the Peninsular should be

⁹⁶ Ibid, p. 99.

cancelled, due to the potential danger of running electricity across the South China Sea through cables.

Secondly, after completing the project, the developer should take some consideration to implement the practice of *harīm*, *ḥimā* and *ḥisbāh*, which can be formed as appropriate. This practice should be implemented according to the Islamic perspective. The researcher suggests that the authority should consult with every organisation and expertise, such as the Department of Environment, Department of Forest, non-governmental organisations, communities and others to modify some elements of this project. It is important to implement these concepts of *harīm*, *ḥimā* and *ḥisbāh* to prove the seriousness of the authority. It is perhaps true that this project may have benefits and advantages for the country as well as the people.

Furthermore, from the observation that the sacrifice of the affected community for this project has not been appreciated by the public and community. It seems that the affected community is in one-way communication. It believes that 'three-way' communication is important between the Government (include the developers), the affected community and the public to honour their sacrifice directly or indirectly.

7.6 Conclusion

The case study on the Bakun HEP is an example for the need for people to form the right attitudes towards the environment at the right time and at different levels of society, i.e. on the part of the policy-makers, the officers, the people, the workers and others. At the beginning of the project, the researcher's opinion would have definitely been not to start the project because of the threats that it represented to the surrounding environment, which is a more important consideration than the development gain. However, it became important to accept the continuity of the project and thus developments which are not in harmony with the environment because of the huge amount of natural resources that have already been used. It would be a great double loss if the project was suddenly stopped when the environmental damage has already been done. From the Islamic point of view, the fulfilment of public interest or *maşlāḥa* dictates that such a project has to continue in order to achieve the expected benefits that the environment has already paid for. However, similar projects should be stopped before they start in the future.

CONCLUSION AND RECOMMENDATION

A. Conclusion

It should be noted that it is not the intention of this section to repeat the discussions included in the previous chapters. Rather it is designed to conclude the main thrust of the result of this study, dividing the summarisation into the two relevant parts.

Part A. The effect of environmental crisis has highlighted the need for solutions and created an increasing environmental awareness. Historically, since the Industrial Revolution in the eighteenth century, the debate on environmental issues has addressed the retaining of a balance between development and natural resources. A variety of methodologies have been devised to solve this problem, by academics, technocrats, policy makers etc., but, despite the range of theories, there is a shared goal.

Furthermore, the researcher indicates clearly that the religious perspective has a vital role to play in addressing the environmental crisis. It can be proven that religious doctrine can aid in the education of the young, instilling the value of environmental ethics and the principles that teach how mankind can live in harmony with the environment. Consequently, it would be foolhardy to neglect the importance of the different religions in building the framework of environmental ethics.

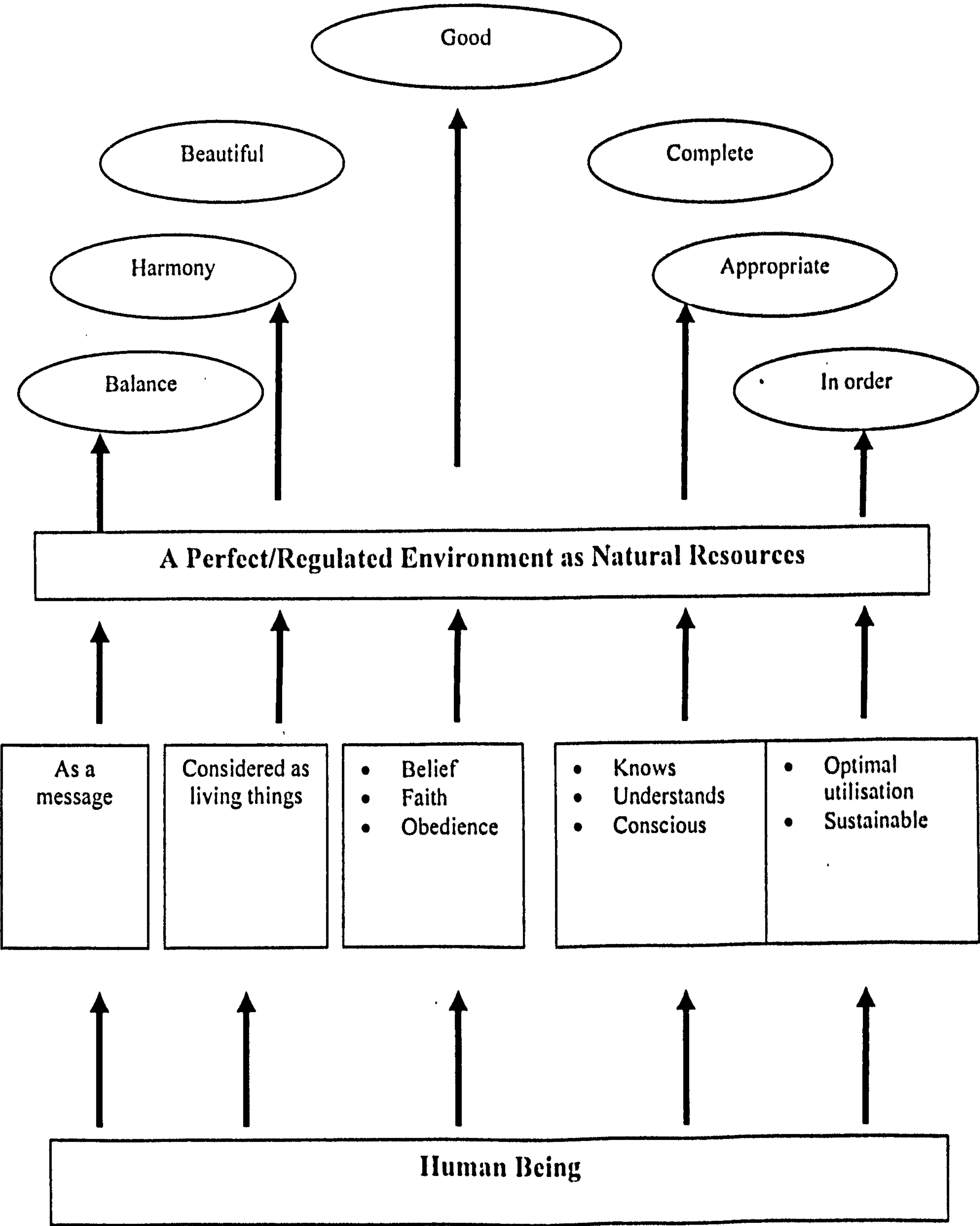
The subject of environmental ethics is expanding, developing the notion of the value of all life and how to interpret influential ideologies such as, deep ecology, social

ecology, eco-feminism, animal liberation and *gaia* etc. As an academic discipline, environmental ethics is taught in schools, colleges and universities.

Moreover, the ecological crisis faced by many developed and developing countries is in effect a moral one. It is believed, therefore, that the process of an Islamic ethic of 'decision-action' can deal with the crisis effectively. From the Islamic point of view, Muslims must act as a *khalīfah*. This means that mankind is constantly reminded by God that this world is only a temporary abode for him, and that he must work here on earth in such a way as to be rewarded in the next world – his permanent place of residence – so called the Day of Judgement. As a *khalīfah* of the Islamic state, man is duty-bound to oversee human actions vis-a-vis the environment. For instance, he has the right to enforce laws and punish those whose actions are found to degrade and damage the environment, as well as those who ignore the ill effects that their actions are causing to its quality.

Muslims must take the role of *khalīfah* and the following model describes the ideal correlation between the environment and human beings.

The Ideal Correlation between the Environment and Humankind



This model is a manifestation of Islamic environmental ethics and it is the task of all Muslims to implement this in dealing with the environment.

Part B highlights a shallow environmental awareness among Malaysians. However, consciousness is growing and, as a developing country, Malaysia needs to strike a balance between development and environmental impact. It can be asserted here that, towards achievement of vision 2020, the Government of Malaysia has given 'development interest' as a main priority above other considerations because it is a developing country and its natural resources are the major catalyst for development.

The case study of the Bakun HEP, Sarawak, Malaysia, has brought to light the lack of a consistent practice of Islamic environmental ethics. With regard to contemporary secular planning, costs and benefits are normally measured in terms of financial profit and loss, however, from the Islamic point of view, the project should proceed according to the objectives of *sharī'ah*, Islamic law. This particular case illuminates neglect of these objectives, such as the concept of public interest, *maṣlaḥa*, which should have been evaluated prior to the decision-making stage. The project must account for and comply with the major interest, *maṣlaḥa darurīyya*, which contains the fulfilment of conditions regarding creed, the human soul, the human mind, possession and honour; and all needed interest, *maṣlaḥa hajīyya*; and the requirements of the embellishing interest, *maṣlaḥa tahsīnīyya*.

B. Recommendations

In the interests of Malaysia as an 'Islamic State' (as announced by the Former Prime Minister Dr. Mahathir Mohammed in 2003) and developing country, the researcher recommends the Islamic Principle for the Conservation of the Natural Environment of Malaysia, as follows:¹

- i. Humankind is part of nature and life depends on the uninterrupted functioning of the Divine natural systems, which ensure the supply of energy and nutrients.
- ii. Civilisation is generally affected by nature, which has shaped human culture and influenced all artistic and scientific achievements, and living in harmony with nature gives humanity the best opportunities for the development of its creativity, and for rest and recreation.
- iii. Every created form of life that praises God is unique, warranting respect regardless of its worth to people, and to accord other organisms such recognition, humanity must be guided by a moral code of action that acknowledges the Oneness of God, *tawhīd*.
- iv. Humanity can alter nature and can exhaust natural resources by its action or its consequences, and therefore must fully recognise the urgency of maintaining the stability and quality of nature and of natural resources.
- v. Lasting benefits from nature depend on the maintenance of the essential ecological processes and life support systems, and upon the diversity of life

¹ This charter is quoted from Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., pp. 153-154.

forms, which are jeopardised through excessive exploitation and habitat destruction by humans.

- vi. The failure to establish an appropriate economic order among peoples and among States, leads to the breakdown of the economic, social and political framework of civilisation. The outcome of these failures is degradation of natural systems owing to excessive consumption and misuse of natural resources.
- vii. Competition for scarce resources creates conflicts, whereas the conservation of nature and natural resources contributes to justice, and the maintenance of peace. This cannot be achieved until mankind learns to live in peace and to forsake war and armaments.
- viii. Humanity must acquire the knowledge to maintain and enhance its ability to use natural resources in a manner, which ensures the preservation of the species and ecosystems for the benefit of present and future generations.
- ix. We are firmly convinced of the need for appropriate measures, at the national and international, individual and collective, and private and public levels, to protect nature and promote international co-operation in this field.

It can be suggested that this charter be published and exhibited in every department and office that is related to matters concerning the environment. For instance, the Department of the Environment, the Department of Forestry, the Department of Wildlife, the Office of Municipals, the Department of Fisheries, the Department of Agriculture and others.

Therefore, in order to clarify the commitment to Islamic environmental ethics, this Islamic principle should be realised and applied, particularly in Malaysia. The researcher suggests 'The Islamic Legal Code of Environment, Malaysia' as follows:²

- a. The Islamic understanding of human surroundings is not perceived as an external world separated from human existence, but rather an integral and complementary part of a holistic Divine system.
- b. The relationship between God and human beings is a tangible relationship and the responsibility, *amāna*, is a form of contract with the Divine, which stipulates that the trust given to humans comes to an end when proper responsible actions are no longer in evidence.

Commentary: Malaysia is a multi-cultural society that contains a variety of religions, and as such, due consideration should be given to Chinese or Indian citizens etc. within an Islamic understanding of the environment. It can be suggested that the establishment of a council that consists of representatives from every ethnic background and creed, should be implemented in order to tackle the environmental crisis from a religious perspective.

- c. The conservation of the natural environment in Islam is both an ethical and a religious imperative, which should be backed with legislation and effective enforcement of an environmental law.
- d. Islamic law aims to harmonise the diverse aspects of creation in a holistic relationship within the notion of submission to God. Public environmental interest includes the interest of both human and other creatures. Interest

² This Islamic Legal Code of Environment, Malaysia, is an adaptation from Izzi Dien, Mawil, *The Environmental Dimensions of Islam*, Op. cit., pp. 164-166.

should be protected after careful consideration to establish that the interest is 'actual' and the threat imminent.

- e. Islamic law considers environmental protection as one of its objectives. All its sources can be utilised for that objective: to develop a codified statute through the consideration of the prevalent environmental principles and rules.

Commentary: It may be suggested that the establishment of an Islamic environmental advisory body would be beneficial, to act in a consultative capacity regarding any environmental matters. This role may be implemented through courses, training and workshops etc. The Malaysian Department of Environment might usefully introduce a module on Islamic environmentalism and ethics as part of its staff-training programme.

- f. Protection and conservation can be nullified when the reason for it ends. In this case all measures should be taken to prevent those who have vested interests from utilising such a rule.
- g. Islamic environmental economics aims to draw a balance between saving and expenditure of environmental resources. Any mismanagement of any of the earth's resources is a mismanagement of the Divine wealth. All the component elements of the environment are considered by Islam as complementary, one to another, with each one exchanging charity, *iḥsān*, with the others.
- h. The most defined form of ownership is granted to human beings, who have been given the power to control, utilise and produce. However, with the power to control comes the power to destroy. This power has to be

governed and restrained by Divine rules. Another important guide in understanding human utilisation of resources is that this utilisation should not impede their awareness of their surroundings. To achieve such awareness, humans need first to look around themselves in order to understand their humble origin in relation to all life.

Commentary: To address environmental issues such as protection, conservation, economics and development etc., the researcher has identified a need for adequate consultation of pertinent experts. The case of the Bakun HEP development justifies this claim and it is recommended that the *Sharī'ah* be implemented in Islamic environmentalism.

- i. Any environmental management system that does not equate the interests of future generations with those of present generations cannot be considered just and fair. Islam perceives economic and environmental disasters as being caused by the lack of application of *iḥsān*, which enjoins respect and compassion for all aspects of creation, by appreciating their value and by maintaining their existence.
- j. Islam does not uphold a materialistic objective for consumption. The ultimate goal is not maximisation of consumption, as in conventional economics, which views success as the acquisition of wealth and material commodities. Muslim economists maintain that Islam provides a balance between consumption and the investment of wealth for their benefit in a future (spiritual) life. 'Consumption', in Islam, is influenced by the

responsibility of the individual to use correctly the wealth entrusted to him by God.

- k. Government decision-making processes must be realistic and not idealistic, since the need for funds is crucial to the support and building of a nation. However, if governments were to invest for the benefit of the environment, the overall result would be much better than the accumulation of wealth in the short term.
- l. The utilisation of the concept of public interest, *maṣlaḥa*, as a guideline for environmental legislation, represents an effective method that can be employed by legal scholars. However, careful consideration has to be made in order to locate the actual priorities of interests for individuals, groups or countries.

Commentary: Therefore to realise the above Islamic principle, now is the time for an immediate plan of action relating to Islamic environmentalism. This means that any development project will be viewed from its outset in terms of its effect on the environment and its implications on every aspect considered. Initially, planners and architects need to concur on a management plan that minimises adverse impact. Then the engineers themselves must play a role in avoiding habitat disturbance by attempting to work in harmony with both the direct and the broader environment, since adverse implications are often not considered in relation to 'knock-on' effects. Finally, the acknowledgement of the tripartite relationship between God, human beings and the environment is essential to the understanding of Islamic environmental ethics.

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INTERVIEWS

1. Mr Fazlun M. Khalid, Founder of the Islamic Foundation for Ecology and Environmental Sciences, United Kingdom. In April 2001 at Seminar Room, Faculty of Engineering, University Technology of Malaysia, Skudai, Johor, Malaysia and in July 2002 at BACTV Conference Islam and Ecology, Birmingham, England, United Kingdom.
2. Mr Martin Palmer, Secretary General, Alliance of World Religions and Conservations, in June 2002 at Shaikh Khalifa Building, TRS Department, University of Wales, Lampeter, Wales, UK.
3. Mr Ir. Tan Chuan Ngan, General Manager Construction, Sarawak Hidro Sdn Bhd., Bakun, Sarawak, Malaysia.
4. Mr Ir. Sim See Sheng, Senior Resident Manager, Sarawak Hidro Sdn Bhd., Bakun, Sarawak, Malaysia.
5. Mr Ir. Wan Mohamad Su'ut Bin Wan Moss, Resident Engineer, Sarawak Hidro Sdn Bhd., Bakun, Sarawak, Malaysia.
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13. Prof. Dr Zaini Ujang, Director, Institute of Water and Waste Management, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia
14. Assoc. Prof. Zainuddin, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia.
15. Assoc. Prof. Dr Abdul Rahim bin Mohd Yusoff, Faculty of Science, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia.
16. Mr Justine Jok Jau Emang, Assistant Controller, Natural Resources Environmental Board, Menara Pelita, Sarawak, Malaysia.
17. Professor A.H. Zakri, Director, Institute of Advanced Studies, United Nations University, Tokyo on 17 October 2002
18. Dr Geoffrey Davison, Director, WWF Borneo Malaysia.
19. Professor Murtedza Mohammad on 17 October 2002, Dean, Faculty of Environmental, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia.
20. Professor Maryati Mohammed, Universiti Malaysia Sabah, Sabah, Malaysia.
21. Assoc. Prof. Dr Abdullah Mohammad Said on 18 October 2002, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia.
22. Mr Liman a/k Numpang, Special Officer, Special Project Unit, State Planning Unit, Sarawak, Malaysia.

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Table 6.1: Distribution and Extent of Natural Forest by Major Forest Types in Malaysia, 1994 (million hectares)

Region	Land	Dipterocarp forest	Swamp forest	Mangrove forest	Total forest land	% total of forest land
Peninsular Malaysia	13.16	5.54	0.30	0.11	5.95	45.2
Sabah	7.37	3.90	0.19	0.32	4.41	59.8
Sarawak	12.33	7.26	1.23	0.16	8.65	70.2
Total	32.86	16.70	1.72	0.59	19.01	57.9

Source: Mat Amin, Hj Abdul Rashid, The State of Malaysia's Forests: An Overview in *State of the Environment in Malaysia*. Penang: Consumers' Association of Penang, 1997, p. 38.

Table 6.2: Areas under Protected and Protection Status in Malaysia (million hectares)

Year	National Parks / Sanctuaries (NP)	Protection Forest (PF) ¹	Virgin Jungle Reserves (VJR) ²	Total land area		% total land area	
				NP + PF	NP + VJR	NP + PF	NP + VJR
1991a	1.39	2.74	0.11	4.13	1.50	12.6	4.6
1991b	1.39	2.74	0.11	3.80 ³		11.6	
1995a	2.12 ⁴	3.43	0.11	5.55	2.23	16.9	6.8
1995b	2.12 ⁴	3.43	0.11	5.22 ³		15.9	
1995c	1.41 ⁵	3.43	0.11	4.51 ³	1.52	13.7	4.6

¹ Within the Permanent Forest Estate (PFE) and subject to degazettement or logging.

² Included in Protection and/or Production Forests of PFE and not allowed for logging.

³ 330,000 hectares subtracted due to overlapping areas in both PFE and sanctuaries.

⁴ Includes 710,000 ha of proposed parks and sanctuaries yet to be gazetted and 330,000 ha in PFE lands

⁵ 710,000 ha subtracted from parks and sanctuaries due to proposed (non-gazetted) status.

Source: Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001, p. 42.

Table 6.3: Water Demand in Malaysia (billion m³)

User	1980	1990	2000	2020
Domestic/Industry	1.3	2.6	4.8	5.8
Irrigation	7.4	9.0	10.4	13.2
Others	0.2	0.2	0.3	1.0
Total	8.9	11.8	15.5	20.0

Source: Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001, p. 52.

Table 6.4: Water Quality of Malaysian Rivers

Category	1989	1993	1994	1995	1996	1997	1998
Highly polluted	3	11	14	14	13	25	16
Slightly polluted	34	74	64	53	61	67	71
Clean	49	31	38	48	42	24	33
Total	86	116	116	115	116	116	120

Source: Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001, p. 55.

Table 6.5: Severe Haze Episodes in Malaysia

Date	Area affected
1983	Peninsular Malaysia, Sabah and Sarawak
15-30 August 1990	Peninsular Malaysia and Sarawak
15-18 June 1991	Peninsular Malaysia and Sabah
10-22 September 1991	Sabah and Sarawak
27 September to 11 October 1991	Peninsular Malaysia and Sarawak
15 September to 6 October 1994	Peninsular Malaysia, Sabah and Sarawak
August to October 1997	Peninsular Malaysia, Sabah and Sarawak

Source: Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001, p. 86.

Table 7.1: Population Census of the Affected Communities, April 1995

<i>Ethic Group</i>	<i>Longhouse-Settlement</i>	<i>Family</i>	<i>Population</i>
Kenyah	4	1,024	4,708
Kayan	8	881	3,781
Lahanan	1	138	535
Ukit	1	74	300
Penan	1	24	104
Total	15	2,141	9,428

Source: Economic Planning Unit, *Bakun Green Energy for the Future*, access on <http://www.epu.jpm.my/epu-pub-bakun.html>.

Table 7.2: The Electricity Sources in Malaysia 1990-1995

SOURCE	1990	1993	1995
Oil	43 %	20 %	12 %
Natural Gas	25 %	54 %	67 %
Hydro	18 %	14 %	11 %
Coal	14 %	12 %	10 %

Source: Ekran Berhad, Bakun Hydroelectricity Project Environmental Impact Assessment Interim Report Project Description. Centre for Technology Transfer and Consultancy, University Malaysia Sarawak, November 1994, p. 10.

Table 7.3: Relative Emissions of Greenhouse Gases by Energy Systems (based on a 50-year life of the James Bay Project, Canada)

Energy Option	Total Emission Equivalent CO ² (g/MJ)	<i>Relative Ratio</i>
Hydroelectricity	7.1	1
Oil-fired generating station	204	39
Natural gas generating station	171-188	24-26

Source: As quote from Ekran Berhad, Bakun Hydroelectricity Project Environmental Impact Assessment Interim Report Project Description. Centre for Technology Transfer and Consultancy, University Malaysia Sarawak, November 1994, p. 11.Original source from Hydro-Quebec, 1993. Electricity in Quebec (Briefing Book).

Table 7.4: World’s Highest CFRDs

<i>Name of Dam</i>	<i>Country</i>	<i>Year Of Completion</i>	<i>Height (metre)</i>
Aguamilpa	Mexico	1993	187
Tianshengqiao	China	1997	180
Foz de Areia	Brazil	1980	160
Xingo	Brazil	1994	150
Salvajina	Colombia	1983	148
Segredo	Brazil	1991	145
Alto Anchicaya	Colombia	1974	140
Chuza	Colombia	1978	135
Messochora	Greece	1994	135
Koman	Albania	1986	133
New Exchequer	USA	1966	130
Golillas	Colombia	1978	130
Khao Laem	Thailand	1984	130
Shiroro	Nigeria	1984	130
Cirata	Indonesia	1987	125
Reece	Australia	1986	122
Neveri	Venezuela	1981	115
Paradela	Portugal	1958	110
Rama	Yugoslavia	1967	110
Cethana	Australia	1971	110
Batang Ai, Sarawak	Malaysia	1985	110

Source: Economic Planning Unit, *Bakun Green Energy for the Future*, access on <http://www.epu.jpm.my/epu-pub-bakun.html>.

Table 7.5: List of CFRDs in Seismic Areas

Dam	Height (metre)	Seismicity of Site
Bakun, Malaysia (u/d)	205	low
Sogamoso, Colombia (u/d)	195±	moderate to high
Aguamilpa, Mexico	187	high
Tiangshengqiao, China (u/c)	180	moderate
Foz do Areia, Brazil	160	low
Messochora, Greece (u/c)	150	moderate
Salvajina, Colombia	145	moderate
Alto Anchicaya, Colombia	140	moderate
Golillas, Colombia	130	moderate
Cirata, Indonesia	125	High

Note:

u/d = under design

u/c = under construction

Source: Economic Planning Unit, *Bakun Green Energy for the Future*, access on <http://www.epu.jpm.my/epu-pub-bakun.html>.

Table 7.6: Demand and Installed Capacity in Malaysia, 1990-94 (MW)

	Peninsular Malaysia		Sabah		Sarawak	
	Peak Demand	Installed Capacity	Peak Demand	Installed Capacity	Peak Demand	Installed Capacity
1990	3,436	5,040	204	306	194	363
1991	3,990	4,939	222	340	220	364
1992	4,545	5,859	240	340	254	445
1993	5,086	6,298	262	372	281	469
1994	5,622	6,634	287	415	311	455

Note : * Excluding IPPs' installed capacity
Source: As quoted from a book published by Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*. Kuala Lumpur: Insan, 1996, p.21. Original from the Ministry of Energy, Telecommunications and Posts, Economic Report 1994/95.

Table 7.7: Projected Peak Demand for Electricity, 1995-2000 (MW)

Year	Peninsular Malaysia	Sabah	Sarawak
1995	6,138	310	343
1996	6,700	335	375
1997	7,315	362	411
1998	7,985	392	450
1999	8,718	426	492
2000	9,517	463	538

Source: As quoted from a book published by Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*. Kuala Lumpur: Insan, 1996, p.21. Original from the Ministry of Energy, Telecommunications and Posts, Economic Report 1994/95.

Table 7.8: Barclays de Zoete Wedd (M) Sdn Bhd Estimates of the Bakun HEP Costs

	RM million
169 km road access	330
Resettlement housing	100
General site work (clearing, staff housing, infrastructure	416
Dam construction	2,580
Electrical, mechanical, hydraulic systems	1,425
Transmission systems (East Malaysia)	3,745
Transmission systems (to West Malaysia)	3,860
Total	12,456

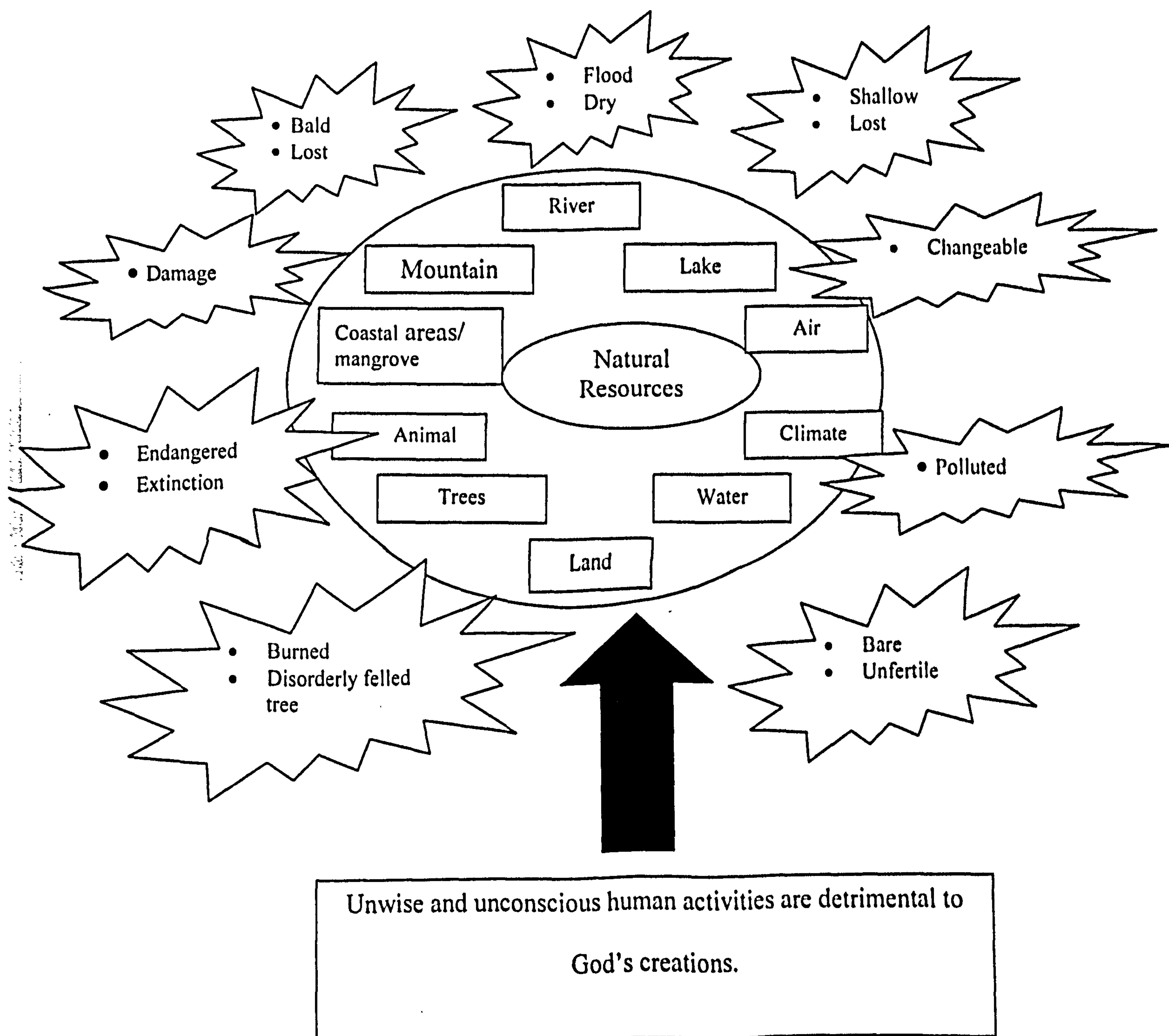
Source: As quoted from a book published by Insan, *Power Play Why We Condemn the Bakun Hydroelectric Project*. Kuala Lumpur: Insan, 1996, p.21. Original from the Barclays de Zoete Wedd (M) Sdn Bhd, January-March 1995, p. 38.

Appendix 1: The Figures Showing the Biodiversity in Malaysia

- Over 15,000 species of known flowering plants;
- 286 species of mammals;
- over 150,000 species of invertebrates (mostly known as creepy-crawlies);
- a 1,000 plus-plus species butterflies and over 12,000 moths;
- 4,000 species of marine fishes;
- 449 species of freshwater fishes;
- 736 species of birds;
- 150 species of frogs;
- 140 snakes in the grass and other places;
- 80-some odd lizards

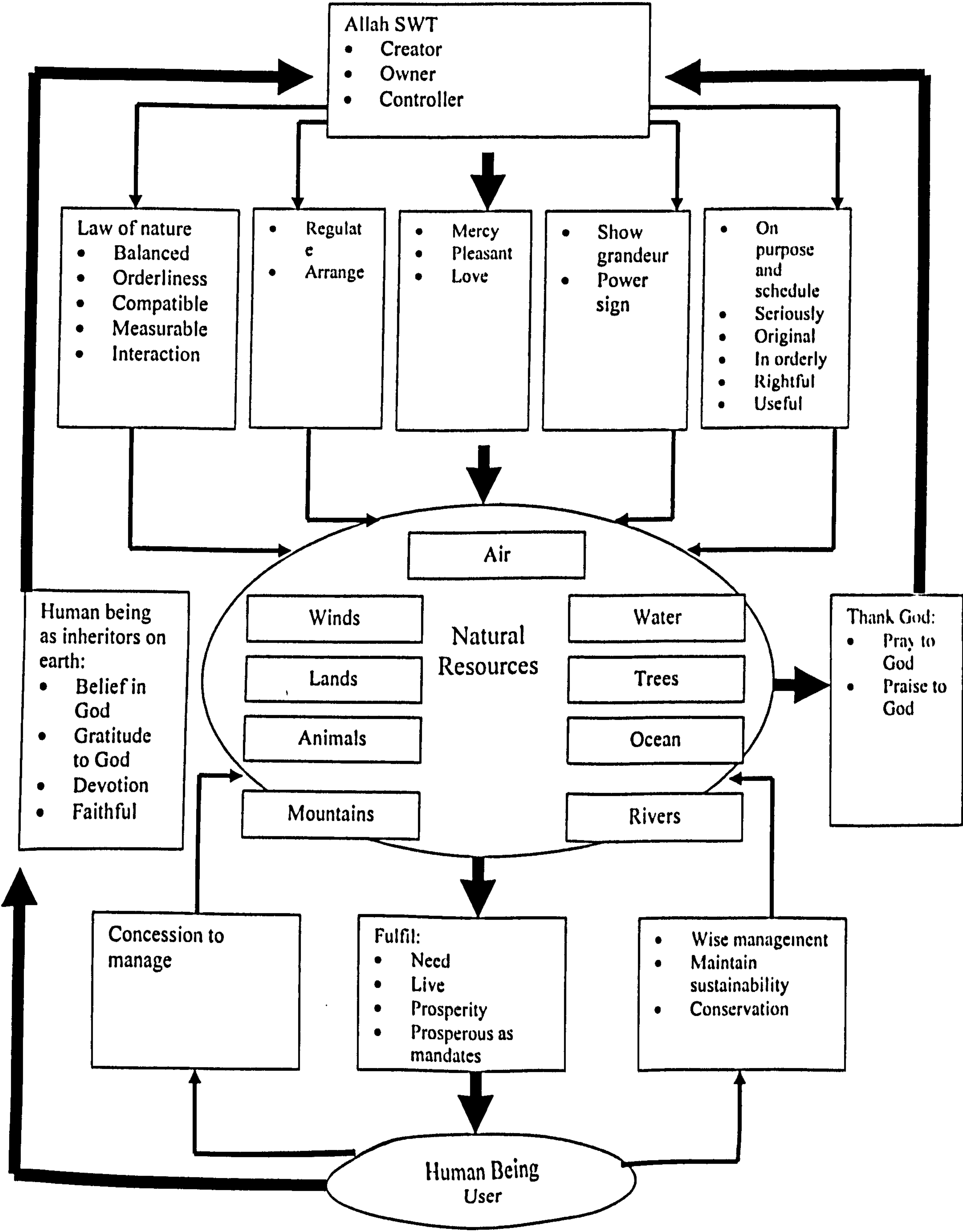
Source: Sahabat Alam Malaysia, *Malaysian Environment Alert 2001*, Penang: Sahabat Alam Malaysia, 2001, p. 38.

Appendix 2: The Activities of Unwise Human Beings Will Result in Damage to the Environment*



* An adaptation from The Ministry of Forestry and Estate Crops, *Sustainable Forest Development as Reflection of Faith and Piety*, second edition. Indonesia: The Ministry of Forestry and Estate Crops, 1999.

Appendix 3: The Interpretation of the Relationship between the Creator, the Environment and Man: from the Islamic Perspective*



Appendix 4: Section 34A, the Environmental Quality Act 1974, Malaysia.

34A. Report on impact on the environment resulting from prescribed activities.

The Minister, after consultation with the Council, may by order prescribe any activity which may have significant environmental impact as prescribed activity.

Any person intending to carry out any of the prescribed activities shall, before any approval for the carrying out of such activity is granted by the relevant approving authority, submit a report to the Director-General. The report shall be in accordance with the guidelines prescribed by the Director-General and shall contain an assessment of the impact such activity will have or is likely to have on the environment and the proposed measures that shall be undertaken to prevent, reduce or control the adverse impact on the environment.

If the Director-General on examining the report and after making such inquiries as he considers necessary, is of the opinion that the report satisfies the requirements of subsection (2) and that the measures to be undertaken to prevent, reduce or control the adverse impact on the environment are adequate, he shall approve the report, with or without conditions attached thereto, and shall inform the person intending to carry out the prescribed activity and the relevant approving authorities accordingly.

If the Director-General, on examining the report and after making such inquiries as he considers necessary, is of the opinion that the report does not satisfy the requirements of subsection (2) or that the measures to be undertaken to prevent, reduce or control the adverse impact on the environment are inadequate, he shall not approve the report and shall give his reasons therefore and shall inform the person intending to carry out the prescribed activity and the relevant approving authorities accordingly:

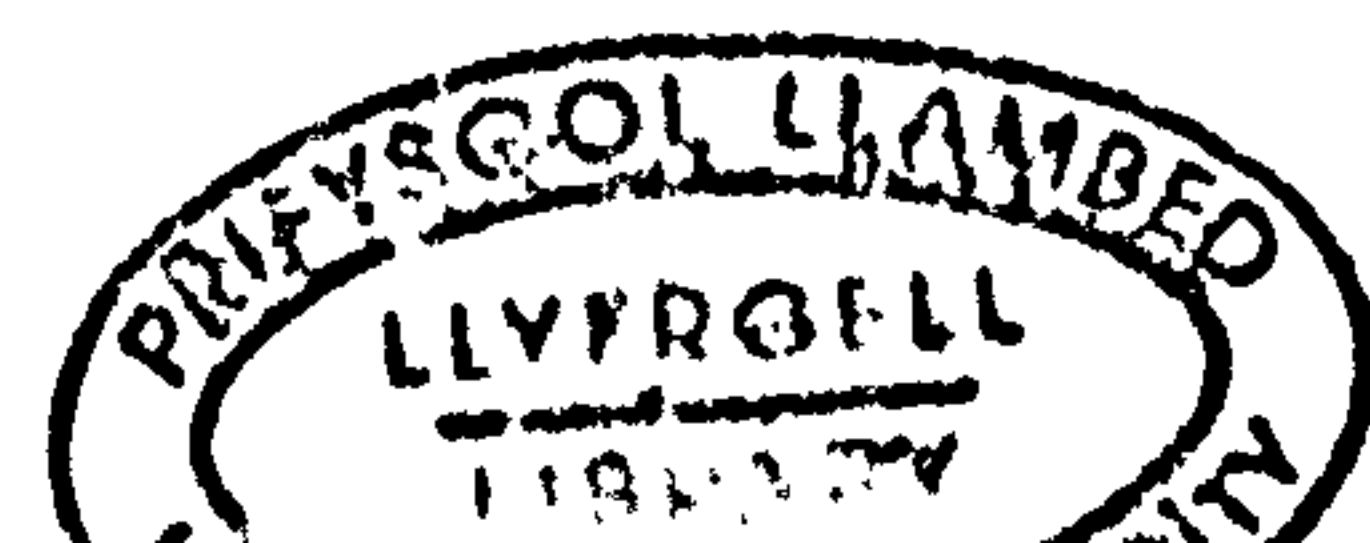
Provided that where such report is not approved it shall not preclude such person from revising and resubmitting the revised report to the Director-General for his approval.

The Director-General may if he considers it necessary require more than one report to be submitted to him for his approval.

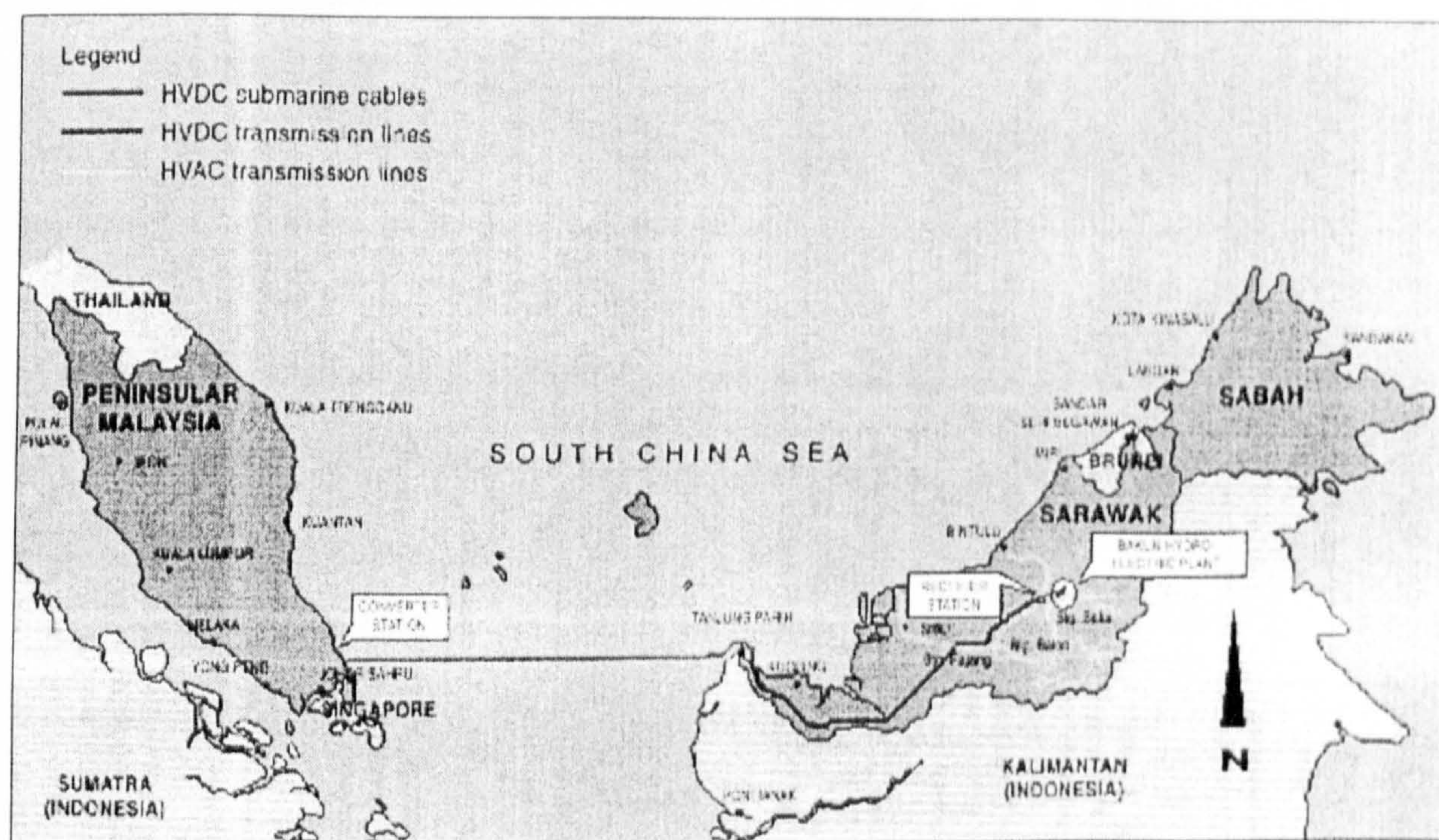
Any person intending to carry out a prescribed activity shall not carry out such activity until the report required under this section to be submitted to the Director-General has been submitted and approved.

If the Director-General approves the report, the person carrying out the prescribed activity, in the course of carrying out such activity, shall provide sufficient proof that the conditions attached to the report (if any) are being complied with and that the proposed measures to be taken to prevent, reduce or control the adverse impact on the environment are being incorporated into the design, construction and operation of the prescribed activity.

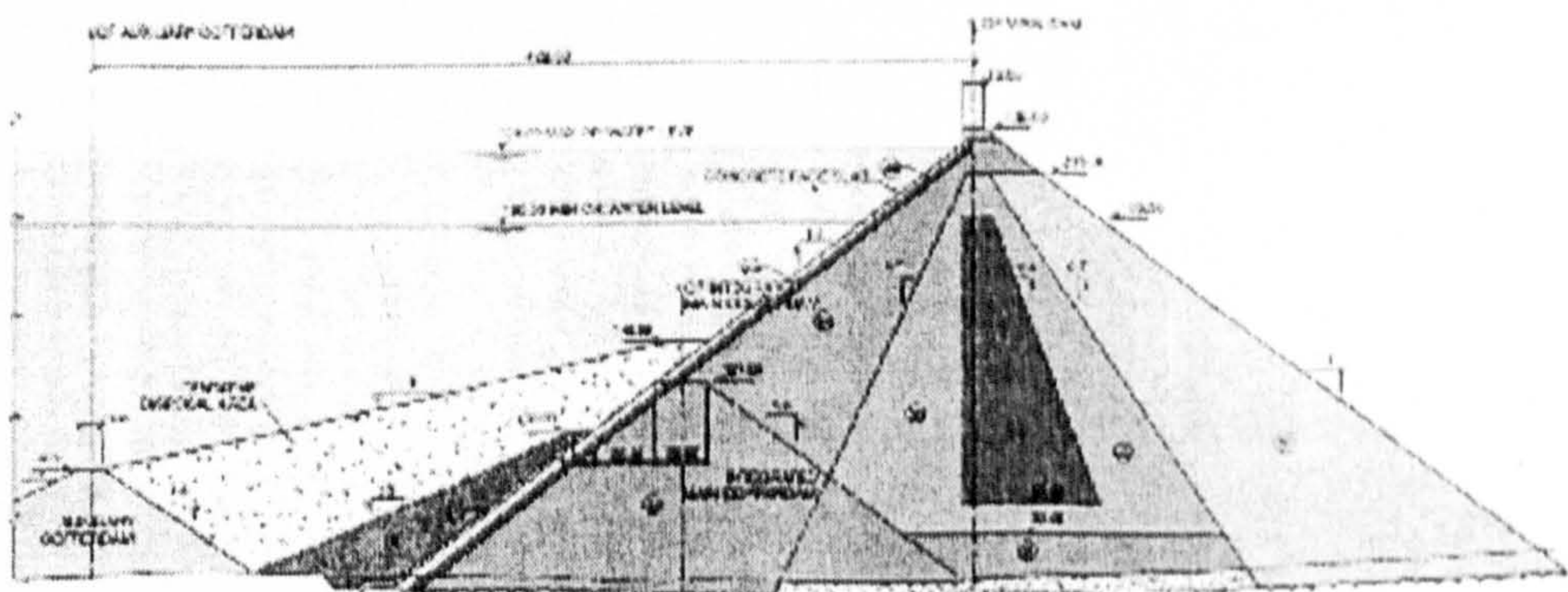
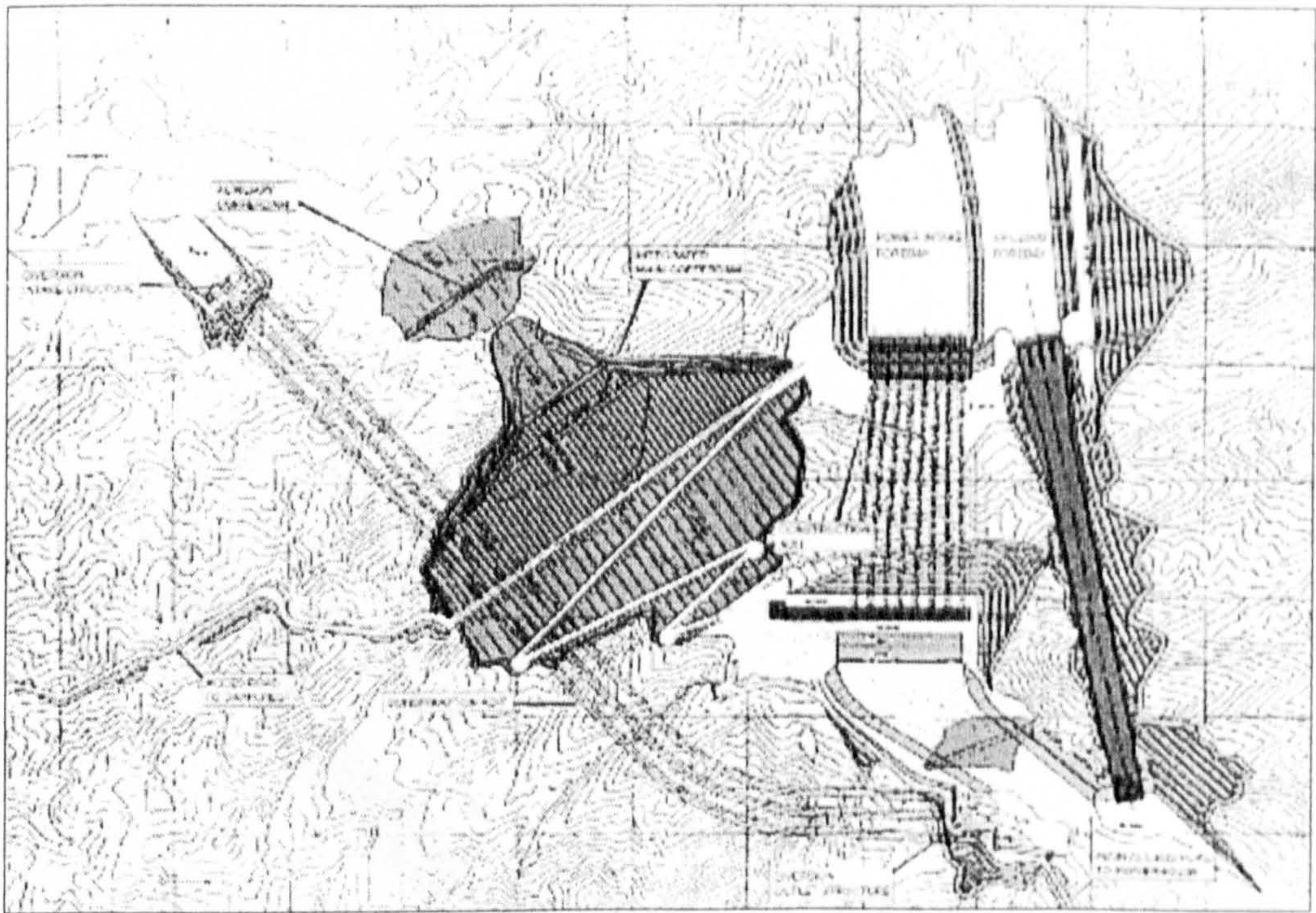
Any person who contravenes this section shall be guilty of an offence and shall be liable to a fine not exceeding one hundred thousand ringgit or to imprisonment for a period not exceeding five years or to both and to a further fine of one thousand ringgit for every day that the offence is continued after a notice by the Director-General requiring him to comply with the act specified therein has been served upon him.



Appendix 5: The Bakun Hydro Electrical Project Site

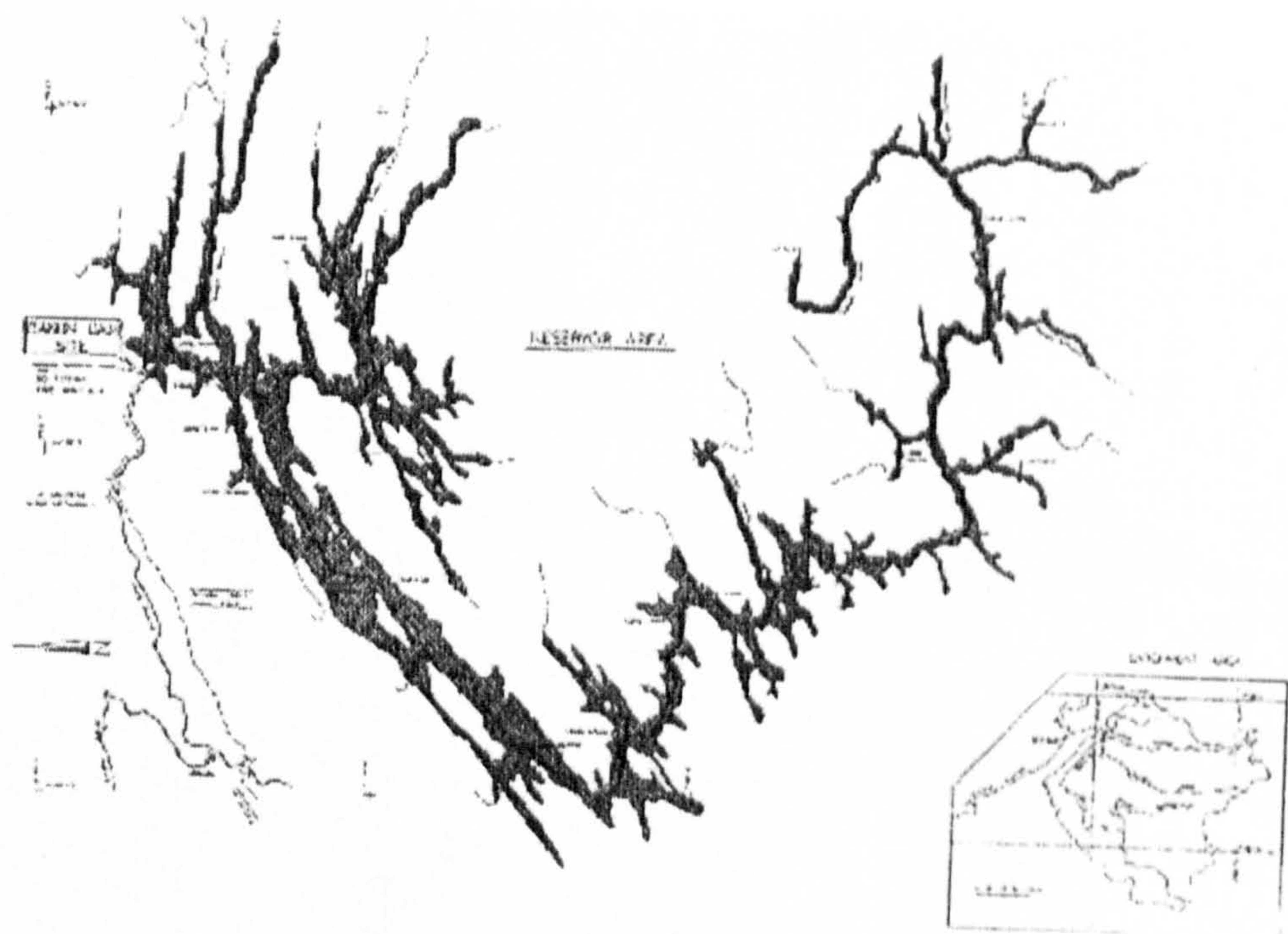


Appendix 6: The Bakun Dam Layout

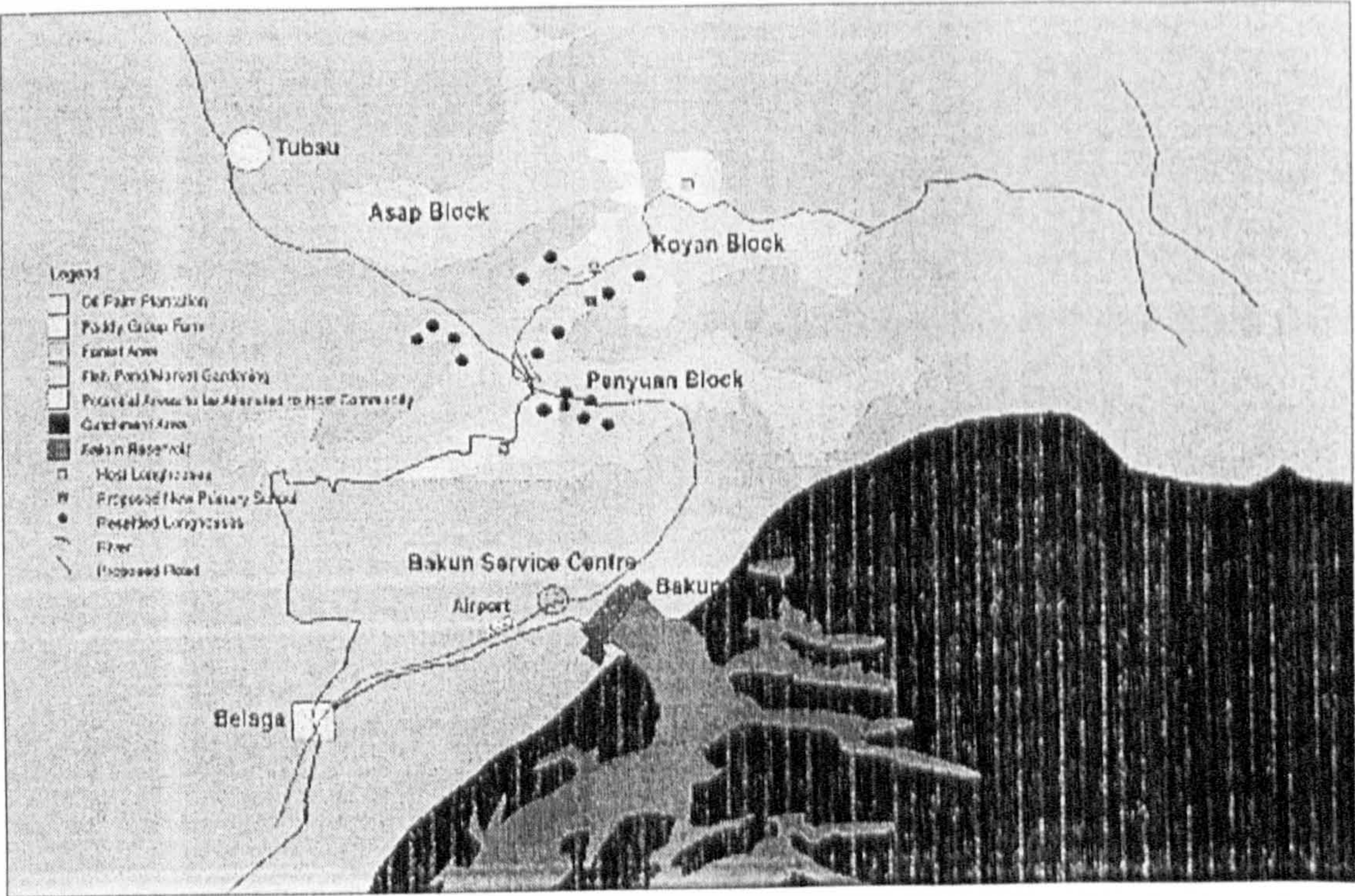


- (1) SELECTED IMPERVIOUS FILL
- (2) RANDOM FILL
- (3) FINE TRANSITION ZONE (PROCESSED FINE GREYWACKE)
- (4) COARSE TRANSITION ZONE (PROCESSED FINE GREYWACKE)
- (5) ROCKFILL (FINE GREYWACKE 10%)
- (6) ROCKFILL (FINE GREYWACKE 10% OVERSIZED)
- (7) ROCKFILL (10% GREYWACKE + 90% MUDSTONE)
- (8) ROCKFILL (50% GREYWACKE + 50% MUDSTONE)

Appendix 7: The Bakun Reservoir



Appendix 8: The Bakun Resettlement Area



Appendix 9: Summary of Project Technical Features (Hydropower Component)

Dam Location	On Balui River about 37 km upstream of Belaga Town, Sarawak, Malaysia
Catchment Area	14,750 km ²
Flood	
Probable Maximum Flood Discharge	51,900 m ³ /s
Observed maximum Flood at Bakun Dam Site	8,700 m ³ /s
Reservoir	
Maximum Water Level at PMF	EL 232.8 m asl
Maximum Operation Water Level	EL 228 m asl
Minimum Operation Water Level	EL 195 m asl
Storage at EL 228 m asl	43.8 x 10 ⁹ m ³
Storage at EL 195 m asl	24.6 x 10 ⁹ m ³
Surface Area at EL 228 m asl	695 km ²
Main Dam (including Integrated Cofferdam)	
Type	Concrete Face Rockfill Dam
Crest Level	EL 235 m asl
Up and Downstream Slopes	IV: 1.4H
Height above Foundation	205 m
Crest Length	740 m
Width of Crest	12 m
Maximum Width at Base	560 m
Volume	15.6 x 10 ⁶ m ³
Diversion Works	
Tunnels:	
Number	3
Type	concrete lined
Diameter	12 m
Length	1,400 m (approx.)
Diversion Design Flood	17,000 m ³ /s
Total Discharge Capacity	6,800 m ³ /s
Upstream Cofferdam (Auxiliary)	
Type	Random Fill Embankment with Sealing Blanket
Crest Level	EL 96.0 m asl

Downstream Cofferdam	
Crest Level	EL 64.5 m asl
Spillway	
Type	Gated, ogee-crested chute
Crest Width (net)	60 m
Chute Width	50 m
Chute Length	610 m
Design Capacity at Max. Operation Level	10,250 m ³ /s
Capacity at PMF	15,000 m ³ /s
Power Conduits	
Intake Structure	
Type	Bell-mouth shaped reinforced concrete structure with flow training wall
Service Closure Device	8, roller gate, 7.5 m high x 5.8 m wide
Maintenance Closure Device	Portal stoplogs
Pressure Conduits	
Number and Types	8, concrete-lined, steel-lined
Diameters	8.50, 7.0 m
Average Length	690 m
Powerhouse	
Machine Hall	
Length	325 m
Width	37 m
Height	62 m
Transformer Bay and Switchyard	
Length	220 m
Width	11 m
Height	40 m
Power Generating Units	
Number of Units	8
Turbine	
Type	Francis, vertical shaft
Rated Output	315 MW
Rated Head (gross)	175 m
Rated Discharge	208 m ³ /s

Speed	166.7 rpm
Generator	
Type	3-phase, synchronous, vertical shaft, air cooled
Rated Output	360 MVA
Power Factor	0.85
Transformer	
Type	Single-phase, oil immersed
Cooling Type	OFAF
Rating	360 MVA, 18/275 kV
Switchgear	
Type	Indoor, SF6
(Transmission Component)	
Bakun-Bintulu HVAC Overhead Lines	
Type	High Voltage Alternating Current
Length	160 km
Voltage	275 kV
Circuit Type	Double Circuit
Bakun-Tanjung Parih HVDC Overhead Lines	
Type	High Voltage Direct Current
Distance	665 km
Operating Voltage	500 kV
Circuit Type	Bipolar
HVDC Overhead Lines	
Total Line Length	1,330 km
Total Conductor Weight (aluminium)	45,000 tonnes
Total No. of Insulators (cap & pin type)	320,000
Total No. of Towers	3,700
Total Weight of Towers	40,000 tonnes
Tanjung Parih-Tanjung Tenggara Submarine Cables	
Type	High Voltage Direct Current
No. of Cables	3 or 4
Length of each Cable	670 km
Diameter of each Cable	133 mm
Total Length Installed	2,680 km
Total Weight	145,000 tonnes
Voltage	400 (500) kV
Circuit Type	Monopolar

Converter Stations	
No. of Stations	2, one each at Bakun and Tanjung Tenggara
Transformer Type	2-Winding 1-phase, 3-Winding, 1-phase
2-Winding, 1-phase, No. of Units	24
Weight of each Unit	170 tonnes
3-Winding, 1-phase, No. of Units	12
Weight of each Unit	270 tonnes

Appendix 10: The Site of Bakun HEP



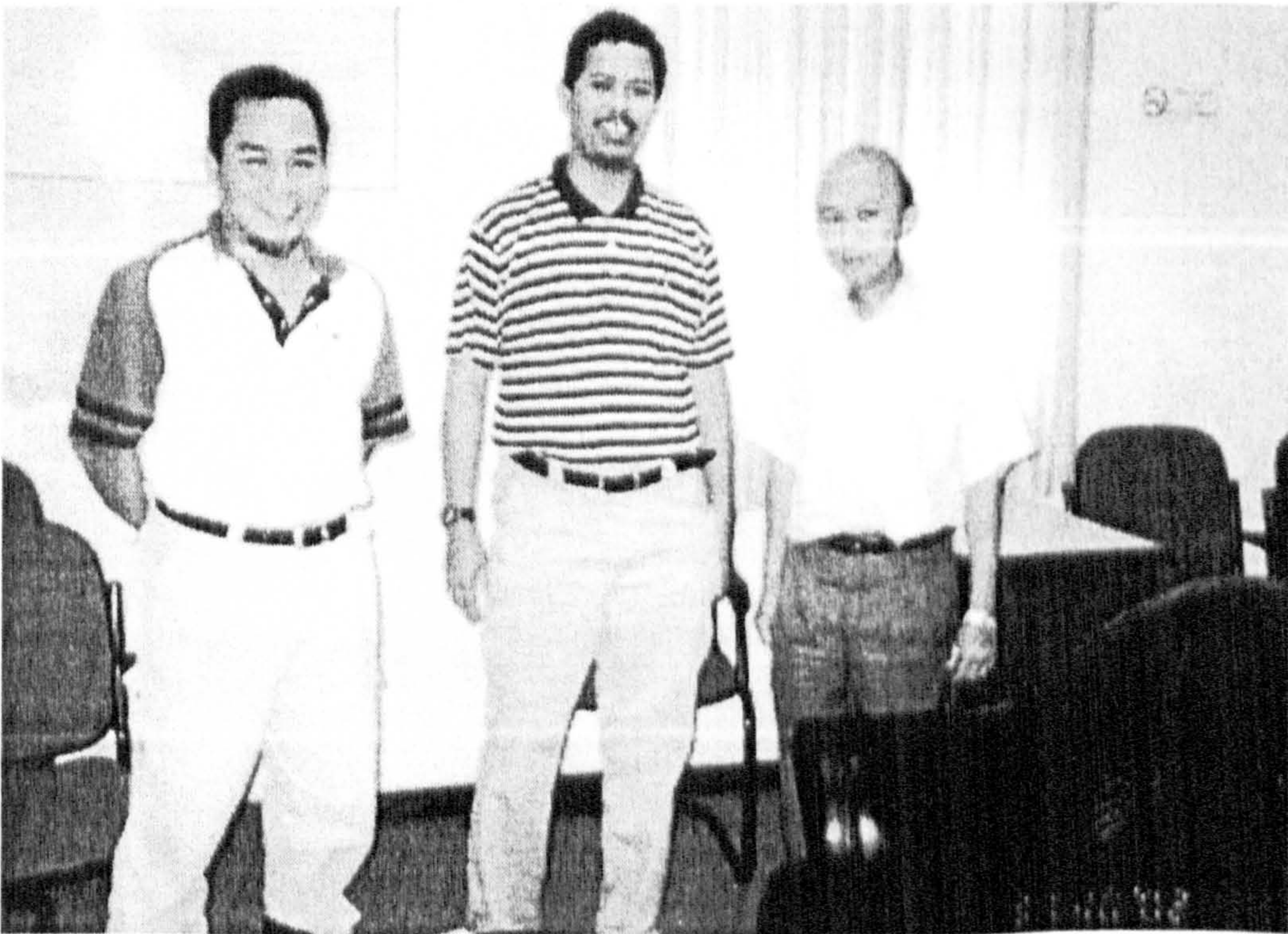
On the way to the project site.



At the entrance of the Bakun HEP



The scenic of project site



The researcher with the Sarawak Hydro engineers.

Appendix 11: The Bintulu-Bakun Road 125 km



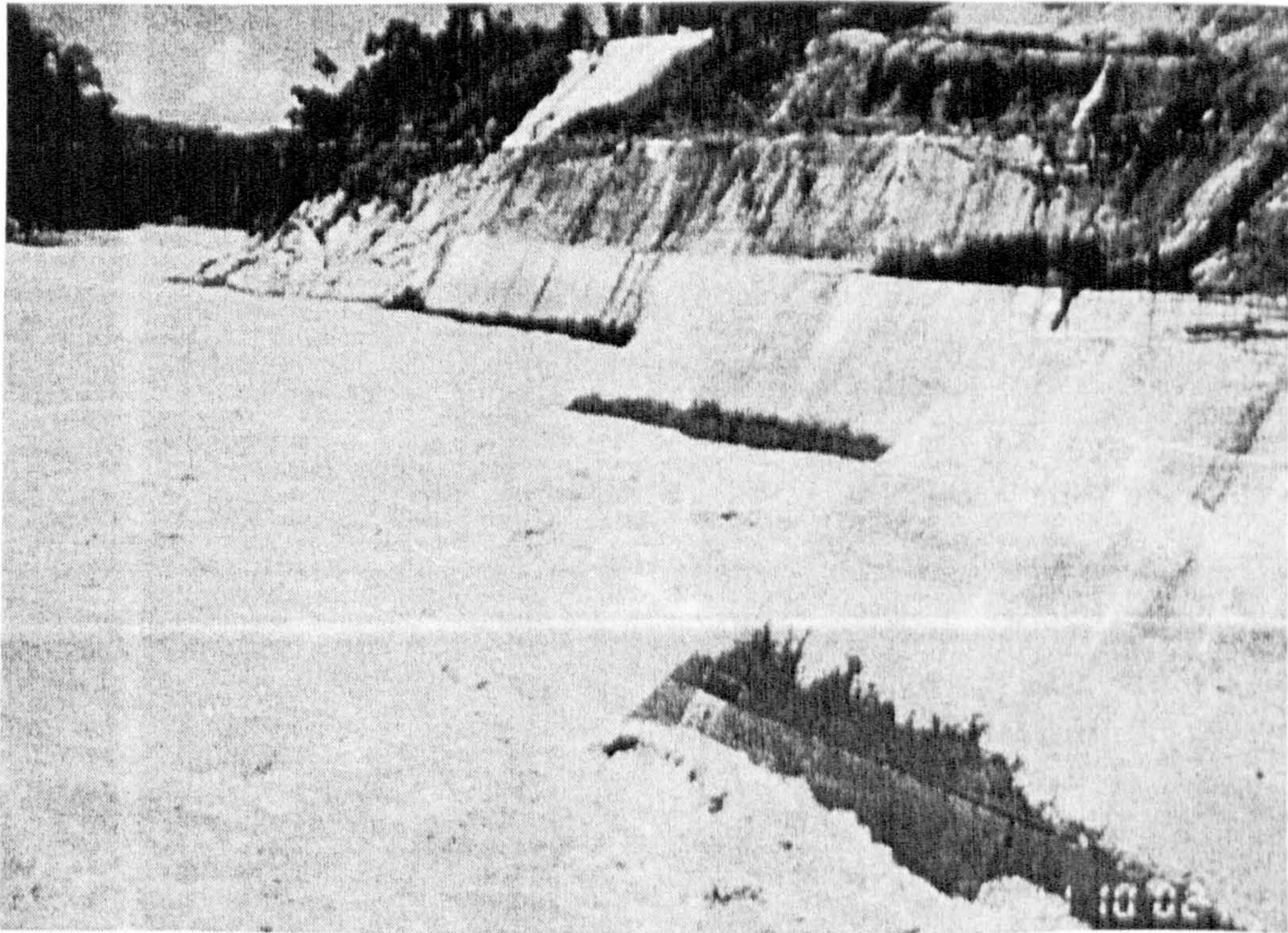
The researcher at the beginning of the road Bintulu-Bakun.



Some of the public transport from Bintulu to Bakun



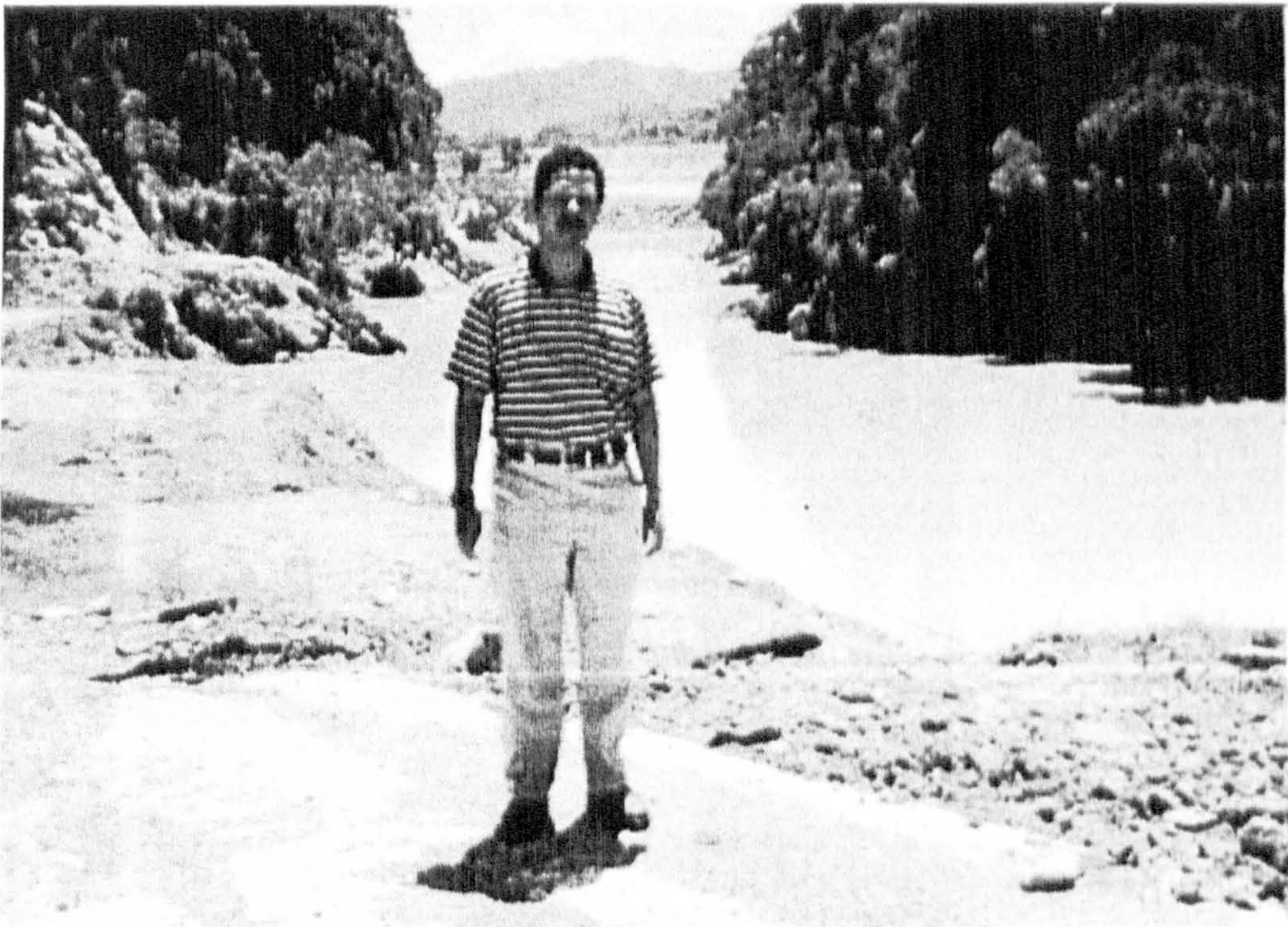
The area of main civil works includes the dam, spillway and powerhouse.



The outlet of tunnel on the downstream river.



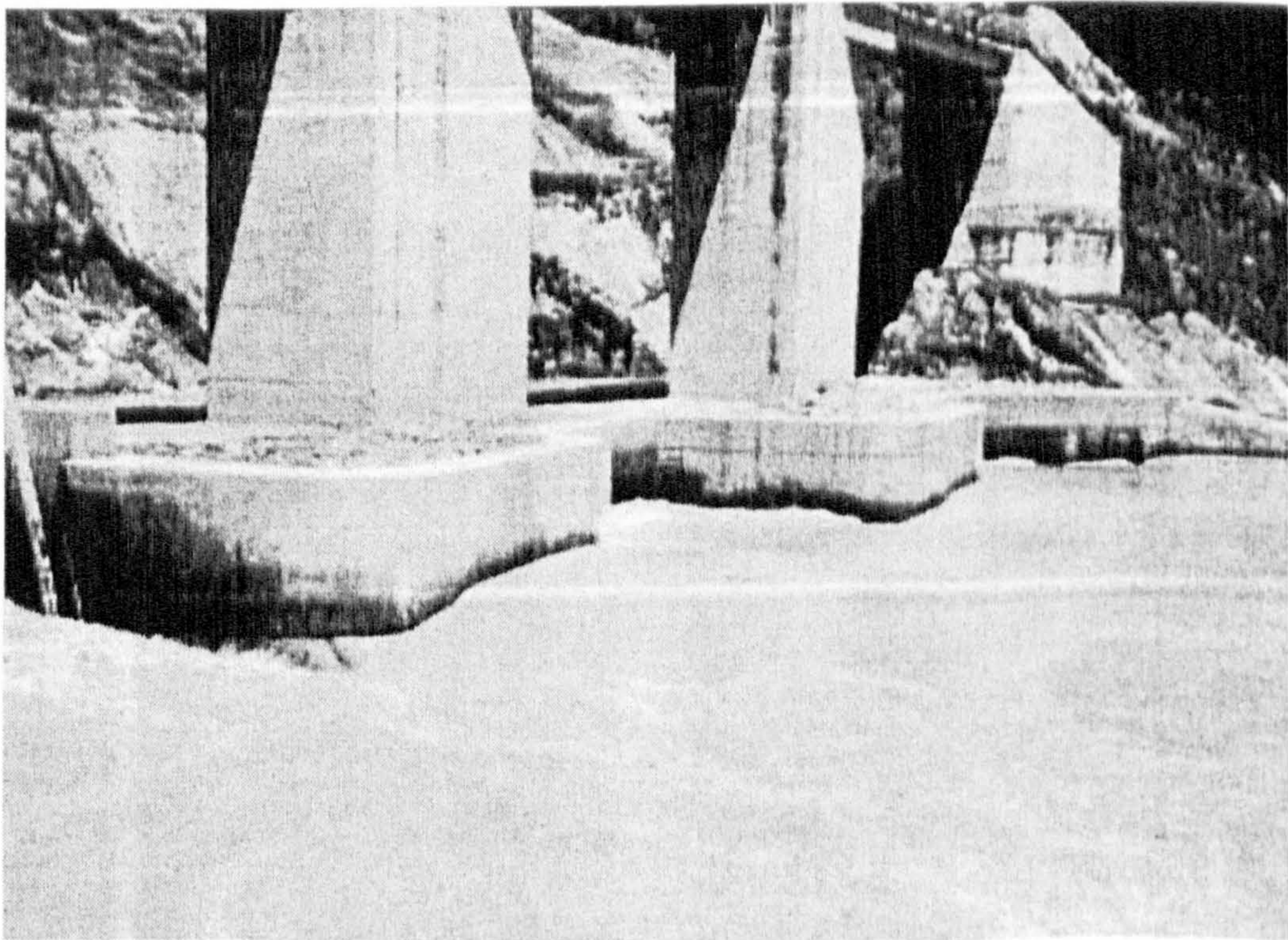
The outlet of tunnel.



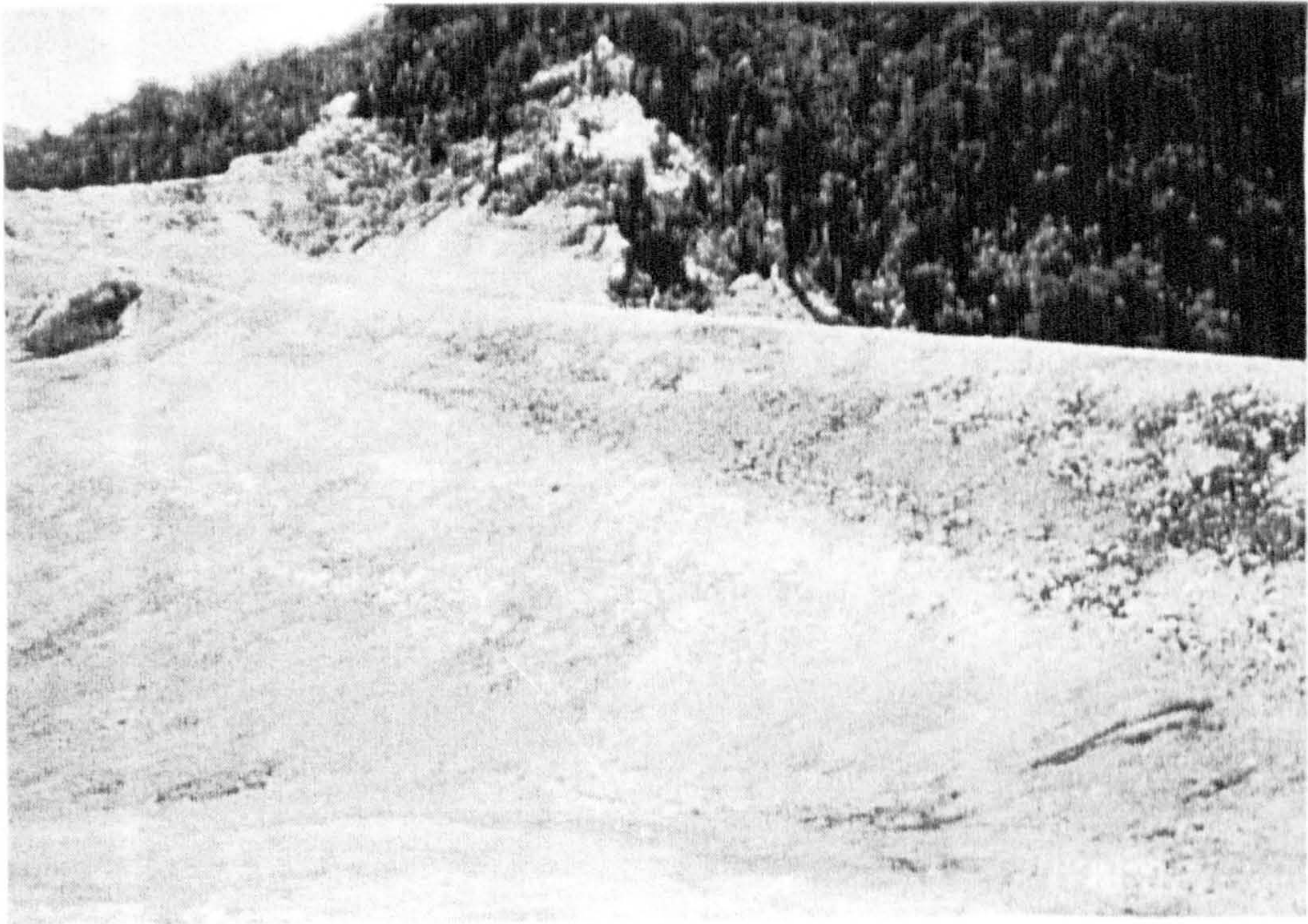
The main area of civil works.



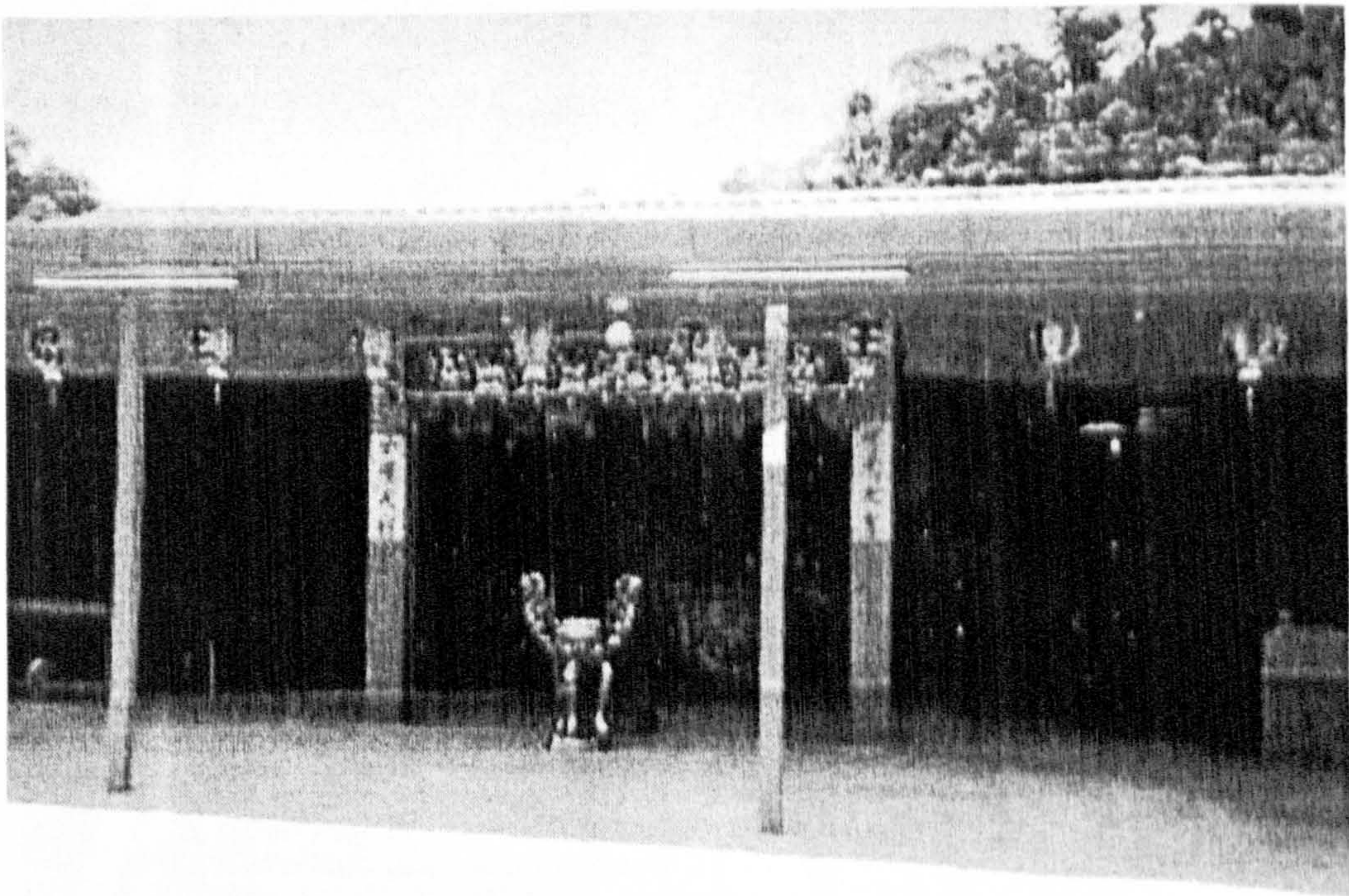
The upstream location includes the reservoir.



The inlet of tunnel on the upstream river.

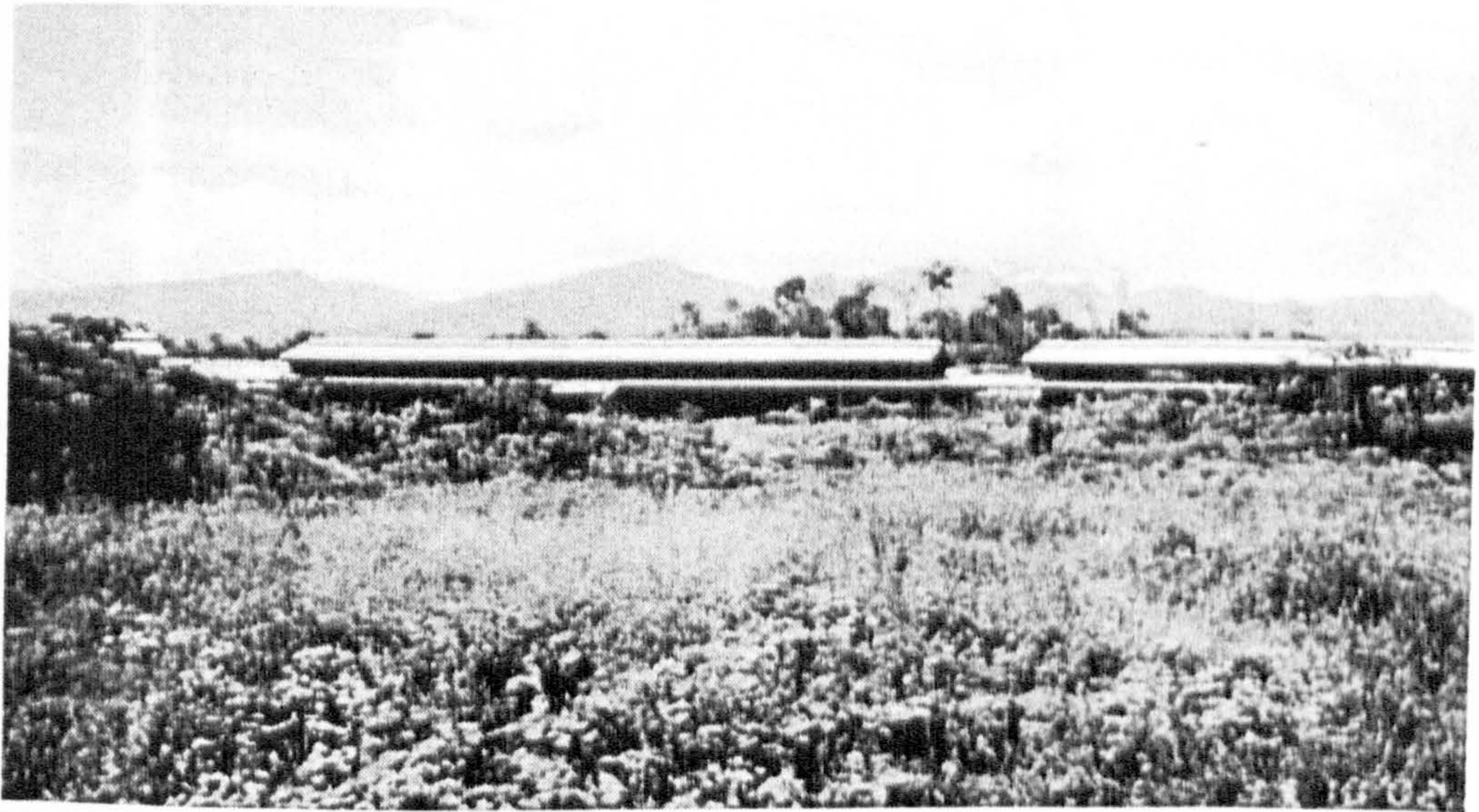


The auxiliary cofferdam.

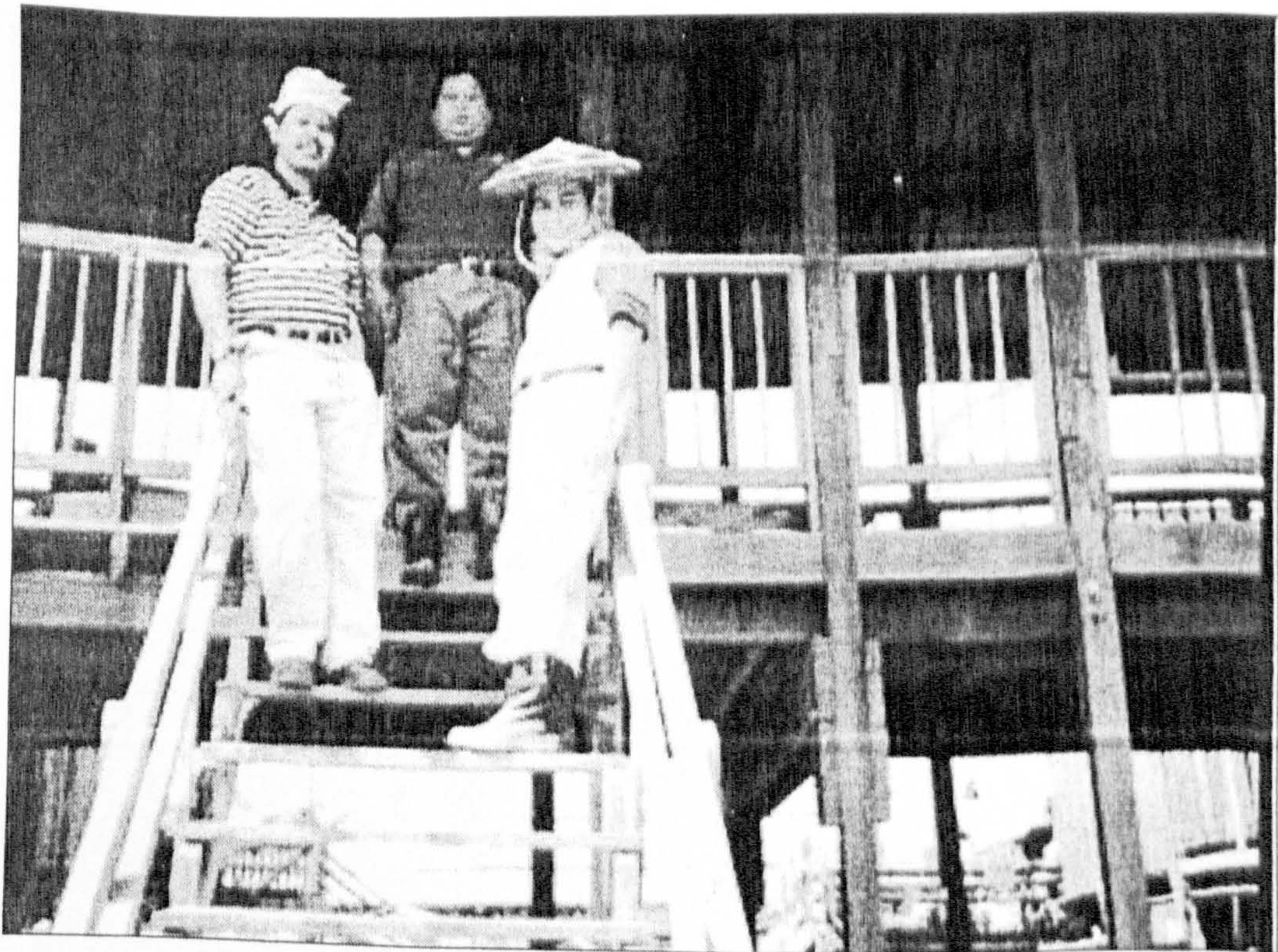


One of the temporary Buddhist temples.

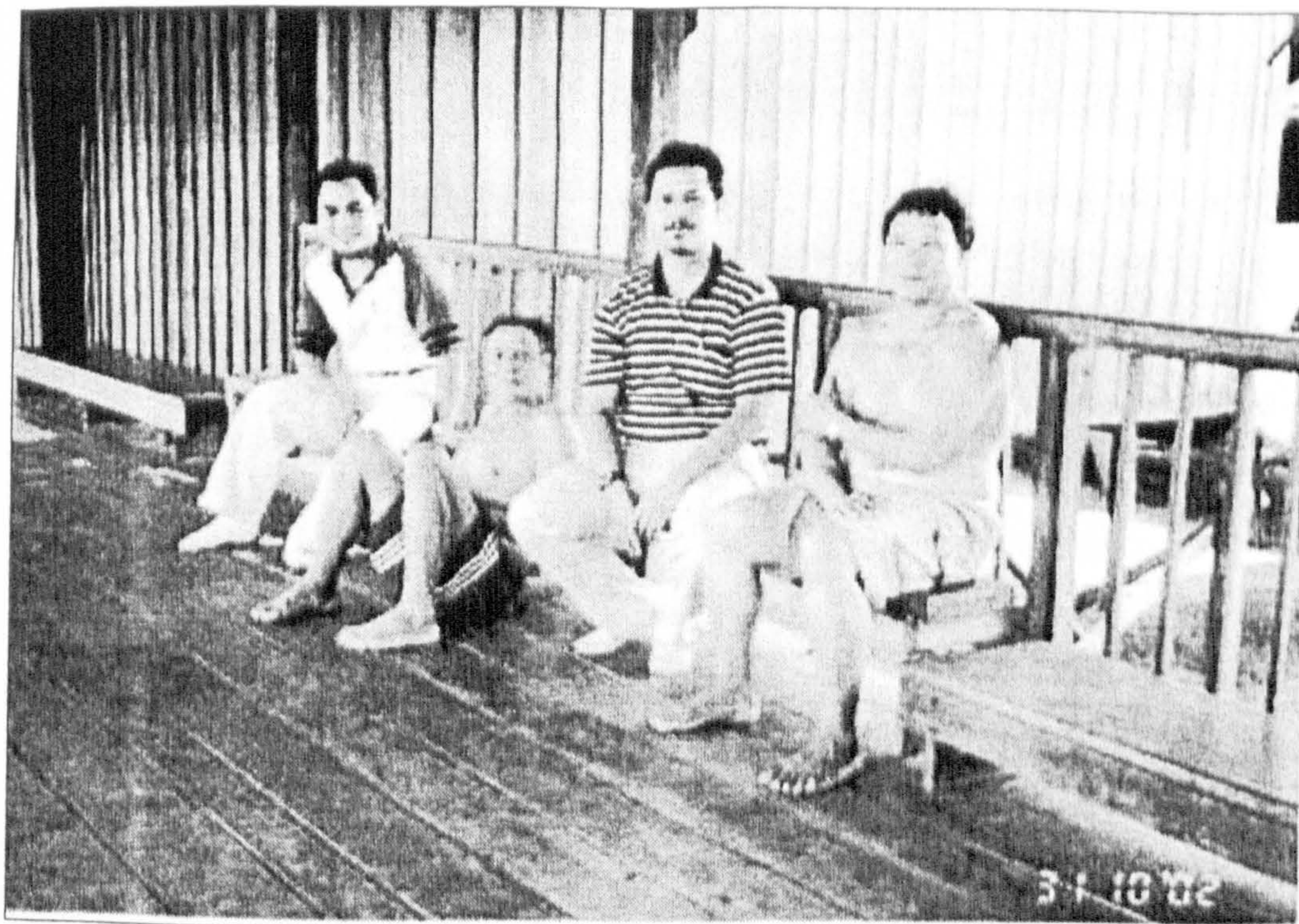
Appendix 14: The Bakun Resettlement at Sg. Asap



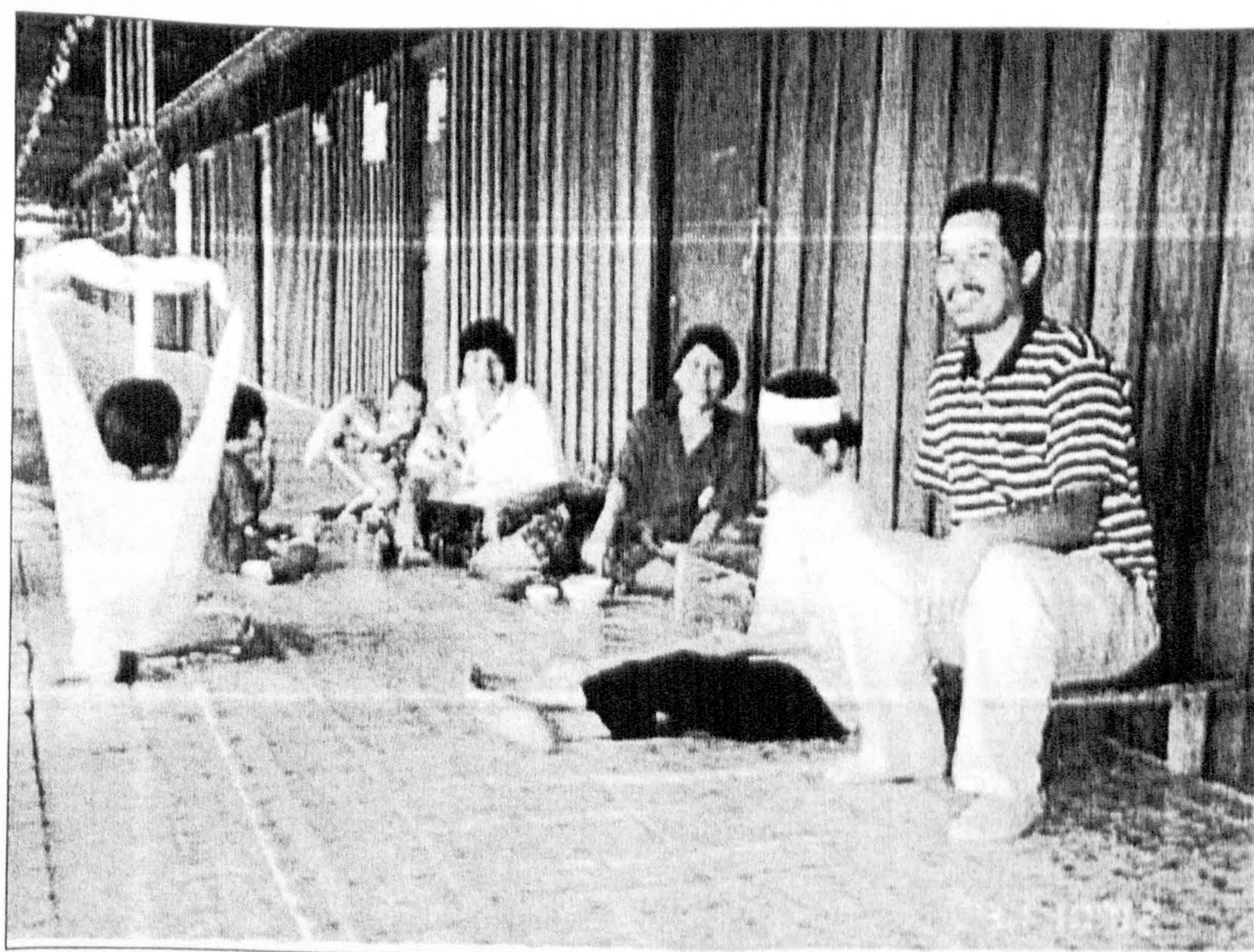
The scene of the Long House



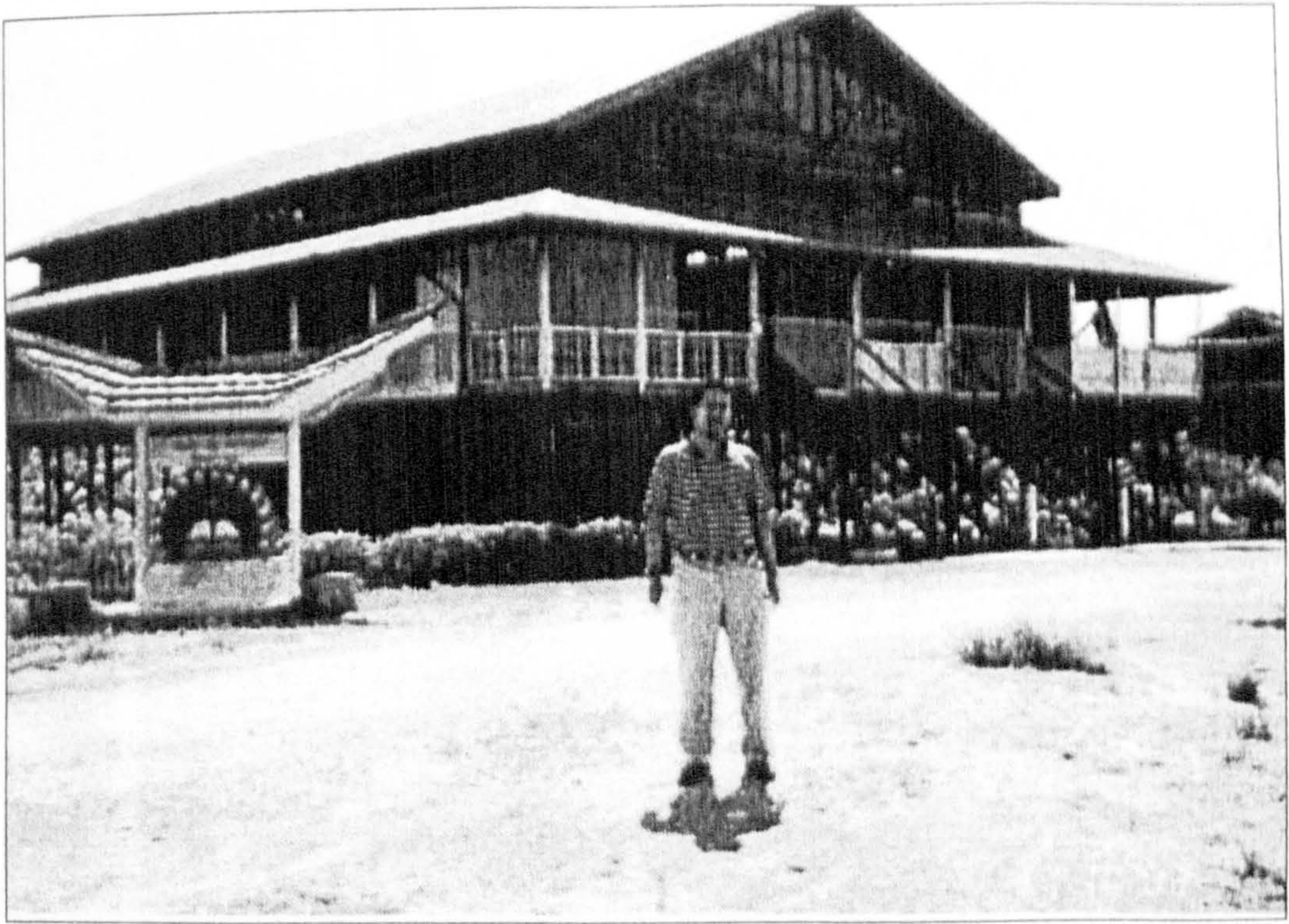
At the stair to the long house



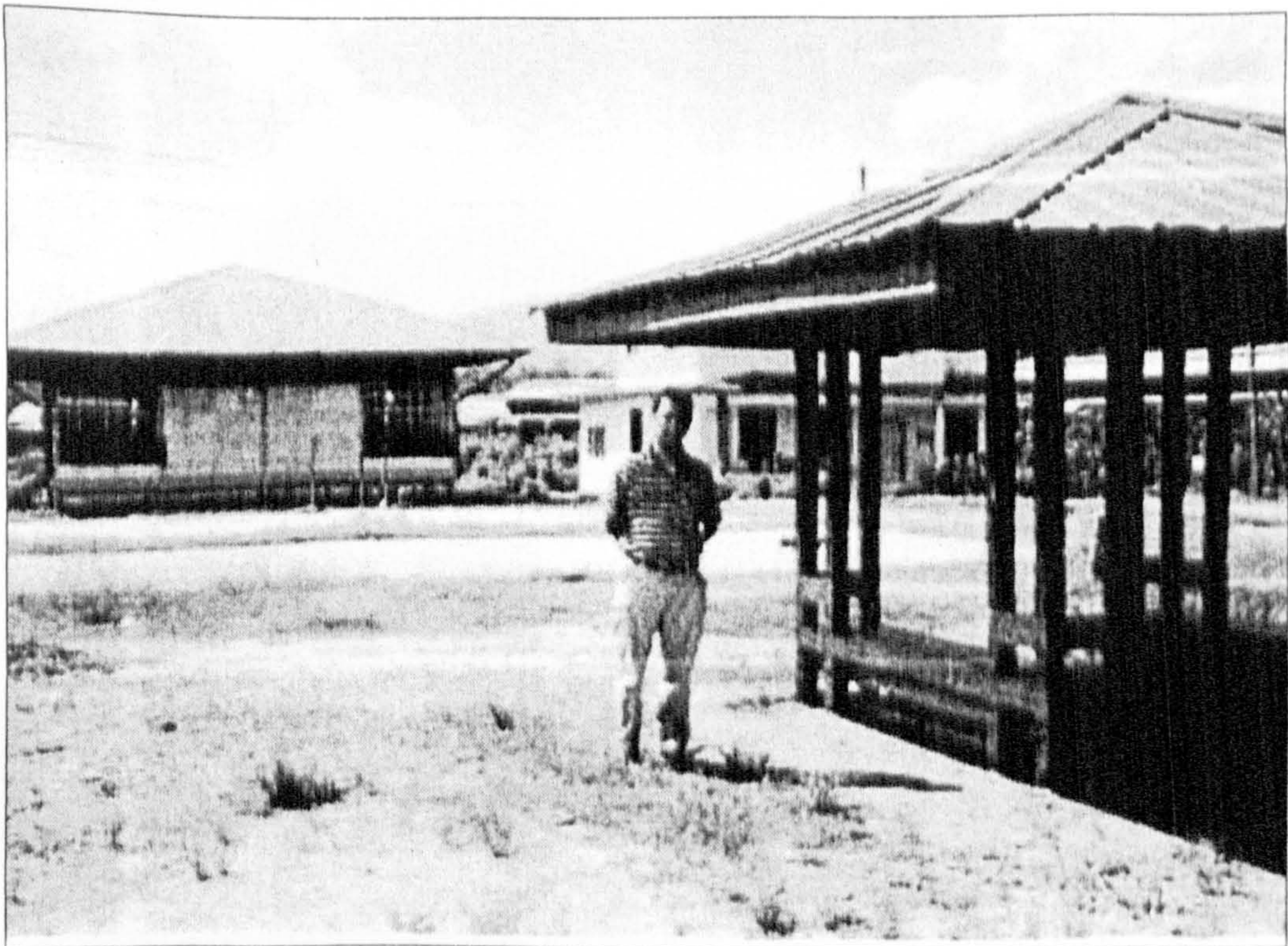
The researcher with two men of the long house



With the family of the long house



The church of the long house.



A kindergarten and bus stop.



The polyclinic



The secondary and primary schools.

Appendix 15: Letter on Application to Conduct Research in Sarawak, Malaysia



**UNIT PERANCANG NEGERI
JABATAN KETUA MENTERI**
Tingkat 14, Wisma Bapa Malaysia
93502 Kuching
Sarawak, Malaysia

Our Ref: (85)JKM/PP/SPU/
S/G1/V10.1 Vol.11

Date: 9 October 2002

Tel : (6)082 - 441957/492278 Faks : (6)082 - 449481/440506 Laman web: <http://www.spu.sarawak.gov.my>

Sulaiman Bin Kadikon
Department of Theology, Religious and Islamic Studies
University of Wales, Lampeter
Ceredigion
SA 48 7 ED
United Kingdom

Dear Mr Sulaiman Bin Kadikon,

APPLICATION TO CONDUCT RESEARCH IN SARAWAK

I am pleased to inform you that approval is hereby given to enable you to conduct research in Sarawak entitled "An Analysis of the Environmental Ethics from the Islamic Perspective" from 6th November 2002 - 25th November 2002.

This approval is subject to the following terms and conditions:-

- (i) The research will not involve any financial aid from the State Government of Sarawak;
- (ii) You are required to apply for a professional pass from the Department of Immigration of Sarawak;
- (iii) You are not to engage in any business or employment while in Sarawak;
- (iv) You are to complete your research within the stipulated time as indicated in this letter of approval;
- (v) The Government has the right to withdraw this approval should you deviate from the original scope of your research based on the application form submitted to us; and
- (vi) Upon completion of your research, printed copy of your research to be extended free to the State Planning Unit.

Thank you.

"BERSATU BERUSAHA BERBAKTI"

(ABDULLAH CHEK SAHAMAT)
Unit Perancang Negeri
b.p. Setiausaha Kerajaan Negeri
Sarawak

- C.C
1. Director, JAIS Department
(your letter ref JAIS/1020/BJ(64) dated 25.09.02 is referred)
 2. Kontroller, Natural Resources & Environment Board
(your letter ref (42) NREB/11-113 (Vol 2) dated 16.09.02 is referred)