

7-2017

Foundations for Sustainable Development: Harmonizing Islam, Nature and Law

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**FOUNDATIONS FOR SUSTAINABLE DEVELOPMENT:
HARMONIZING ISLAM, NATURE AND LAW**

**A dissertation submitted to the Faculty in partial fulfillment of the requirements for
the degree of Doctorate in Judicial Studies (S.J.D.) in environmental law at the
Elisabeth Haub School of Law at Pace University**

By Norah bin Hamad

**Under the supervision of Nicholas A. Robinson, University Professor on the
Environment and Gilbert and Sarah Kerlin Distinguished Professor of
Environmental Law *Emeritus***

Draft Date: July 19, 17

ABSTRACT

Human society is weakening Earth's environment, its only home. In 2015, nations agreed on a new set of Sustainable Development Goals (SDGs) to guide restoring and sustaining the wellbeing of peoples everywhere. If the SDGs are to succeed, all cultural and religious communities will need to urgently implement them. Islam offers a holistic view of God's creation and the Qur'an clearly sets forth duties to care for the Earth. In the past, most people have ignored the world-wide trends of environmental degradation which scientist have reported. There is a pressing need to expand education and public awareness about the threats to the environment. Islamic principles mandate both such education and stewardship of the environment. At present, however, these spiritual values are not fully observed, as can be seen in case studies of countries such as Jordan, Morocco, or Pakistan. Sacred duties to protect the purity of water are insufficiently observed. Because the daily lives of Muslims are not guided by legislation, environmental treaties, or SDGs, but rather by the *Qur'an*, SDGs will be successfully implemented if the harmony between Islam and the SDGs is clear and celebrated. Understanding the spiritual knowledge of the *Qur'an* can motivate the people in Islamic nations, and everywhere, to design resilient practices that restore the environment and sustain it for future generations.

Acknowledgements

My sincere thanks are due to everyone who has given me advice, assistance and motivation. In particular, I must extend heartfelt thanks to that genius of international environmental law -- the “father of the environment” -- my advisor Professor Nick Robinson for inspiring me to set out for this study, for his patience and advice throughout the process and simply for being so freely available to help in countless ways. Without his warm encouragement and guidance, this dissertation would not have materialized. I would like also to express my gratitude to Ms. Deborah Zipf –the “mother of all students”—for all of her efforts, and how she made me feel welcomed and at home these past years. My gratitude also extends to the wonderful librarians at the Elisabeth Haub School of Law for their great assistance over the past several years.

Finally, I am grateful for my parents, husband, kids, and my friends who have always been the light that shines through the darkness that sometimes stood in my path by supporting me during this journey with love.

March 24, 2017

Norah Bin Hamad

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Chapter 1. Introduction

Man's attitude toward nature today is critically important simply because we have now acquired a fateful power to alter and destroy nature. But man is a part of nature, and his war against nature is inevitably a war against himself. [We are] challenged as mankind has never been challenged before to prove our maturity and our mastery, not of nature, but of ourselves.

Rachel Carson, Silent Spring (1962)

1. Overview

The adoption in 2015 of the United Nations Sustainable Development Goals (the SDGs) is notable because they reflect a universal set of values, much like Islam, intended to guide humanity along the right path. Both are grounded on a common objective: environmental practices that nurture, not harm, the environment for the betterment of generations to come. Specifically, the UN has been formulating the goals of sustainable development to address local challenges, including poverty, unemployment and food insecurity, gender inequality, the availability of drinking water and narrowing the opportunity gaps between rural and urban areas and between the rich and poor. An important question remains: how can leaders contribute in addressing environmental sustainability in developmental issues? This thesis is the first study of Islam, law and the Sustainable Development Goals.

One of the most important aspects of the UN 2015 Sustainable Development agenda was that it provides a framework to respond to exigent circumstances in an innovative way, by addressing the combined bottom lines of economic, social and environmental sustainability while considering the principles of good governance, human rights and justice. Throughout this thesis, it will be clear that Islamic values and culture can play a key role in addressing these challenges, particularly as they apply with Islamic

states or other Moslem communities. This is because the level of commitment and responsibility to environment and social justice necessary for change is rooted in both the origins and the sources of Islam. The goals of the sustainable development agenda can be accomplished simply by following the principles of Islam. This, in turn, is accomplished through education, by instructing future generations about sustainable development through the principles of Islam.

Today's alarms about environmental crises have resulted in a great deal of discussion and studies on the concepts of environmental responsibility embedded in Islamic Law. Religious teachings offer significant points of reference because they provide knowledge to be used in the development of these environmental norms and laws. This thesis will examine the environmental ethics inherent in Islam, with a special focus on the protection and sustainability of ecosystems on land and at sea. This thesis proposes adopting new sustainable development models that incorporate Islamic principles, concepts, values and indicators. While analyzing different literature and studies on the subject, this thesis will provide an overview and discuss the origin, concept, principles, key dimensions and indicators of sustainable development and our human environment.

This thesis is divided into chapters that examine practical measures for protecting and sustaining the environment. It highlights the Islamic views on the environment. The study arrives at the conclusion that religious values and Islamic principles can guide and contribute significantly towards environmentally sustainable development and the protection of the ecosystems necessary for life.

Environmentalism springs from man's concerns about what development does to degrade the beauty, productivity and ultimately the livability of our habitats. The original environmental defense movement began as a response to the Industrial Revolution. In the nineteenth century, British poets waxed rhapsodic about the beauty of nature, while the American writer Henry David Thoreau praised the virtues of a return to a more simple life inspired by nature.¹ Parks were established and nature conservation programs began. After World War II and the rise of nuclear weapons and power, many feared the emergence of a new form of pollution from deadly radiation and chemical contamination.

After World War II advocates were speaking against the detrimental effects of a variety of kinds of pollution from many different sources. One such advocate was Rachel Carson, who in 1962 published *Silent Spring*.² This groundbreaking book documented the detrimental effects human pollution had on the environment, particularly on bird species, resulting from the indiscriminate use of pesticides. Although she was a scientist who recognized the need for development, Carson acknowledged the need to respect the ecological system in which we live, to maintain the healthiest and purest environment. At around the same time, the human race got its first looks at the Earth from outer space; the beauty struck the heart of many and awoke in them a sense of being on "One Earth."

The first important international push for proper and sustainable utilization of our planet came with the United Nation's Stockholm Conference on Human Environment in 1972. This thesis will refer often to the Stockholm Conference and the commitments it generated. The Conference demonstrated global commitment to working to sustain the

¹ Henry David Thoreau was an American essayist, poet, and practical philosopher. He began writing about nature in the 1840s.

² Carson R. *Silent Spring*. New York: First Mariner Books (1962).

environment. Attendees adopted the Stockholm Declaration, which established environmental norms were to be used at once. It has been acknowledged widely as a turning point in history at which point the world was ready to consciously change choices and options “with a more prudent care for their [action’s] environmental consequences.” It constituted the first U.N. recognition that indifference or ignorance was more than a passive act but rather one that portended massive and irreversible harm to the Earth’s environment in which we reside and depend on so completely. The Stockholm Conference called for conscious acts, full of wisdom and informed with the hope to achieve a safe and stable environment for the present and the next generation. The Declaration stated: “For the purpose of attaining freedom in the world of nature, man must use knowledge to build, in collaboration with nature, a better environment.”³ While the details remained to be worked out, the Stockholm Declaration framed the key issue that it was incumbent upon mankind to devise ways to live within its fragile environment.

Since 1972, many more conferences have been held, laws adopted and rules enacted in the hopes of putting to practice the vision embedded in the Stockholm Conference of 1972. The 1992 UN Conference on Environment and Development in Rio de Janeiro adopted guidance in Agenda 21 and the Rio Declaration.⁴ Despite these significant global accords, real progress has been inadequate, and the world remains in great danger of catastrophic environmental failures. This thesis will examine these and other contributions, along the way to explaining the ever more complex web of

³ United Nations *Declaration on The Human Environment* (Stockholm 1972) Principle 6.

⁴ Annex, I. “Report of the United Nations conference on environment and development.” *Rio de Janeiro (3–14 June 1992) A/CONF. Vol. 151. No. 26. 1992. Available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>*

statements and agreements that points the way to sustainable development.

2. Pollution in the history of environment

In some important ways, today's environmental issues predate the industrial era. They can be said to originate with human's first use of fire, although its purposes were mostly limited to heating habitations and cooking food. Subsequent to that, its use expanded throughout the Agricultural Revolution and then the Industrial Revolution. In one form or another, fire generates electricity and drives much of today's transportation, factories and power plants. One thing is clear: the expansion of these technological innovations has created more pollution and environmental problems around the world, to the point of threatening the continued viability of the human race and other species. Among the dangerous by-products of humanity's socio-economic development which are affecting the quality of our environment, are the combustion of products, the waste industry, human waste and pesticides, fertilizers and radioactive materials, not to mention the constant noise particular to city living. All of these factors, occurring in and interacting with our biosphere, affect the living organisms in numerous and detrimental ways. What makes these impacts more severe is the fact that some contaminants in the biosphere persist for a very long times, affecting many generations and also that they can be transferred from place of origin to new places, expanding the reach of the harmful effects. Millennia of development mean that human pollution no longer remains local and short-lived, spreading and persisting with far-reaching consequences.

To cope with these patterns of pollution, human beings should be encouraged to create several new practices that avoid creating environmental problems and pollution.

New methods and materials exist which should replace how humans manage pests, fertilize crops, or treat diseases. Society should use each only after careful study and considering the biological effects upon the environment, including long term effects, which may take place years down the line. As such, humans are considered one of the key factors necessary to reviving the viability of our environment and renewing stability to nature. Of course, the result is an increase in pressure for mankind to find viable, efficient and effective solutions to the environmental issues we now face, and to do so in a relatively short period.

It should be no surprise then, that many studies have been dedicated to this area and that many scientists and advocates alike have raised the alarm regarding this heated topic to place men on the level of awareness necessary to awaken consciousness, plans and solutions.⁵ A new consciousness is required in order to make sustainable virtually the entire range of human activity. Many understand that humans cannot feed off what they do not plant; unless humanity consciously chooses to restore a balance with the environment, Earth's ecological systems will not bear humans fruit, nor pure air to breathe. Humans must keep the air free of pollution. Taken a step further, the universe's immense supply of drinking water will also be depleted if society continues to dump waste into water and cause aquifers to dry up.

3. The purpose of this thesis

The choice to write this thesis, about Environmental Responsibility In Islamic Law, is based on a certain premise about how religious beliefs and values might influence

⁵ "Global Environment Outlook GEO 5: Environment for the Future We Want." (2012).

perspectives on environmental issues. Prof. Nicholas A. Robinson, in “Beyond Sustainability: Environmental Management for the Anthropocene Epoch” observes that, “Society needs to embrace deeper principles that can breathe new strength into sustainable development.”⁶ Most religious traditions deal with the aforementioned environmental problems as they teach about humans and their relationship with nature, and issues related to ethics and morality. It is interesting to note that the majority of religious traditions discuss environmental problems. In fact, at a very basic level, every religion provides guidelines pertaining to obligations, rules and values that set the criterion of correct actions for its adherents. This criterion forms the normative foundation for a branch of ethics known as religious ethics. Hence, the position of religion in protecting and sustaining the environment is substantiated. Translating Prof. Robinson’s observation into concrete terms applicable here, this thesis argues that followers of Islam will only really embrace the lessons of sustainability when they see how the ways their faith requires it.

Islamic doctrines that touch on the environment, as evidenced within religious values, have their own unique expression even though today practice falls short of proper adherence, even in Islamic countries. Environmental problems are universal issues that need special attention from every one of us regardless of our race, religion, ideology and country. Islam, as a universal religion, provides the universal philosophy, concepts, values and ethics that can be transformed into more practical and tangible measures in handling environmental problems. This thesis describes the ways that Islam requires that humans pursue sustainable development, and it argues the necessity of doing so.

⁶ Nicholas A. Robinson, “Keynote: Sustaining Society in the Anthropocene Epoch,” 41 *Denv. J. Int’l L. & Pol’y* 467 (2013), available at <http://digitalcommons.pace.edu/lawfaculty/927/>.

4. The significance of this thesis

It may come as a surprise to those unfamiliar with Islam that Islamic principles call for the preservation of the environment. Many are under the impression that Islam is just a religion whose worshippers engage in performing ritualistic acts of recognizing the one-ness of God, praying, fasting, giving charity, and completing the pilgrimage to Mecca – unrelated to the universe, life, the environment or other non-religious things. This is too limited an understanding of Islam and Islamic principles. Islam is a comprehensive religion that includes the entire universe of life, not just limited to human life. As far as the environmental issues are concerned, the study of the protection and sustainability of environment in Islam is a fertile issue yet to be adequately explained. But it should already be abundantly clear that as a universal faith, Islam requires that adherents maintain the world in which they live.

In order to advance, some universal principles on environmental protection and sustainability based on Islamic teaching are set forth in this thesis. This contribution itself is important because materials on environmental principles from the Islamic perspective are not widely available, except of course those lessons found directly in the sacred texts. Most of the relevant scholarly materials are dispersed in various conference proceedings and articles. This thesis will show how Islam as a set of religious values cares about environment and requires that the faithful care about it as well. There are five themes examined in this thesis.

1- One of the most important subjects about which there is very little scholarship, is the synthesis contemporary global ecological issues and Islamic law. Islam is universal, much as are the discoveries of the environmental sciences. This thesis constitutes of

the first major studies grappling with these different universal disciplines. It is necessary to link the scientific and legitimate in accordance with specific regulations and general methodology. This type of study is of extreme importance in addressing contemporary issues based on what the Holy *Qur'an* and *Sunnah* state. This approach is so rare because it require serious study in two distinct disciplines, each with specialized knowledge and skills that take years to develop. This thesis attempts to demonstrate how useful this kind of research would be and what it would encompass. It will also show us that if humans follow the Holy *Qur'an*, they will save God's creation. If we are sincere in our belief, then we will open our eyes to the unraveling environmental crises.⁷

- 2- This research attempts also to study sustainable development as one of the most important topics that have a direct link to environmental science and religious values, including Islamic Law. It is well known that sustainable development is a pattern and sets targets that all nations are adopting, including all necessary measures, in order to achieve it since it is the best way to achieve the progress of civilization in all its forms, economically, socially, and human, while at the same time preserving natural resources and wealth from depletion and pollution.
- 3- Many articles and books have been written on environmental issues. While many studies explain environmental issues from a religious value, including Islam, most present the religious principles in a general way. This thesis provides case studies to

⁷ See "Organization of Islamic Cooperation (OIC)." *International Year Book and Statesmen's Who's Who* (1989). Available at <http://www.oicun.org/2/23/>

show where Islamic principles can be useful to environmental protection and sustainability.

- 4- This thesis examines for the first time the scope for “wild law” as an aspect of Islam that includes not just animal rights but also environmental rights of plants and all of nature.
- 5- Since 1972, nations have adopted many very good polices, which nations then developed into very good treaties for national implementation. This is an ongoing process as the Paris Agreement of 2015 shows. Implementation of environmental law has been very slow. The lag is hindering progress for sustainable development. This Thesis will look to see what is missing and how action to save the environment can advance. This thesis addresses an impactful issue, namely, what humanity must do in order to sustain the Earth well into the future. This thesis focuses on environmental responsibility from the viewpoint of Islamic scriptures. Moreover, within Chapter 7’s case studies, the thesis will also demonstrate how other countries are addressing this pressing issue and their religious values are. The thesis aims to place human perspective by shedding light on the issue and helping society focus on the future. Therefore, in the conclusion of this thesis does the question of whether mankind should safeguard at least “half of earth” for “wild” nature to persist.⁸

The thesis also will show that the treatment of our environment is important and must be regarded as special in all its instances. For example, at times, people find special places, such as water and treat it differently and special. However, we should treat all water as important as *Zamzam* water. This simple act, which regards all water as sacred and all

⁸ Wilson, Edward O. *Half-earth: Our Planet's Fight for Life.* , 2016.

places special, will lead to an end to pollution and water shortage. To support this, there must be a strong social movement that supports nature.

5. The symbolic force of water and wild nature

Religion is properly reflected in nature and in Islam. Accordingly, this thesis will focus primarily on two important aspects of nature: water and wild plants and animals. Issues related to water and wild life are similar to the questions related to Islam and religion, in that, the issues addressed by one can assist in addressing the issues for the other. Thus, people can empower themselves by managing their own natural resources—and in turn become a global force for conservation. In order to elaborate further on the spiritual laws, this thesis will provide an analysis of nature and Islam reasoning that Islam is a good way to reach that knowledge and understanding of love of all life.

This thesis will address these themes in the following eight chapters, beyond this introductory chapter. The next two chapters discuss Islam and some important misconceptions. Chapter Two will give a brief history of Islam as a universal religion and its basic beliefs. It will examine each source of Islam and the roles each of them plays in Islam. Chapter three will break down the many misconceptions regarding religion. By fleshing out the positive impact religion can give for the environment, this chapter does away with the notion that religion is the embodiment of acts of worship and spiritual practices. This chapter gives an overview of the Islamic view of the environment and the relationship between human and environment. It will also examine the role of Islam in shaping human behaviors towards the environment to understand the Islamic conception of the environment and to highlight the roles and contribution of Islam to resolving environmental issues in sustainable ways. It will show through the Holy *Qur'an* and

Sunnah all the relevant concepts and ideas that deal with protecting nature, God's creation. Finally, this chapter will indicate which of the Islamic principles are the most important in telling us what we should do for the environment.

Chapter Four expands on this concept to examine Islamic principles of environmental stewardship. Sustainable development has become one of the most important global issues since at least 1992, with nations across the board agreeing on its necessity and goals. The overall mission for sustainable development has been discussed at length as recently as 2015, though similar goals have already been expressed within Islamic notions for more than 2,000 years. As such, the Chapter Four will demonstrate both the evidence and examples that confirm the Islamic agenda as it relates to the environment. Further, it will also discuss sustainable development via a description of what it requires through "soft law."

The next two chapters analyze the units of implementation, first people and then countries. The fifth chapter discusses the state of Earth's environment in light of moral obligations and religion and how the absence of either affects how we act and our economy as a whole. This assertion is based, not on personal opinion, but on the scientific opinion of experts in the field. This chapter will also focus on the environmental issues which have developed and why individuals are failing to grasp the process of environmental change and how that affects the world's population. Given that the Earth is wholly interconnected in nature, but artificially divided by national boundaries, each country must propose and implement similar rules and laws governing environmental protection that takes into account the potential for harm to a neighboring country. The Chapter Six will focus on the instrumentalities of international

environmental law to outline the goals they are designed to achieve, and their relative success and failure to protect the environment. This chapter will also cover some of the treaties that nations following Islam have ratified.

Chapter Seven discusses instances in which religion and international environmental law are intertwined. This chapter offers three geographic case studies to illustrate the challenges that exist when nations seek to combine religion and international environmental law. Furthermore, it will show if policies are taken into account without considering ethical religious notions. It will also discuss the relevance of Islam on how the three countries have adapted sustainable development and applied Islamic principles to see where the application of Islam has succeeded in addressing issues of sustainable development.

In Chapter Eight, this thesis examines and illustrates the instrumentality of Islam by focusing on two thematic case studies. The first is what can be learned from *Zamzam* water, and the second is the recognition of rights in wild plants. In the water case study the decision to protect well water, *Zamzam* water, is not just for the present generation but also for beyond our children. *Zamzam* water is very specific, but Islamic principles apply in very specific things as well as very broad things. In that case the present generation's obligation to help with water and duty to human and society to work on water will be described and review what law says about water. Most law on water is only the national or local level. It is very little international law on the water, begging further analysis and development of principles. Why do human societies not take proper care of water? The second case study, will illustrate wildlife law, specifically discussing trees because its one of the meager themes of wildlife law but it is much broader than trees

because it goes to all kinds of habitat and plants. What applies to flora may also apply the same values to animals and other parts of nature.

The thesis concludes with a final chapter about the duties Islamic principles require all people with respect to the environment. This thesis is important also because it provides the first discussion of the new Sustainable Development Goals in the context of Islam. Although many scholars have discussed at length the interrelation of Islam and environment, no one has written about Islam and sustainable development. Thus, this thesis will be the first to discuss the issues and elaborate on sustainable development and SDGs. This thesis is therefore unique in that it is the first researched writing that discusses Islam and SDG at length and first to discuss the importance of plants and the necessity for laws protecting plants. Moreover, it discusses the Paris climate agreement and in general how using Islam can be set as a demonstration of how religious values can motivate the implementation of SDGs.

As a rule, ethics in general and religious values in particular are fundamental to the choices that societies make in shaping laws on nature and natural resources. Islam – particularly as practiced in states governed solely by Sharia – is even more pervasive in structure certain societies than most religions. Fortunately, Islam offers powerful insights into how mankind can and must work to ensure sustainable development. This thesis seeks to make clear those obligations, how they are required, and what they can do to ensure that as mankind continues development it does so in ways that provide for future enjoyment of our natural endowment.

Chapter 2: Basic Source Of Islamic Law

This chapter provides an overview of Islamic Law, its origins, sources and interpretations, with a particular focus on how it guides the righteous in their treatment of nature, requiring respect for all God's creations.

1. Overview

Sharia law defines the Islamic legal system. Its religious precepts stem from the *Qur'an* and *Hadith*. The term Sharia, or *sharī'ah* in Arabic, means “a body of moral and religious law derived from religious prophecy, as opposed to human legislation.”⁹ Specifically, Sharia accredits the prophet Mohammed (PBUH) with memorializing “an entire body of rules that govern Muslim life,” based primarily on “deeds and writings.”¹⁰ These designations support the probative inference that Sharia in Islam may represent a trustworthy law of God. Islamic law embraces all questions of faith. Sharia deals with many topics, including the environment, crime, politics, marriage contracts, trade regulations, religious prescriptions, “and economics, as well as personal matters such as sexual intercourse,”¹¹ hygiene, diet, prayer, everyday etiquette and fasting. Observance of Sharia has served as one of the recognizable attributes of the Muslim faith historically. In its narrowest definition, Sharia is considered in Islam as the trustworthy law of God. Sharia regulates a wide array of social and economic interactions. If followed truly, observance of Islamic themes may offer opportunity for cohesiveness among Muslim followers who seek spiritual growth within the comprehensive Islamic tradition. The

⁹ Administrator. “ISCA.” *Understanding Islamic Law*. N.d. Available at <http://www.islamicity.org/topics/islamic-law-sharia/>

¹⁰ Finnerty, John D. *Project Financing: Asset-based Financial Engineering*. Hoboken, NJ: John Wiley & Sons, 2013. Print. p. 307.

¹¹ William Young, E-Study Guide for: The Worlds Religions: Worldviews and Contemporary Issues 2nd Edition, ISBN 9780131830103

ambiguous syntax inherent in Islamic doctrine has given rise to different interpretations of Islam, but this also can reinforce an inference of universally amalgamating Muslims by potentially reconciling multiple conflicting perspectives among each other. If so, Sharia's comprehensive structure can help consolidate cohesiveness among Muslims by allowing for the divergent perspectives. Therefore, Islamic law plausibly contains within it all the traits of a complete legal system, with an inherent ability to renew itself and progress.

Sharia relies on the principle that all issues begin with right—not discretion or prohibition. Discretion in this context implies Islamic norms. Islam holds inalienable rights that pre-exist jurisprudential foundations, and therefore implies a natural order commencing with permission. Pre-existing inalienable rights assumes a universal Law of Nature that presupposes government, and by extension, jurisprudential foundations.

Why? The word inalienable assumes a universal right existing at all times because nothing may “restrict” or “alienate” that right. In other words, no legislative body by discretion may act to deny rights associated with life, liberty, property or the environment because these “inalienable rights” pre-exist government. The word “inalienable” assures this proposition. Thus, the natural order of affairs presupposes a permissive structure—existing at all times in all places.

Because Islam constitutes a universal worldview, with *a priori* inalienable rights, then Islamic Sharia supports the principle that all issues begin with permission. While this argument may apply spiritually to any religious tradition with universal implications, our analysis applies the foregoing conclusion vis-à-vis Islamic Sharia as a Source of Law. From the jurisprudential foundations of Islamic Sharia arise practical applications and

solutions for problems common and systemic to humanity regardless of their scope.¹² Legal scholars from old all over the world have alerted us to the magnificence of Sharia and its awareness of the minutia of the needs of societies in all times and places.¹³ There are nations that consider the Islamic Sharia the principal legal system that surpasses even the man-made elements of their Constitutions so that it is never permissible to overstep the bounds of the Islamic Sharia. Such is the case in the Kingdom of Saudi Arabia and other countries of the Arabian Gulf.

That said, it is important to note that Sharia is universal among Muslims irrespective of place. According to Sharia's tenets, God presumably sent "its Prophet (PBUH) to all peoples of the world regardless of race, color, culture, and geographical location," because God presumably says, "We have only sent you (O Muhammad) as a mercy to all the worlds."¹⁴ To strengthen this inference, the very first leaf of the Holy *Qur'an* "praises the Lord who is the Sustainer of all the worlds." Sustainer of "all the worlds" again implies universality without respect to any one nation, location or country. Moreover, its last passage urges prayer "to the Lord of mankind." Mankind here plainly implies all creation in all places everywhere—the definition of universal. Thus, both the first and last words of the Holy *Qur'an* presuppose a universal presence—not merely God for Arabs or any other single nationality.

The first such claim was made in favor of the Holy Prophet of Islam in these words: the Prophet (PBUH) said: "Every other Prophet was sent to his nation exclusively,

¹² Janin, Hunt, and Andreï Kahlmeyer. *Islamic Law: The Sharia from Muhammad's Time to the Present*. Jefferson, NC: McFarland, 2007. Print.

¹³ Since 1932, Islamic *sharia* has been recognized as a global source for legislation and law in international scientific conferences.

¹⁴ *Qur'an*: Surat al-Anbiyaa (21), ayah 107.

while I have been sent to all of humanity.”¹⁵ Also God says “*And we have not sent thee but as a bearer of glad tidings and a Warner of all mankind, but most men know not. And then Say ‘O mankind, truly I am a Messenger to you all’*”.¹⁶ This assertion supports the assertion of Islam as a universal worldview.

2. Sources of Islamic Law

a. The Book: the Holy *Qur’an*

The first source of Islam is the *Qur’an* which embodies the words of Allah – Glorified and Sublime be He – that were sent down with His Messenger (PBUH) in a clear, Arabic tongue, transmitted to us in successive steps (that are in order) so that by its recitation one worships Allah and what is written in the Book as a miracle in both style and meaning.¹⁷ The *Qur’an* serves as the foundation of Islamic jurisprudence because it states and clarifies the foundations of Islamic law and illuminates its principles in belief specifically and provides in the religious rituals and rights [of creation] in totality. It is to the Islamic Sharia what a constitution is to most the other legal systems. The *Qur’an* is the guiding light for the Prophet ((PBUH)) and after him, so it was the original source of legislation. Moreover, the *Qur’an* has a constitutional character in that describes the rules and regulations in totality and holistically.

However, the Holy *Qur’an* does not deal much with specific minutia and details. Such details would have so lengthened the Holy Book as to unnecessarily venture outside of its *Qur’anic* purposes. For instance, the *Qur’an* rightly offers generalities about ritualistic prayer and the obligation to perform charity that encapsulate its universal

¹⁵ Hadith of sound authority, related by *Saheeh Al-Bukhari*. He is one of six canonical collections of hadith.

¹⁶ *Qur’an*: Surat Saba (34), ayah 28.

¹⁷ Talal Itani *Qur’an in English: Clear and Easy to Understand Modern English Translation*.

character. Details of how the ritualistic prayer or obligatory charity (*zakat*) are to be performed are described instead in the aphorisms, parables, and actions (that is the *Sunnah*) of the Prophet (PBUH). Such is also the case with loyalty to oaths, contracts, and the permissibility of commerce. The *Qur'an* contains no description as to what constitutes a valid, permissible contract or legitimate oath. Such details are to be found in secondary sources.

This same generality is reflected in descriptions of the environment. For example the *Qur'an* reference to “sources of life” offers an allegory to prevent abuse in construction and sustainable development via conservation measures. This concept of conserving and developing natural resources inheres to the *Qur'an's* idea about sustaining life. This inference of a conservation mandate inherent in the *Qur'an's* tenets may further suggest support for land preservation through sustainable methods of agriculture, cultivation, or construction. For instance, God says “It is He Who sends down water from the sky; and thereby we have brought forth the plants of every kind.”¹⁸ The Prophet (PBUH) declared that extravagance in using water is forbidden. This applies to private use as well as public, and whether the water is scarce or abundant. It is related that the Prophet (PBUH) passed by his companion Sa'd, who was washing for prayer, and said: “What is this wastage, O Sa'd?” “Is there wastage even in washing for prayer?” Asked Sa'd, and he said, “Yes, even if you are by a flowing river!”¹⁹ This broad application of “wastage” applying even to “washing for prayer” offers a telling proscription: judiciously conserve resources. Likewise, the Prophet (PBUH) enunciated, “If any Muslim plants a tree or sows a field, and a human, bird or animal eats from it, it

¹⁸ Qur'an: Surat al-An'am (6), ayah 99.

¹⁹ Mjah, Ibn. *Sunan Ibn Majah*. Urdu-Books, 2000.

shall be reckoned as charity from him.”²⁰ These provisions of the Holy *Qur’an* and *Sunnah* with respect to water will be elaborated in the special case of *Zamzam* water and with respect to wildlife, and in particular a deeper understanding of the rights of plants, will be explained as in chapter 8. For present purposes it is enough to note how the holy texts teach the importance of conservation through parable and as well as through more explicit pronouncements.

The sources of Islam also vary in how they instruct in different times. It was the *Sunnah* also that described the foundations of such a discernment based on the premise that the *Qur’an* dealt only with specificities of rules and regulations that do not change over time. It should be noted that the more generalized *Qur’anic* text offers an important advantage with regard to the rulings concerning civil interactions and political and social systems on account of the flexibility it allows in the understanding and interpretation. This facilitates its application in various ways (obviously without contradicting the text) that would best suit the era. A source received 1,438 years ago remains readily applicable in part because of the format of its instruction. That noted, the *Sunnah* is necessary for details and specificities of how to apply such rulings, for instance in terms of methods, quantities, and recognition of the maximum and minimum limits.²¹

It is for this reason, that the *Qur’an* makes a general referral to the Prophetic

²⁰ Hadith of sound authority, related by al-Bukhari and Muslim.

²¹ A *sura* is a chapter of the Qu’ran which contains 114 chapters. Islam in all its variations is comprised of Qu’ran and *sunnah*, things Muhammad stated, implied or exemplified in his personal life as a teacher of Islamic Law (*shari’ah*). *Sunnah* is set forth in *hadith*, the records of Muhammad’s life and sayings. According to a *hadith* narrated by Tirmidhi, Mohammad exemplified mankind’s role as earth’s guardian when he slept on the ground wrapped in his shawl on a bed of palm leaves, repaired his shoes and urged others to wear out their clothes until they needed patches. He said, “The worldly comforts are not for me. I am like a traveler, who takes a rest under a tree in the shade and then goes on his way.” Muslims are enjoined to follow the *sunnah* and practice sustainability and conservation by leaving the symbolic tree intact so the next traveler can use it.

Sunnah and the details of legal matters, with the following saying of Allah:

(interpretation not translation) “And with regards to what the Messenger of Allah brought to you, take it; and with regards what he (the Messenger) has forbidden you from, avoid.”²² Based on this mandate, the *Sunnah* is the key to the *Qur’an*.

b. The *Sunnah*:

The *Sunnah* refers to the sayings, actions or reports of the Prophet (PBUH) transmitted to us. In this sense, it is synonymous with the term “*hadith*” that is used to refer to the practical application of the Sharia at the time of the Prophet, that is the way the Islamic interactions were in that first Islamic age. The Prophetic *Sunnah*, thus, came to this status and position because it is either descriptive of what has been brought in the Holy *Qur’an* or a confirmation of a new ruling not mentioned in the *Qur’an*. And from this, obedience to the Messenger (PBUH) is coupled with obedience to Allah. For Allah says (interpretation) “Oh you who believe, obey Allah and obey the Messenger and the ones leading you. And if you fall into disagreement, then bring the matter to Allah and the Messenger if you truly believe in Allah and the Last Day. That is better and more perfect.”²³ The *Sunnah* is second to the *Qur’an* in rank in terms of the source of Islamic norms. This high rank is based on its description of generalities, clarification of problems, absolute restrictions, and viewpoints not mentioned before and also because its source is the Prophet (PBUH). The *Sunnah* serves an independent source of Islamic norms in that it may mention rulings that are not specified in the *Qur’an*. In another sense, the *Sunnah* clarifies the *Qur’an*. It does not overstep or contradict the general rules of the *Qur’an*,

²² See *QuranicPath* “Take What the Messenger Gives You and Abstain From What He Forbids You”. Available at http://www.quranicpath.com/sunnishia/messenger_gives.html

²³ Qur’an: Surat An-Nisa’ (34), ayah 59.

even if they have not been mentioned specifically in the *Qur'an*. The *Sunnah* is, therefore, essential for the proper understanding of the *Qur'anic* text and for comprehending the true application of its generalities.

While authoritative, the *Sunnah* remains secondary. There is no disagreement that the *Sunnah* is a source of Islamic norms but its rank as a source follows that of the *Qur'an*. So that the person wanting to understand the rule of a matter would first go the *Qur'an* to see if an answer is available. If unavailable there, then the striver would revert to the *Sunnah*. Evidence of this is clear in a *hadith* of the prophet (PBUH) that he said to Mu'ath: "how do you judge a case if you were asked to judge?" He said, "I will judge by the Book of Allah."²⁴ And what if you do not find it in the *Qur'an*? He said "then by the *Sunnah* of the Prophet (PBUH)." Furthermore, the *hadith* transmitted from Umar Ibn al-Khattab (May Allah be pleased with him) that he wrote to the Judge Shareeh: "Judge by what is in the book of Allah and if you do not find then utilize the Prophet *Sunnah*."²⁵ In light of the level of generality often found in the *Qur'an*, study of the *Sunnah*'s teachings is necessary to manage complex issues such as sustainable development.

c. The Consensus

As the reader may have deduced from the previous section, there remains the possibility of varying interpretations of the requirements of Islam. For this reason, followers strive to identify consensus interpretations. The consensus is an agreement among scholars of jurisprudence of a certain age on any specific ruling of Sharia. It does not matter if the consensus was between the Holy Companions of the Prophet after his

²⁴"Top 3 Hadith Websites on the Web." *Top Islamic Blog!* N.p., 20 Oct. 2012.

The Hadith of the Prophet Muhammad (ﷺ) Available at <http://topislamic.com/top-3-hadith-websites-on-the-web/>

²⁵ *Id.*

passing or of people that came after them.²⁶ Consensus is a strong proof of the confirmation of jurisprudential rulings and follows the *Sunnah* in rank in terms of authority. There are collections of *Qur'anic* verses and sayings of the prophet that prove that consensus in speech from scholars.²⁷

d. Inference

In addition to literal readings and reference to consensus interpretations, understanding Islamic requirements may require reading by analogy or inference. Inference refers to the attachment of a matter to another different matter in the legal rulings because of similarity in cause.²⁸ This source is the fourth in rank of authority after the *Qur'an*, the *Sunnah*, and the Consensus with regards to its use as evidence in confirming a jurisprudential ruling. With that being said, it is greater in effect than the Consensus because of its widespread utilization as a source of reference in jurisprudential rulings.²⁹ Matters based on consensus have been limited in use because of the reluctance of Muslim scholars in different scientific fields to consult one another as well as its inability to be fully implemented in its true sense. Inference, on the other hand, does not require a scientific agreement between scholars. Rather, any diligent student can have his or her point of view in any issue where there is no specific *Qur'anic* text, *hadith*, or a prior consensus among scholars.

The *Qur'anic* text and the *Sunnah* are complete and not open to new additions, while the reality is ongoing and always changing, leaving no other way to fully

²⁶ "As-Sunnah Foundation of America." *As-Sunnah Foundation of America*. See more at <http://www.sunnah.org/fiqh/usul/Default.htm>

²⁷ Dr. Ahmad Shafaat "The Meaning of Ijma` (Consensus)." *The Meaning of Ijma` (Consensus)*. N.p., n.d. Available at <http://www.islamicperspectives.com/meaningofijma.htm>

²⁸ "Learn About the Sources of Islamic Law." *About.com Religion & Spirituality*. ND, Available at <http://islam.about.com/od/law/a/sources.htm>

²⁹ Id.

accommodate new events and jurisprudential matters than by the use of self-initiated endeavors of thought of which inference is the highest form. Inference is the most prolific source of jurisprudence in proving subsidiary judgments of events.³⁰

3. Water and Animal and Plant life

The importance of water, plants and animals to human life is undeniable. God – be He exalted – did not make a single worthless creature. Each species serves an important role in the circle of life and by virtue of this, warrants special respect. God has said, “Then let man consider his nourishment: that We pour down the rain in showers, and We split the earth in fragments, and therein make the grain to grow, and vines and herbs, and olives and palms, and gardens of dense foliage, and fruits and fodder-provision for you and your cattle.” It is well-settled: God created everything for a higher purpose. Islamic principles emphasize the need to protect all of God’s creation for the sake of the whole, that each part may perform their individual functions. Thus, destroying or overuse of any specie of animal or plant by human is unjustifiable. This precludes excessive hunting, fishing or wood-cutting, grazing, and all other over-utilization of living resources. Instead, we must focus on the preservation and diversification of all living things for the sake of all living things, including humanity.

The Prophet Muhammad (PBUH) was sent by God as a mercy to all beings. Through his teachings we were taught how to care for these creatures. 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.” The Prophet (PBUH) commanded mankind to protect natural rights by providing for the needs of animals, for example. Moreover,

³⁰ Id.

the Prophet (PBUH) warns that any person who causes an animal to die of starvation or thirst will be punished by God. Islam, therefore, establish two principles in regards to both animal and plant: that both animal and plant should be respected as a source of human sustenance and that they have their own rights.

4. Conclusions

These are the sources of Islamic law that are being applied in all Muslim countries including Saudi Arabia. As has been mentioned, the primary source of law, the *Qur'an*, concerned itself with generalities, not specifics, so that the *Sunnah* completed it with details. Books of interpretation of the *Qur'an* became so prevalent that they constitute a separate legal scientific branch with its own sources and scholars. As in any other scientific field, has its strong scholars as well as scholars and sources that are dubious and weak. Thus Muslim legal scholars take special precautions to use only the most reliable sources used by scholars who are well known for their wisdom and fidelity to the science. There are many books of interpretation of *Qur'an* and *Hadiths* but the best well-known are such as *Tafsir al-Tabari*³¹, *Tafsir Ibn Kathir*³² and *Tafsir al-Qur'tub*.³³ The observation of who the best scholars and writers are in a field for evidence in legal matters is one of the principal practices in Islamic law. Significant effort must be applied to finding the best understanding of any particular branch of law. Thus, the next chapter

³¹ Tabari, Jarir. "JarirBooks-Arabic Books & More: Tafsir Al-Tabari 1/13 تفسير 1/13." *JarirBooks-Arabic Books & More: Tafsir Al-Tabari 1/13*.

Available at <http://jarirbooksusa.com/12175.html>

³² *Tafsir.com*. Available at <http://www.tafsir.com/Default.asp>

³³ Qurtubi (Imam Qurtubi) (Cordoba, Spain D.1230 CE). "Source for Arabic Books: Tafsir Al-Qurtubi - 21 Vol 11 Books - تفسير القرطبي - Early Work - Tafsir - Quran Commentary: By Qurtubi (Imam Qurtubi) (Cordoba, Spain D.1230 CE)." *Alkitab.com-Source for Arabic Books: Tafsir Al-Qurtubi - 21 Vol 11 Books - : Early Work - Tafsir - Quran Commentary: By Qurtubi (Imam Qurtubi) (Cordoba, Spain D.1230 CE)*. Available at <http://www.alkitab.com/10387.html>

discusses an important topic in Islamic law, which is environmental law since environmental issues now are one of the most important issues since they concern the human being and his protection as well as the protection of the environment within which he lives.

Chapter 3: The Environmental Norms Under Islamic Law

This chapter provides a detailed analysis of the obligations that *Sharia* imposes on the adherents of Islam to care for the natural environment. By examining the principle sources of Islamic Law, the *Qur'an* and the *Sunnah*, it explains how many has obligations to minimize waste and pollution – called corruption – and to care for all God's creation. It explains how these obligations align with the principles of sustainable development and the 2015 Sustainable Development Goals.

1. Introduction

Islamic culture and religion encompass all laws and regulations which relate to humans and all things here on Earth. Thus, Islam is holistic, encompassing the secular as well as religious aspects of life.³⁴ One of the laws embodied in Islam is the duty to maintain the universe and all living things, inclusive of all plants and nature objects, unadulterated. All living things within the universe are, therefore, given the same deference as humans and are guided by the laws created by God.³⁵

Islamic norms do not portray the human relationship to nature as one of conflict or contradiction, but rather, one of sameness. The universe and all that make up this entity are portrayed as Allah's creation and all are, hence, complementary.³⁶ The fact that human beings have been destined to cultivate the lands and the universe's advancement has been placed in the service of human beings, does not take away from the notion of

³⁴ Kamla, Rania, Sonja Gallhofer, and Jim Haslam. "Islam, nature and accounting: Islamic principles and the notion of accounting for the environment." *Accounting Forum*. Vol. 30. No. 3. Elsevier, 2006.

³⁵ Gottlieb, Roger S. "Religious Environmentalism: What it is, Where it's Heading and Why We Should be Going in the Same Direction." *Journal for the Study of Religion, Nature & Culture* 1.1 (2007).

³⁶ Bagader, A A, El-Chirazi El-Sabbagh, A, As-Sayyid Al-Glay- and, M, Samarrai, M U I, and Llewellyn, O A, Environmental Protection in Islam, *IUCN Environmental Policy and Law Paper*, 20, second revised edition, Gland, Switzerland. (1994).

parity between humans and all other kinds of matter found within the Universe. Allah (the Glorified and Exalted) says:

It is Allah Who has created the heavens and the earth and sends down rain from the skies and with it brings out fruits wherewith to feed you; it is He Who has made the ships subject to you that they may sail through the sea by His command; and the rivers (also) He made subject to you. And He made subject to you the sun and the moon, both diligently pursuing their courses: and the Night and the Day He (also) made subject to you.³⁷

People have been empowered to care for and nurture that which they have been granted by Allah, the Earth and all within it. However, this authority should not be misunderstood and misused. The right of men to govern over the universe must be taken with a great sense of responsibility. Islamic notions remind us of what our responsibilities are with regards to nature and the universe.³⁸ Our place here is vital to the growth and development not only of our generation and our current habitat but also the generations that will continue to inhabit the Earth.³⁹

This chapter will extract excerpts of the Holy *Qur'an* and *Sunnah* texts and their discussions on the topic of preservation and protection of nature and the role humans play towards that ultimate goal. The Holy *Qur'an* and *Sunnah* both provide a foundation for discussions on preservation of the environment. These are discussed here in four aspects. First, it will discuss the Islamic norm regarding the environment. The Holy *Qur'an* speaks of God's creation of the environment. The Holy *Qur'an* provides the notion of the inherent value of creatures and life and the need for respect and love that is demanded for

³⁷ Qur'an: Surat Ibrahim (14), ayah 32-33. رَزَقْنَا السَّمَرَاتِ مِنْ بِهِ فَأَخْرَجَ مَاءَ السَّمَاءِ مِنْ وَأَنْزَلَ وَالْأَرْضِ السَّمَاوَاتِ خَلَقَ الَّذِي اللَّهُ. 32(الْأَنْهَارِ) لَكُمْ وَسَخَّرَ بِأَمْرِهِ الْبَحْرَ فِي لِيَتَجَرَّيَ الْفُلُوكَ لَكُمْ وَسَخَّرَ لَكُمْ وَالنَّهَارَ اللَّيْلَ لَكُمْ وَسَخَّرَ دَائِبِينَ وَالْقَمَرَ الشَّمْسَ لَكُمْ وَسَخَّرَ (32) This is the authentic Arabic for this quotation text in English. Also verses 25:2; 32:7; 30:26 and 44:38-39.

³⁸ Khalid, F. M. "Islamic Pathways to Ecological Sanity—An Evaluation for the New Millennium, Ecology and Development." *J. Inst. Ecol* 3 (2000).

³⁹ See `Abd-Allah, pp. v-vi, 364 (footnotes); Masud, pp.164-165, 317-322. Other prominent jurists who examined the ultimate objectives of the *Shari'ah* include `Izz al-Din ibn `Abd al-Salam (d.660h/1263c), Shihab al-Din Ahmad ibn Idris al-Qarafi (d. 684h/1285c), and Taqi al-Din Ahmad ibn `Abd al-Halim ibn Taymiyah (d.728h/1328c), See Mahmassani, *Falāsafat...*, p. 105m `Abd Allah, pp. vi, 52 (footnotes).

all living things. Second, this chapter will delve into the relationship between humans and the environment. The right of people to populate the Earth also embodies the right of man to dwell, endure, and make use of the Earth as he sees fit, provided that this use does not infringe on the rights of nature and the need to preserve God's creation. This right of use must be fitting to the situation and should be exercised with the qualities the Creator has placed in man's primordial nature (*fitra*), primarily mercy and justice. The Holy *Qur'an* sets out a complete spiritual and moral guide for man. Humans are to walk humbly; not to be wasteful or extravagant; not to disrupt the balance that exists in nature and not to change the creation of God.⁴⁰ This discussion leads inevitably to one about how can do better.

Third, this chapter will discuss human corruption and its link to environmental pollution. This chapter turns to human's failures and opportunities to rectify them. The failure of humanity to adhere to the imposed restrictions and their ignoring of commandments throws creation out of balance and makes way for harmful repercussions. Lastly, this chapter examines how human purification can help address the environmental crisis. In order to deal effectively and consistently with the environmental crisis, it is necessary to root out its damaging causes and address the currently growing issues. Islam allows us to identify these cases and shows that they arise from the dominance of materialistic attitudes which affect the environment directly and human corruption which corrupts the earth's blessings and, hence, its physical development as well. For as (The Glorified and Exalted) says in the Holy *Qur'an*, "Corruption has appeared on Earth and at sea because of what the hands of men have wrought; in order that God may make them

⁴⁰ Qur'an: Surat Luqman (31), ayah 19. ظَاهِرَةٌ نِعْمَةٌ عَلَيْهِمْ وَأَسْتَبْعَ الْأَرْضِ فِي وَمَا السَّمَاوَاتِ فِي مَا لَكُمْ سَخَّرَ اللَّهُ أَنْ تَرَوْا أَلَمْ. وَبِاطْنَةً
This is the authentic Arabic for this quotation text in English.

taste the consequences of their actions; so that they might return [to God].”⁴¹ This chapter concludes by discussing that return.

2. Environmental terms in Islam

There are many major differences between the Islamic approach to our environment and how the rest of society deals with these issues. For example, Islamic sources do not use the same environmental terms currently known to environmental scientists but rather express environmental issues in a manner which emphasizes its importance to the Islamic community. For example, the word “pollution” is referred to as “corruption” by Islamic sources.⁴² The phrase “ecological balance” is referred to as “scales”⁴³ with an understanding that God Almighty is the one who creates balance and who forbids people from disrupting the balance. These scales denote the idea of weighing and measurement for the purpose of achieving balance. However, the meaning goes deeper than the scale of justice; it denotes the idea of a balance and harmony with nature and God’s will. Many environment and nature writers discuss this requirement of harmony. This school of thought has been long known by Islamic groups. Indeed, the word “environment” is not exactly contained in the Holy *Qur’an* or *Sunnah*, but Islam expresses it by talking about the elements of the environment such as heaven and earth or land and sea or a metal such as iron. It is important to know that the texts of

⁴¹ Qur’an: Surat Al-Rum (30), ayah 41. لَعَلَّهُمْ عَمِلُوا الَّذِي بَعْضُنَا لِيُذِيقَهُم النَّاسَ أَيُّدِي كَسَبَتْ بِمَا وَالْبَحْرُ الْبَرِّ فِي الْفَسَادِ ظَهَرَ. يَرْجِعُونَ This is the authentic Arabic for this quotation text in English.

⁴² Word pollution is used in Arabic as “تلوث” and in Quran used corruption “فساد”

⁴³ The phrase “ecological balance” is used in Arabic as “التوازن البيئي” and in *Qur’an* used as scales “موازن” Scales is the English term for the mechanism to weigh objects, and this weighing process, when the weights are equal produces a level or evenly balanced phenomenon.

the Holy *Qur'an* and *Sunnah* contain provisions to command engagement in charity efforts and preservation of the environment.⁴⁴

3. Environment and Islam

The relationship between man and the universe is based on compatibility and harmony. God created the universe with accuracy, coherence and consistency as stated by God as: “Verily, all things have we created in proportion and measure.”⁴⁵ Since the creation, the mental and cultural development of human beings is linked to compatibility and adaptation to the environment and good use of the components of the environment. Humans have no entitlement or right to abuse any components of the environment. Rather, the environment must be revered and protected. In the Islamic religion, as in most religions, passages are written that embody rules calling for the protection of the environment. The call for action and protection is needed more now than ever, due to a recent rise in environmental troubles, degradation and the danger to our natural sources in general. In fact, the dangers are so grave that they should be deemed as important as any present issue facing mankind.⁴⁶

a. The Holy *Qur'an*

Throughout many passages within the *Qur'an*, we find that Islam has promoted the care for the environment and its components. Dozens of verses are dedicated to the environment and warn of the risks of environmental contamination.⁴⁷ Many more laid down principles on how human beings should deal with the environment, imploring

⁴⁴ See IUCN “Islamic principles in environmental protection” available at http://cmsdata.iucn.org/downloads/eplp_020reven.pdf

⁴⁵ Qur'an: Surat al-Qamar (54), ayah 49.

⁴⁶ Dien, M. I. *The Environmental Dimensions of Islam*, Lutterworth, Cambridge, (2000).

⁴⁷ Khalid, F. M. *Qur'an, Creation and Conservation*, Islamic Foundation for Ecology and Environmental Sciences, Birmingham, (1999).

Muslims to preserve and protect the environment at all costs. The scriptures discuss how it is a religious obligation to preserve the environment. God calls for us to “eat and drink of the sustenance provided by Allah, and do no evil or mischief on the face of the Earth.”⁴⁸ This verse clearly shows that God has asked us not only to protect the environment but also to refrain from spoiling the Earth’s components, which were created in perfect balance. Although the Holy *Qur’an* describes nature and all it embodies, it is labeled differently than what is commonly understood as the environment.

Moreover, the description within the Holy *Qur’an* maintains the natural world and ours as one and the same; this is in contradiction to how some in the modern day see the natural world as being separate and distinct from ours, which is the primary cause of our current issues with the environment. To refuse or fail to see nature as embodied in our everyday life and forming an integral part of such, is the real reason why we are failing to maintain a balanced ecosystem.

Islam takes environmental preservation so seriously that the word “corruption,”⁴⁹ which means pollution and degradation in ecology, is mentioned forty times in the Holy *Qur’an*. The prohibition against corruption and tampering with the natural resources is so pronouncedly repeated as to make it clear that Islam views desecration on the Earth to be an odious crime. Corruption of all kinds, including environmental corruption such as industrial pollution and reckless exploitation and mismanagement of natural resources are disliked by Allah (The Glorified and Exalted) says: “Do thou good, as Allah has been

⁴⁸ Qur’an: Surat al-Baqarah, (2), ayah 60 *وَلَا تُفْسِدِينَ الْأَرْضَ فِي تَعْتُورٍ* . This is the authentic Arabic for this quotation text in English.

⁴⁹ Corruption is a very strong word, which includes many things human do which are wrong such as polluting and degrading the environment.

good to thee, and seek not (occasions for) mischief in the land: for Allah loves not those who do mischief.”⁵⁰ Moreover, “There is the type of man whose speech about the worldly affairs may please you and he calls Allah to witness about what is in his heart; yet is he the most contentious of enemies. When he turns his back his aim everywhere is to spread mischief through the earth and destroy crops and cattle. But Allah loves not mischief.”⁵¹ Islam clarifies that in the universe and on the Earth there is a balance, a purpose and exact measure for all kind of things. Allah (the Glorified and Exalted) says: “And follow not the bidding of those who are extravagant. Who make mischief in the land and mend not (their ways).”⁵² And “Work not confusion in the Earth after the fair ordering (thereof).”⁵³ The environment is God’s work and reflects his ordering, so man must respect it. According to the Holy *Qur’an*, God created mankind to be a custodian of nature, to live in harmony with other creatures and make him to be his successor on Earth. God (the Glorified and Exalted) says: “Behold thy Lord said to the angels: “I will create a vicegerent on Earth.”⁵⁴ Specifically, humanity’s rights and responsibilities toward the environment are summarized by the *Qur’anic* word “khalifa” which means viceroy, representative, or steward, as used by God to describe Adam (PBUH) to the angels. “Lo!

⁵⁰ Qur’an: Surat al-Qasas (28), ayah 77. *وَالَّذِينَ يُبْذِرُونَ كُمًا وَقَمْحًا كَمَا نُفِثُوا وَلَا يَذَرُونَ حَتَّىٰ يَصِلُوا إِلَىٰ الْبَلَدِ الَّذِي يَكْتُمُونَ فِيهِ الْأَمْوَالَ الَّتِي أُنزِلُوا بِهَا وَإِن يَخَفُوا فَوَيْلٌ لِلنَّاسِ بِالْفِتْنَةِ إِنَّا جَاعِلٌ لِلْكَافِرِينَ إِبْرَاهِيمَ* This is the authentic Arabic for this quotation text in English.

⁵¹ Qur’an: Surat al-Baqarah (2), ayah 204-205. *وَمِنَ النَّاسِ مَن يُعْجِبُكَ قَوْلُهُ إِنَّا نُرِيدُ الْآخِرَةَ وَالْأُولَىٰ نَحْنُ نَرَىٰ صِدْقَ مَا نُؤْتِيهِمْ وَأَنزَلْنَا لَهُ الْوَحْيَ فِي الْوَيْدِ فَاسْتَفْتَاهُ فِي مَا يَشَاءُ فَإِذَا نَزَلَ بِآيَاتِنَا فَذَكَرُوهَا* This is the authentic Arabic for this quotation text in English.

⁵² Qur’an: Surat Ash-Shu’araa (26), ayah 151-152. *وَلَا الْأَرْضُ فِي يَدَيْهِ يُفْسِدُ فِيهَا مَن يُشَاءُ وَيُصْلِحُهَا مَن يُشَاءُ وَهُوَ يُعْزِزُ مَن يَشَاءُ وَيُضْعِفُ مَن يَشَاءُ إِنَّهُ كَانَ عَلِيمًا نَّصِيرًا* This is the authentic Arabic for this quotation text in English.

⁵³ Qur’an: Surat al-A’raf (7), ayah 56-56. *وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا وَادْعُوهُ وَإِن كُنْتُمْ مِنَ الْكٰفِرِينَ كٰفِرًا* This is the authentic Arabic for this quotation text in English.

⁵⁴ Qur’an: Surat al-Baqarah (2), ayah 30. *وَإِذْ قَالُوا خَلِّفْنَا فِي الْآرْضِ مِن قَبْلِكَ يَا أَدَمُ فَكَلَّمْنَا سَبْعًا ثُمَّ أَخَذْنَا مِنَ النَّاسِ عَاقِبَةً وَمِنَ الْأَنْعَامِ مَا سَخَرْنَا لَكُم فِيهَا مِن مَّغْرَبٍ وَلَا عَمَلٍ مُّبِينٍ* This is the authentic Arabic for this quotation text in English.

I am about to place a viceroy on Earth”⁵⁵ God also has said about all human beings: “He it is who has made you viceroys on Earth”⁵⁶ Human beings, then, are God’s representatives and stewards on Earth responsible for living and acting with integrity and care for this world. Therefore, by God’s mandate, human beings are charged with maintaining and servicing the natural world, tending to its needs, and at a minimum striving to cause no harm and or destruction. Humans are here for a short period of time and our every need for survival is provided through the Earth’s environment, which should be protected. “There shall be for you on earth a habitation and provision for a time.”⁵⁷

In this manner, man is a khalifa⁵⁸ - a guardian who is placed on earth to do the work of Allah. It is the work for guardians, for stewards of nature, for caretakers who are required to take all necessary steps to ensure that the property for which they are entrusted is wholesome for the next generation to possess. Through its teachings, Islam takes great care about building the Earth and cooperation amongst all, which are

⁵⁵ Id.

⁵⁶ Qur’an: Surat Fatir (35), ayah 39.” الْأَرْضِ فِي خَلْقِكُمْ الَّذِي هُوَ” This is the authentic Arabic for this quotation text in English.

⁵⁷ Qur’an: Surat al-Baqarah (2), ayah 36 جَنَّاتٍ إِلَىٰ وَمَتَاعٍ مُّسْتَقَرًّا الْأَرْضِ فِي وَلَكُمْ” This is the authentic Arabic for this quotation text in English.

⁵⁸ In explaining the meaning of this verse, Al-Siyouti mentioned that Allah decided to make Adam as His caliph, successor, on Earth, to succeed Him in implementing His rules.

Al-Tabari, which is considered one of the best books of Qur’an in translation, used the same explanation, mentioning a narration by the Companions Ibn Massa’ud and Ibn Abbas. However, he added, as Ibn Katheer did, saying that the meaning of caliphate is the succession of a century of people by another. Al-Qurtubi which also one of the best books of Qur’an’s translation was clear in that the caliphate, or succession, is that of Adam succeeding God, praise to Him, on Earth. He cited Ibn Massa’ud and Ibn Abbas in saying that Adam, peace to him, was God’s caliph in implementing His rules and commands. Thus, the word “caliph” can also be interpreted as “representative,” meaning that God, praise to Him, entrusted human beings to be his representatives on Earth, implementing His rules and observing His commands.

God’s trust in his human creation to be His representatives on Earth was based on His knowledge of them as capable of receiving His trust. Among the characteristics that made humans trustworthy of God’s mandate for them to be His caliphs were their ability to learn, to choose, and to build.

important principles in both Islam and environmental law.⁵⁹ God (the Glorified and Exalted) says: “Help ye one another in righteousness and piety, but help ye not one another in sin and rancor.”⁶⁰ In this way, Islam foresees the principles of common and differentiated responsibility and intergenerational equity so central to sustainable development.

These teachings instruct us that God created everything on Earth for the good of all humanity. So far, men have proven to be imperfect stewards with much to learn and do differently. Human activity has corrupted the Earth by unbalancing the Earth’s climate, depleting groundwater resources, converting large tracts of forest to agricultural lands, causing desertification and permitting unsustainable consumption of fossil fuels. Allah (the Glorified and Exalted) says: “Corruption has appeared on land and sea because of that which the hands of men have earned.”⁶¹ The human imprint has, therefore, polluted and degraded the Earth and its resources.⁶²

Ignorance is the main cause of this poor stewardship. Human greed and negligence also enable the ecologic abuse that permeates our planet. The present detriment to the Earth is serious and intrusive while too many people remain oblivious or indifferent to the irreparable harm they cause the Earth and our overall well-being.⁶³ There is a realistic fear that if only pollution prevails, bodies of water will become toxic to Earth’s inhabitants and shortages of potable water overtake the Earth, and only then

⁵⁹ See Declaration, Rio. “Rio declaration on environment and development.” (1992). Principle 10.

⁶⁰ Qur’an: Surat al-Maaida (5), ayah 2. وَالْعُدْوَانَ الْإِثْمَ عَلَى تَعَاوُنًا وَلَا وَالنَّفْقَى الْبِرَّ عَلَى وَتَعَاوُنًا. This is the authentic Arabic for this quotation text in English.

⁶¹ Qur’an: Surat al-Rum (30) ayah 42. النَّاسِ أَيْدِي كَسَبَتْ بِمَا وَالْبَحْرُ الْبِرَّ فِي الْفَسَادِ ظَهَرَ. This is the authentic Arabic for this quotation text in English.

⁶² Liewellyn, Othman A. “Islamic Jurisprudence and Environmental Planning.” *Journal of Research in Islamic Economics* 1.2 (1984): 25-49.

⁶³ Husaini, S. Waqar Ahmed. “Islamic Environmental Systems Engineering a Systems Study of Environmental Engineering, and the Law, Politics, Education, Economics and Sociology of Science and Culture of Islam.” (1980).

will the bulk of humanity awaken to a realization of the consequences of their wrongful actions.⁶⁴ Unfortunately, our society is already spiraling down this path leaving our environment worse off because of it. Even more pressing is the fact that many see the issues and place undue reliance on the world's leaders to remedy the situation and propose meaningful changes that can reverse and repair some, if not all, of the harm done. Instead, our current progress has been slow and plagued with spending too much time in debates among ourselves rather than solving the pressing problems. Humanity is failing in its duties as guardians.

Despite this rather grim picture, hope resides in the messages provided by the Holy *Qur'an*, which stands as a guide to what is important. For instance, God mentions the heavens at least 311 times within the holy scriptures, whilst Earth is mentioned throughout the Holy *Qur'an* a total of 390 times. Moreover, the Holy *Qur'an* also emphasizes the importance of animals born to this Earth and natural resources by naming many of its 114 surah (chapters) after animals, insects, plants, minerals and some natural phenomena, further evidencing the concern with environment throughout the Islamic community. For example, for animals there is the *Al-Baqarah* (the Cow), *Al-An'am* (the Cattle), the *Al-Fil* (the Elephant), and the *Al-'Adiyat* (the Horses). Furthermore, not only are Surahs dedicated to the chosen animals but also the texts contain many stories that mention animals. The designation of different animals to represent each Surah is significant and demonstrates God's desire to bring our attention to each of the named animals.

For instance in Shurat *Al-Baqarah* (The Cow) God says "When Moses said to his

⁶⁴United Nations Sustainable Development Goals (UNSDGs) (2015). Available at <https://sustainabledevelopment.un.org/?menu=1300>

nation: ‘Allah commands you to slaughter a cow.’”⁶⁵ Talking about the cow in these verses which include the story of God Almighty commanding Israeli people to slaughter the cow is the reason for naming this Surah by this name. In *Al-An'am* Surah God says “He brings forth gardens, trellised and untrellised, palm trees and crops, different to eat, and the olive and pomegranates alike and unlike. When it bears fruit eat of it and pay what is due (the *zakat*) of it upon the harvest day. But do not be wasteful; He does not love the wasteful.... And of the cattle, some are for carrying burdens, and others for slaughter. Eat of that which Allah has provided you with and do not follow in Satan’s footsteps; he is your open enemy.”⁶⁶ The Surah mentions the cattle to emphasize that they too matter and with the hope to change our point of view towards cattle, who are God’s blessings and must be protected.

Other examples abound. In *Al-Fil* (The Elephant) God says, “Have you not seen how Allah dealt with the companions of the Elephant?”⁶⁷ This story is named the elephant’s story, the elephant’s owner who intended to demolish the *Kaaba* but instead was destroyed and sent away from *Kaaba*.⁶⁸ In *Al-'Adiyat* (The Horses) God addresses horses as: “*By the snorting runners*”⁶⁹ This passage was so named based on the story of a group of horses sent by Prophet Mohammed to perform work in another area. When they were late in arriving, the enemies sentenced them to death; thus, God sent down this Surah with the horses’ name. There are also passages about insects such as *An-Naml* (the

⁶⁵ Qur'an: Surat al -Baqarah (2), ayah 67. إِذْ قَالَ مُوسَى لِقَوْمِهِ إِنَّ اللَّهَ يَأْمُرُكُمْ أَنْ تَذْبَحُوا بَقْرَةً

⁶⁶ Qur'an: Surat al-An'am (6), ayah 141-142. مُتَشَابِهًا وَغَيْرَ مُتَشَابِهٍ كُلُوا مِنْ ثَمَرِهِ إِذَا أَثْمَرَ وَآتُوا حَقَّهُ يَوْمَ حَصَادِهِ وَلَا تُتَّبِعُوا خُطُوَاتِ الشَّيْطَانِ إِنَّهُ لَكُمْ عَدُوٌّ مُبِينٌ ﴿ تَسْرَفُوا إِنَّهُ لَا يُحِبُّ مِنَ الْأَنْعَامِ حَمُولَةً وَفَرْشًا كُلُوا مِمَّا رَزَقَكُمْ اللَّهُ وَلَا تَتَّبِعُوا خُطُوَاتِ الشَّيْطَانِ إِنَّهُ لَكُمْ عَدُوٌّ مُبِينٌ ﴿ تَسْرَفُوا إِنَّهُ لَا يُحِبُّ

⁶⁷ ”الْفِيلِ بِأَصْحَابِ رَبِّكَ كَيْفَ أَتَرَ أَلْمَ“ This is the authentic Arabic for this quotation text in English.

⁶⁸ The *Kaaba* is a cuboid building at the center of Islam’s most sacred mosque, Al-Masjid al-Haram, in Mecca, Saudi Arabia. It is the most sacred site in Islam. It is considered the “House of God” and has a similar role as the Tabernacle and Holy of Holies in Judaism and Christianity. Wherever they are in the world, Muslims are expected to face the *Kaaba* when performing *salat* (prayer). From any point in the world, the direction facing the *Kaaba* is called the *qibla*.

⁶⁹ ”صَبْحًا وَالْعَادِيَاتِ“ This is the authentic Arabic for this quotation text in English.

Ant) and *An-Nahl* (the Bee). In *An-Naml* (the Ant) Surah God says “and when they came to the Valley of the Ants, an ant said: ‘Ants, go into your dwellings lest Solomon and his army should, unknowingly, crush you. He smiled, and laughed at its words, and said: ‘My Lord, inspire me that I should be thankful for Your blessing with which You have blessed me and my parents, and that I may do good works that will please You.’”⁷⁰ God named this Surah based on the story of Prophet Solomon while he was at war with his armies and soldiers. As they marched over the valley of ants, an ant sought to warn the other ants to hide in order that they be protected from *Solomon* and his army. Also in *An-Nahl* (the Bee) God says “Your Lord revealed to the bee: ‘Build your homes in the mountains, in the trees, and in what they are building. ... Eat every kind of fruit, and follow the easy ways of your Lord. ‘ From its belly comes forth a drink (honey) of many hues in which there is healing for people. Surely, in this there is a sign for a nation who reflect.”⁷¹ In this Surah named (the Bee), God call us to reflect and meditate on the bees’ world. Even the smallest of God’s creations are worthy of respect.

Likewise, creations other than animals warrant protection. For plants, there is *At-Tin* (the Fig). In *At-Tin* (the Fig) Surah God says “By the fig and the olive!”⁷² God named this surah with the fig to bring our attention to the importance of trees in general and specifically the Fig because the fig tree is one of the slower burning trees and is able to bear some of the harshest conditions of nature. And for minerals there is *Al-Hadid* (Iron). In *Al-Hadid* (Iron) Surah God says “We have sent down iron in which there is great

⁷⁰ Qur’an: Surat an-Naml (27), ayah 18. حَتَّىٰ إِذَا أَتَوْا عَلَىٰ وَادِي النَّمْلِ قَالَتْ نَمْلَةٌ يَا أَيُّهَا النَّمْلُ ادْخُلُوا مَسَاكِنَكُمْ لَا يَحْطِمَنَّكُمْ سُلَيْمَانُ وَجُنُودُهُ وَهُمْ لَا يَشْعُرُونَ. This is the authentic Arabic for this quotation text in English.

⁷¹ Qur’an: Surat an-Nahl (16), ayah 68. ثُمَّ ﴿68﴾ (وَأَوْحَىٰ رَبُّكَ إِلَى النَّحْلِ أَنِ اتَّخِذِي مِنَ الْجِبَالِ بُيُوتًا وَمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُونَ. This is the authentic Arabic for this quotation text in English.

⁷² Qur’an: Surat at-Tin (95), ayah 1. وَالرَّيْثُونَ وَالتِّينَ. This is the authentic Arabic for this quotation text in English.

might and diverse benefit for people” This Surah is the only Surah of the Holy *Qur’an* that carries a name of minerals, and God named it with iron because of the unique properties it has.

Finally, for natural phenomena there are: *Ad-Dhariyat* (the Winds) *Ar-Ra’d* (the Thunder), *Al-Qamar* (the Moon), *An-Najm* (the Star), *At-Tur* (the Mountain), *Al-Fajr* (the Daybreak), *Ash-Shams* (the Sun), and *Al-Lail* (the Night). In *Ad-Dhariyat* (the Winds) Surah God says “By the scatterers (the wind) scattering.”⁷³ God named this Surah as *Ad-Dhariyat* (the Winds) to link us to the nature by thinking of the phenomena of its scientific miracles such as the winds. In *Ar-Ra’d* (the Thunder) Surah God says “The thunder exalts His praise.”⁷⁴ God named this Surah as *Ar-Ra’d* (the Thunder), the cosmic phenomenon because it reflects the power of God. Water is the basis of life and is sent down from the clouds by God’s ability. Regarding the *Al-Qamar* (Moon), *Al-Lail* (The Night) *An-Najm* (The Star) and *Ash-Shams* (The Sun) Surahs God says:

A sign for them is the night. From it we withdraw the day and they are in darkness. The sun runs to its fixed resting place; that is the decree of the Almighty, the [Knower] and the moon, we have determined it in phases till it returns like an old palm branch. The sun shall not outstrip the moon, nor shall the night outstrip the day. Each is floating in an orbit.⁷⁵

From this, it is clear that Allah is educating the reader to connect with everything that God has created. The Holy *Qur’an* shows how God loves nature and wants humans to love nature.

⁷³ Qur’an: Surat adh-Dhariyat (51), ayah 1. رُوَادُ وَالذَّارِيَاتِ This is the authentic Arabic for this quotation text in English.

⁷⁴ Qur’an: Surat ar-Ra’d (13), ayah 6. بِحَمْدِهِ لِرَعْدًا وَيُسَبِّحُ This is the authentic Arabic for this quotation text in English.

⁷⁵ Qur’an: Surat Yaseen (36), ayah 36-39. (37) هُمْ وَإِيَّاهُ لَهُمُ اللَّيْلُ نَسْلَخُ مِنْهُ النَّهَارَ فَإِذَا هُمْ وَالشَّمْسُ تَجْرِي لِمُسْتَقَرٍّ لَهَا ذَلِكَ تَقْدِيرُ ﴿وَإِيَّاهُ لَهُمُ اللَّيْلُ نَسْلَخُ مِنْهُ النَّهَارَ فَإِذَا هُمْ لَا الشَّمْسُ يَنْبَغِي لَهَا أَنْ تُدْرِكَ الْقَمَرَ وَلَا اللَّيْلُ سَابِقُ النَّهَارِ وَكُلٌّ فِي فَلَكٍ ﴿وَالْقَمَرَ قَدْرًا مَنَارِلَ حَتَّىٰ عَادَ كَالْعُرْجُونِ الْقَدِيمِ﴾ (39) (العزيز العليم يَسْبَحُونَ This is the authentic Arabic for this quotation text in English.

b. Sunnah

The second basic source of Islam, *hadiths*, or the traditions of the Prophet Muhammad (PBUH) also deal extensively with various aspects of the environment, including resource conservation, land reclamation and environ (Husaini)mental hygiene. The Prophet Muhammad (PBUH) spoke of moderation, discouraging overconsumption, luxury and lavishness. The most popular *hadith* on the environment states “The Earth is green and beautiful and Allah has appointed you his stewards over it,⁷⁶” which reiterates the Holy *Qur’an* teaching that human beings have been given the guardianship over the environment. Prophet Muhammad (PBUH) was so concerned with the protection of the environment, that he promulgated “ecological *Sunnah*.”⁷⁷ This phrase refers to the love the Prophet had for living beings and nature, his verbal teachings concerning their protection as well as his acts as a shepherd which were in line with this motivation. These *hadiths*⁷⁸ contain many warnings against the pollution of rivers and seas, including admonitions and forbidding public urination or near water bodies or fruit trees used for our consumption.⁷⁹ Additionally, the Prophet (PBUH) established the legal right of humans and animals to enjoy free access to the source of life, potable water, by declaring water to be common property, forbidding monopolization of water, and forbidding its

⁷⁶ Hadith of sound authority, related by Jami’ At-Tirmidhi (6 VOL. SET) Available at <https://www.facebook.com/download/711620032238976/Tirmidhi%20Vol.%201%20-%20Ahadith%201-543.pdf>. Jami At-Tirmidhi is one of the classical books of hadith that was compiled by 279AH when it’s compiler and the great Muhadith, Muhammad ibn Isa ibn Surah At-Tirmidhi (209-279AH), passed away. He was a special student of the great scholar of hadith, Imam Bukhari.

⁷⁷ “Towards a More Inclusive Islamic Worldview” a collection of essays in Islamic leadership, eco-theology, Islamic ethics and accountability published by Yusuf Morales. Available at <http://www.scribd.com/doc/133326078/Towards-a-More-Inclusive-Islamic-Worldview-Online#scribd>

⁷⁸ Available at <https://www.abc.se/home/m9783/ir/d/itp.html>.

⁷⁹ Khalid, Fazlun M. “Islam and the Environment.” *Encyclopedia of Global Environmental Change* 5 (2002) pp 332–339

sale except in containers.⁸⁰ He also helps guide humans to recognize senior rights of usufruct but not absolute ownership of water. The *hadith* establish the rule that on a stream with insufficient water for all potential users, the upstream user comes before lower but is restricted to the amount needed by his crops and is forbidden to withhold excess water from the lower users.⁸¹ Furthermore, landowners were absolved of liability for incidents occurring at wells, further encouraging generosity and free access to water.⁸² The dictate to provide for water and to ensure that the same is not wasted was so impressed upon the Prophet that he admonished a man for having washed for prayer, requiring that he not waste water “even at a flowing river” whether it be at time of scarcity or abundance.⁸³ These rules lay the groundwork for more fully articulated environmental protections.

The Prophet’s teachings are shaped by his background as a shepherd, in which role he worked closely with the environment and nature, just as other prophets before him had. “When the Prophet said ‘Allah did not send a prophet who did not herd cattle,’ the Companions said: “The Messenger of Allah, have you also herded cattle?” He replied: “Yes, indeed I have herded sheep of Meccans for a little money.”⁸⁴ Moreover, the Prophet owned many animals (including horses, sheep, and goats), orchards and gardens in later parts of his life. Therefore, the Prophet (PBUH) displayed some typical behavior in the greening and afforestation of the environment.

⁸⁰ Liewellyn, Othman A. “Islamic Jurisprudence and Environmental Planning.” *Journal of Research in Islamic Economics* 1.2 (1984): 25-49.

⁸¹ *Mishkat al-Masabih*, vol.2, pp.134-136, nos. 2993-2995, 3005; Yahya ibn Adam, pp.99-103, 106, 109, nos. 309-322, 337, 345; tr. Ben Shemesh, vol.1, pp. 71-75; Abu Yusuf, p.102 tr. Ben Shemesh, vol.3, p.124, al-Sawwaf, p. 10; Caponera, p.12; Norvelle, pp. 23-24, 46-49, 51-52, 60; Maktari, pp.16-17, 22, 29, 44.

⁸² Caponera, p.12, ref. to al-Bukhari, al-Sawwaf, pp.7-8.

⁸³ *Mishkat al-Masabih*, vol.1, p. 597, no.1903; also in Muhammad al-Khidr Husayn, p. 87; English supplement, p.64; and in as-Sayyid Sabiq, vol.3, pp.564-565.

⁸⁴ “Bukhara, “Ijara” B.2; Ibn Maja, “Tijârât” B.5.

One of Muhammad's greatest efforts was to afforest an area called "Zuraybu't Taweel,"⁸⁵ where he announced: "Whoever cuts a tree here should plant a new tree instead."⁸⁶ Soon after the Prophet's order that came out, the area turned into a forest. The Prophet (PBUH) also declared an area of 12-mile distance from the center of Medina as *haram* (forbidden by religion) and also prohibited the cutting of trees and the killing of animals within its borders.⁸⁷ Many *Hadiths*, therefore, were declared to encourage the greening and afforesting of the areas, reflecting the Prophet's involvement with, concern for and reverence of the environment.

Islam has preached the equal responsibility of human beings to all living creatures.⁸⁸ "If a Muslim plants a tree or grow grains and a bird, a person or an animal eats from it will be counted as a charity for him."⁸⁹ The Prophet (PBUH) has prohibited practices against animals such as hitting them, practicing shooting by targeting them, inciting them to fight, hunting for fun, and using a slingshot to hunt them. It is mentioned in *hadiths* that the people will be accountable for their bad treatment of animals. By saying, "Allah will ask those who kill a sparrow unfairly on the day of judgment."⁹⁰ Thus, the texts emphasize how crucial it is to observe the rights of the animals and the human obligation to show compassion and mercy to other living beings. Islam also includes this within their admonishment of those who fall short: "Those who are not merciful will not get mercy."⁹¹ *Hadiths* illustrate the point that mercy must include

⁸⁵ Jami' At-Tirmidhi (6 VOL. SET) Available at <https://www.facebook.com/download/711620032238976/Tirmidhi%20Vol.%201%20-%20Ahadith%201-543.pdf>.

⁸⁶ Id

⁸⁷ Explanations of all *hadiths* available at <http://ahadith.co.uk/hadithcommentarybooks.php>

⁸⁸ Chapter 6 will discuss more broadly the protection of plants.

⁸⁹ Bukhara, "al-Khars ve'l-Muzara", Muslim, "Musakaat", H. No: 12.

⁹⁰ Muslim, "Sayd" H. No: 57.

⁹¹ Bukhara, "Edeb" B. 18; Muslim, "Fedail" H. No: 65.

compassion and forgiveness, not only towards other humans but also to other living creatures born on earth.

Not only are the scriptures clear on promoting humane treatment of all animals, but also it is undisputed that abandoning traditions that harm animals is an irrefutable precondition of being civilized. In fact, the Holy *Qur'an* holds that those who violate animal rights or disregard them will be punished in the hereafter if it is not possible for them to be punished by the authorities here.⁹² However, in today's modern world many animal and plant species are becoming extinct. Other animals are abandoned and die of hunger. When considering this, it cannot be said that people treat animals well and carry out their duties towards them. Islam explains that this human characteristic will result in man being answerable to God for his attitude and actions towards nature and animals.

In the coming chapters, this thesis examines other environmental elements such as water, plants and “wild”, as they relate to Islamic teaching. In order to cover most of the environmental elements, this thesis will briefly explore here the concept of animals and the proper treatment of the animals in our lives, their protection and guardianship, as mentioned through the Holy *Qur'an* and *Sunnah*.

4. The spiritual value of water and nature in Islam

As discussed, God (the Glorified and Exalted) created all things with a purpose to fulfill a function in the universe. Hence, nothing was created in vain or without a goal in mind. God has said, “We created not the heavens and the earth and all that is between them for a (mere) play.”⁹³ The Holy *Qur'an* teaches us to look at the universe and its

⁹² Masri, Al-Hafiz Basheer Ahmad. *Animal welfare in Islam*. Kube Publishing Ltd, p 64 (2016).

⁹³ For a useful discussion with numerous citations to the *Qur'an*, see <http://www.ecomena.org/islam-animal/>.

components in an analytical manner. One example to analyze is the creation of water and its purposes. God created water which is intimately linked to the life cycles of humans, plants, and animals. Their very essence depends on the continuation of water. Through His principles, God has told us the importance of this basic resource for life and an appreciation for prudent usage. Water provides sustenance for humans, plants and animals alike. It provides a habitat for many plants and animals. Without it, nothing would grow, nothing would live.

5. Animals and Islam

In Islam, mistreating an animal is considered a sin. The Holy *Qur'an* and the Prophet Muhammad (PBUH) provide guidance, examples and directives on how Muslims should treat animals.

a. Animals in the Holy *Qur'an*

The Holy *Qur'an* further describes animals, and all living things, as Muslim - in the sense that they live in the way that Allah created them to live and obey Allah's laws in the natural world. This position illustrates the Islamic view of nature and the environment, and the necessity for preservation and prohibition of imbalances. Islam treats the matter seriously, allotting much discussion to the topic at length and detail. This chapter's description of how people should relate to nature and how to prevent its damage or contamination shows the commitment to avoid leaving the definition of the relationship to the individual and the respective desires of the individual. The following are some narrations from the Prophet (PBUH) that suffice to show these details:

b. Animals in *Sunnah* (Hadiths of the Prophet (PBUH))

Just as the Holy *Qur'an* sets and emphasizes the importance of animals within its pages, so the Prophet Muhammad (PBUH) does where he insisted on the protection of animals and on their appropriate treatment. The Prophet's concern for the well being of animals, calling for them to be well treated, protected, and not abused or degraded is noteworthy. Although at the present time torture and oppression of every sort are lashed out against man, whom God created as the noblest of creatures, the Prophet absolutely prohibits torture and abuse of animals. The result is that creatures are given the same level of protection afforded all other living things, including humans. Abdullah ibn Amr reported: The Messenger of Allah, (PBUH) said, "Those who are merciful will be shown mercy by the Most Merciful. Be merciful to those on the earth and the One above the heavens will have mercy upon you."⁹⁴ And as regulated above: "Anyone who kills a sparrow without good reason will be called to account by God at the Last Judgment."⁹⁵ Likewise Prophet Muhammad (PBUH) commanded that birds' nests should not be disturbed, or the eggs or chicks stolen.⁹⁶ Prophet Muhammad (PBUH) was kind to animals, and through his teachings taught his companions how to be kind through stories and anecdotes. The Messenger of God (blessings and peace be upon him) once said: "Whilst a man was walking on a road, he became very thirsty. He found a well, climbed down it, drank his fill, and then came out. He then saw a dog panting hard and eating the damp earth. So he said: 'This dog is thirsty, like I was.' So he again went down into the

⁹⁴ Sunan At-Tirmidhi 1924 Grade: *Sahih* (authentic) according to At-Tirmidhi

Available at <http://dailyhadith.abuaminaelias.com/2010/11/16/show-mercy-to-those-on-the-earth/>.

⁹⁵ Ozdemir, Ibrahim. "An Islamic approach to the environment." *Retrieved December 15 (2002): 2005.*
42 God's Messenger (PBUH)

⁹⁶ Ozdemir, Ibrahim. "Toward an understanding of environmental ethics from a Qur'anic perspective." *Islam and ecology: A bestowed trust* (2003): 3-37.

well and filled his leather sock with water. Holding his sock in his mouth, he came out of the well and then gave the water to the dog. Therefore, God appreciated the man and forgave him his sins.” The Companions asked: ‘O Messenger of God! Do we get reward for being kind even to animals?’ The Prophet (blessings and peace be upon him) replied: ‘There is reward for showing kindness to every living thing.’”⁹⁷

On one occasion while Prophet Muhammad (PBUH) passed by a group, he noticed they had hunted a deer and it was tied to a pole. Prophet Muhammad asked the group “who is the owner of this deer?” Group replied, “We are her owner.” Prophet Muhammad then said, “free her, she want to feed her fawns and after that she will come back to you.” People asked “oh Allah’s Prophet who will take guarantee of her return?” Prophet Muhammad said, “I take her guarantee.” And so they freed the deer which left to feed her fawns and came back and was tied once more. After some time Prophet Muhammad passed by that group again and then he asked. Who is the owner of this deer? That group said, “We are.” Prophet Muhammad asked. “Would you sell this deer to me?” The group said, “Oh Allah’s Prophet, it is yours.” Then Prophet Muhammad freed the deer.⁹⁸

Another example depicting the essence of Islamic civilization and its regard for animals from ‘Abdullah ibn Mas’ud, one of the Prophet’s close Companions, is shown in the following passage.

We were on a journey with God’s Messenger when we came across a bird the size of a sparrow with two chicks. We seized the chicks, whereupon the hen started beating its wings and screeching. God’s Messenger turned

⁹⁷ (*Sahih Al-Bukhari and Muslim*) Sahih al-Bukhari and Muslim is a collection of hadith compiled by Imam Muhammad al-Bukhari and Muslim ibn al-Hajjaj al-Naysaburi (d. 256 AH/870 AD) (rahimahullah). The collection is recognized by the overwhelming majority of the Muslim world to be the most authentic collection of reports of the *Sunnah* of the Prophet Muhammad (PBUH).

⁹⁸ Tabrani, *Mojam ul owsat*. No 5547 Naratted by hazrat Anas bin Malik.

and when he saw what we had done, asked: ‘Who separated those chicks from their mother? Return them at once!’ So we left them free.”⁹⁹ God’s Messenger argued that animals, like men, who are put to service had the right to rest and have their needs met. Anas ibn Malik, one of the Companions, related: “Whenever we arrived at a stopping-place, we would never start the prayers until we had removed the loads from the pack-animals [and left them free to rest].”¹⁰⁰ Because the animal was fed from the road, Muhammad (PBUH) ordered the one who was riding the animals to take that into account. Abu Hurairah (May Allah be pleased with him) reported: The Messenger of Allah (PBUH) said: “When you travel through green and lush land, give the camels their due from the ground, and when you travel through a dry and barren land, make them walk quickly lest their strength falters.”¹⁰¹ On another occasion, the Messenger of Allah (PBUH) happened to pass by a camel whose belly was sticking to its back (because of hunger), whereupon he said, “Fear Allah in respect of these dumb (animals). Ride them while they are fit, and slaughter them and eat their meat when they are fit.”¹⁰² The Islamic principle requiring that we be kind to animals, applies, not just during their life, but also even when slaughtered. The Prophet (PBUH) provided strict criteria imposed when slaughtering animals. In the *Hadith* reported by Abu Dawûd, An-Nasâ’i and others, narrated by Shadad Ibn Aws that he said: two qualities I heard

⁹⁹ See *Sahih Al-Bukhari and Muslim*. Available at <https://sunnah.com/bukhari>.

¹⁰⁰ Abu Dawud It was the usual practice of the Companions that whenever they halted at some place to take rest during their journey, they would first of all unload their animals to give them comfort and relaxation. Then, they would perform voluntary Salat “prayer.” This Hadith also throws light on the excellence of voluntary Salat “prayer”. See http://www.4muhammed.com/Riyad-us-Saliheen/trnslate_to_english/90 -كتاب-السفر-آداب-

¹⁰¹ *Sahih Al-Bukhari and Muslim* The Prophet (PBUH) commanded us to take care of the animal’s food. If grass or fodder will not be available on the way, we should make our animal run faster so as to reach our destination before it is exhausted.

¹⁰² *Id.* This Hadith lays emphasis on taking care of animals. Because if they are hungry or you overload them, they will not be able to speak out their suffering to you in human language. You are, therefore, supposed to take care of their food and other requirements by yourself. In case you fail in your duty to them, Allah will take you to task. Moreover, eating the flesh of sick and lean animals is unhygienic and can endanger health. Whereas, the flesh of a healthy and robust animal gives energy and strength to human body.

from the Messenger of Allah (PBUH) “Allah had written perfection on everything, if you kill then kill well and if you slaughter then slaughter well. Anyone of you should sharpen his knife to rest his sacrifice so his animal feels no pain.”¹⁰³ In each of these stories we see Islam’s respect and concern for the well being of animal life as part of God’s creation.

From the discussion above, it is clear that Islam not only protects animals, by calling for them not to be abused or degraded but also requires man to go beyond that to care and protect the sentiments of animals. Islam also prohibits the torment or abuse of any living creature. Whether man or beast, all living creatures have rights “to live and to control their lives as dictated by the natural conditions that have prevailed since time immemorial in their natural habitat and in accordance with their instinctive or natural inclinations.”¹⁰⁴ Those who violate or disregard this right will be punished in the hereafter by God if it is not possible for them to be punished by the authorities here. God’s Messenger (PBUH) expressed this in the following way: “It is a fact that in the next life you will render their rights to those to whom they are due. The hornless sheep even will receive its right by way of retaliation from a horned sheep that butted it.”¹⁰⁵ The stance and admonitions taken by the Prophet (PBUH) have sent strong messages and have had a powerful effect on Muslims throughout the ages. Because of this, Muslims can be said to have always looked kindly and tolerantly on people, even their enemies, exemplifying love and promoting security even to members of other religions and faiths.

¹⁰³ Sunan At-Tirmidhi 1987.

¹⁰⁴ Universal Declaration of Human Rights. United Nations. (1948) Available at <http://www.un.org/en/universal-declaration-human-rights/>

¹⁰⁵ *Saheeh Muslim*, available online at <https://sunnah.com/muslim/1>

By such example, animals, too, have received their share of this loving, compassionate, and tolerant civilization.¹⁰⁶

It is interesting to note that today support for the claims of environmental rights has picked up momentum and is embodied within the constitutions of approximately 174 nations. This progress in establishing constitutional rights may be borne of the guilt of having failed to follow religious and scientific guidance. Through such legislation, nations can strengthen environmental, natural rights and animal rights as dictated by the Holy *Qur'an* and other religions.

5. Islam prohibits harm and that which leads to harm is forbidden

Most of the Sharia principles which are related to environmental pollution and degradation to a great extent are the principles concerning harm that are derived from a series of narrations, including the Prophet's words "No harm and no harming."¹⁰⁷ This is one of the most important universal principles found in the text of the Prophet Muhammad (PBUH). "The essence of harm is prohibition, harm is removed and any permitted (*mubah*) element that is harmful or leads to harm, is prohibited, but the matter remains permissible."¹⁰⁸ Thus, dealing with the environment should therefore be done in a way that is not harmful or leads to harm. Since human activities anywhere on the Earth can affect the environment, they must be done in a way that is not directly or indirectly harmful. The Precautionary measures and principles announced at the Rio Declaration on Environmental and Development in 1992¹⁰⁹ warned about the harm to the environment exemplify the values founded and expressed within Islamic principles.

¹⁰⁶ Ozdemir, Ibrahim. "An Islamic approach to the environment." Retrieved December 15 (2002): 2005.

¹⁰⁷ *Sahih Al-Bukhari and Muslim*. Available at http://www.searchtruth.com/hadith_books.php

¹⁰⁸ Id.

¹⁰⁹ Declaration, Rio. "Rio declaration on environment and development." (1992).

The Rio Principles are consistent with Islam. Principle 7 says “States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities”¹¹⁰ Rio Principle 7 recognizes the need for a global community that provides mutual support. The principle also recognizes the importance of conserving and protecting common goods, whose adverse deterioration affects all countries alike. Thus, Rio principle 7 calls for a spirit of global partnership.

This principle also requires that we as a society anticipate potential harms that can be avoided, just as Islam requires. One example for implementing this is embodied in Rio principle 17 that says, “Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.”¹¹¹ In order to generate an Environmental Impact Assessment, processes and policies must be created. This requires a study of the impact on nature before you act; otherwise you are susceptible to being ignored. The basic objective of conducting an Environmental Impact Assessment is that of all development projects, which is to ensure that the development proposed has no significant damage to the environment or impacts on human health and social development that can not be mitigated – or at least do not outweigh the benefits of the project. Islam on the other hand requires that all actions taken, whether by an individual or the community, are done without harm or potential to inflict harm on the

¹¹⁰ Rio Declaration on Environment and Development, (1992) Principle 7, available at <http://www.unep.org/Documents/Multilingual/Default.asp?documentid=78> & articleid=1163

¹¹¹ Rio Declaration on Environment and Development 1992 Principle 17, available at <http://www.unep.org/Documents/Multilingual/Default.asp?documentid=78> & articleid=1163

environment. The Prophet Muhammad (PBUH) said “There should be neither harming nor reciprocating harm.”¹¹²

To follow this doctrine would limit the impact of development at the national level. It would also have nations avoid cross boundary effects of development. Rio principle 10 says, “*At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes*”¹¹³ In sum, the Rio Declaration states that every person has the right to know about the environment and to learn about what nurtures or harms the same. This right to know about the environment comes hand in hand with the right to access to scientific reports, information and data, which allow individuals to become informed. This public participation is what Islam requires of us all.

The *Sharia* principles hold that: “the means of the forbidden is forbidden.” According to this principle, any relationship with nature which leads to something that *Sharia* has prohibited, is also prohibited, even if such relationship is not specifically denoted as forbidden. Following this logic, in accordance with *Sharia*, it is forbidden to utilize the environment in a manner that is harmful, or leads to harm, or results in something forbidden in the process of manufacturing, economic development or exploitation of natural resources. For example, contaminating the water, air and soil with poison, and disease and destruction of the soil, animal resources and fisheries are all

¹¹² This *hadith* is present in the 40 Ahadeeth of Imam Nawawi (RA), *hadith* number 32 to be exact: available at http://www.40hadith.com/40hadith_en.htm.

¹¹³ Rio Declaration on Environment and Development 1992 Principle 10, available at <http://www.unep.org/Documents.Multilingual/Default.asp?documented=78 & articleid=1163>

forbidden regardless of the cost associated with avoiding harm.

Sharia, therefore, ignores the discussion of economic losses related to countering environmental harm and combating pollution, focusing primarily on the prevention and removal of all pollution. This means that Sharia does not concern itself with economic losses relating to the failure to take advantage of environmental resources. Destruction of environmental life such as land, rivers, lakes, meadows, and forests, is prohibited by Islamic principles. Many such places are, therefore, protected as public property under state supervision and distinguished by the type of property, type of ownership and manner of acquisition.

6. Protecting the Environment

Through the above discussion, it is clear that everything promoted as contemporary notions of environmental concepts as policies and as environmental statutes and treaties can already be identified within Islamic principles. Through these principles, God put forth the general framework for human behavior and protection of the environment. The declarations are therefore essential for promoting a well-balanced environment.

The Holy *Qur'an* is not a book discussing the science of the environment, but it can be a major source of guidance for environmental protection. Islamic principles teach the faithful how to act in light of what the environmental scientists tell us. In turn, this obliges us to study and learn from the research. Once we gather the facts, we have a duty imposed on us by the *Qur'an* to follow the Holy *Qur'an* and what we learned. As people, it is important for us to do this, because it is through nature that we can open our eyes to

how wonderful and amazing God's creation is. Given all that is positive and results from learning about the environment, it is essential to encourage research and study of nature.

This thesis explores the Islamic framework that embodies duties to the environment. It is understood that these are not heeded by everyone, and therefore, the next section is going to discuss why this is the case. That chapter will discuss the obligations imposed by Islam and where to look for research on the topic. The need to conduct this research and adhere to the principles within the research is critical because humanity has reached a uniquely important moment of rapid environmental change so we cannot afford to wait decades more for agreement among all interested parties. The time to act is now, if humans are to adhere to our religious and humanitarian duties – and save the planet.

7. How do humans think about the environment?

Virtually any perspective on the environment demands respect for it and obliges one to preserve it. There are several ways to look at the environment. It can be viewed as the natural history of the Earth or as evidence of God's creation. Despite this latter view, which has been embraced by several religions in today's world, less than a century ago people did not know enough about the environment and most certainly not as much as is known today. Today's knowledge advances understanding that the word "environment" truly embraces far more than Earth alone. This thesis focuses on the Earth's environment and the duties imposed by Islam to research, understand and educate people about the environment as part of their abiding obligations to preserve it for future generations. This research, along with many others published, will help shed light on human responsibility and continue the conversation about environmental preservation and protection. The texts

will also enumerate the duties imposed by the *Qur'an* and *Sunnah* to search for this knowledge and, most importantly, to share it.

This thesis focuses on understanding that there is a bigger question than just describing how nature works. How nature works does not tell us how it is created or what our duties are. It is only an understanding of what is happening. We have a duty under the *Qur'an* as described in the previous chapters, which requires that we keep studying and learning and that we be good stewards of God's creation.

What makes the Islamic principles announced within the *Qur'an* and the *Sunnah* so important is the religious values that Islam imposes on its followers. These religious values promote preservation and enhancement of the environment and oblige us to ensure minimal destruction of nature. If for instance an individual were to violate the laws against nature, the religious texts may point him in the right direction and advise against harm and move him toward positive change. Unlike other religions, which may remain silent in regard to the environment, Islam takes a more active role.

Unfortunately, despite these and many other religious texts that point to preserving the environment, there is no doubt that we, as humans, fall short, leading many to question why, then, if religion calls for adherence to environmental principles of preservation, does humanity continue on this destructive path. This calls into question the effectiveness of religion despite its remarkable feats. The principles of Islam are universal but how we apply them to the environment depends on our knowledge regarding the environment at any given time. Today, knowledge of the environment is clearer. For example, assessment reports of the Intergovernmental Panel on Climate

Change (IPCC),¹¹⁴ which includes scientists from Islamic states, help us to pause and look at the environment differently, from a planet-wide perspective. Likewise, the Holy *Qur'an* provides fundamental principles that help understand the environment in a more digestible manner; that is, defining the environment as everything we could see and experience. This view, of course, sparks up much debate, but the truth of the matter is that we are not changing religion; we are changing our knowledge about the environment.

One of the most important questions that arises when examining the environment, is how different the environment will look 500 years from now. In other words, how are current human behavior and actions defining the future for the environment? What should an observer of Islamic structures and principles do to prepare and understand our duties regarding God's creation, the environment? We understand that everything created is ever changing. This presents an issue when one considers that we fail to embrace these changes and think of the environment in the now, simply forgetting about what the environment will be.¹¹⁵

What can help to answer some of these questions and address these issues is simply put, perspective. Perspective sees things that would otherwise be overlooked. Perspective looks at nature's value through a different lens, so to speak, by elevating its significance though a method of taking it all in. For example, microscopes reveal life that is otherwise undetectable to the naked eye. Another example, the marine phytoplankton,¹¹⁶ produces approximately 30% of the world's oxygen; nevertheless its

¹¹⁴ See Intergovernmental Panel On Climate Change. "IPCC."(2014). Available at <https://www.ipcc.ch/organization/organization.shtml>

¹¹⁵ Gewirth, Alan, "Human Rights and Future Generations" in Boylan, Michael (ed.), *Environmental Ethics*, (New Jersey: Prentice Hall, 2001): 207-211. Thomas S. Kuhn, "The Structure of Scientific Revolutions" 2012

¹¹⁶ Phytoplankton is single-celled organisms of lakes, streams and oceans that make their own food from sunlight through photosynthesis. Phytoplankton a flora of freely floating, often minute organisms that drift

true value is unknown and unseen to untrained eyes, leaving many to fail to protect them as humans continue to damage our planet's water and ocean systems. Luckily, the recent push for change has brought this to the limelight and, beginning in 2015, the UN undertook negotiation of a new treaty for the protection of biodiversity on the high seas.¹¹⁷ This push embraces the notion of protecting all of God's creations, not simply that which is experienced through the naked eye. Thus, this same obligation to protect life, encompasses, also, the obligation to discover where there is life in need of protection, rather than turn a blind eye to those matters we cannot see. The obligation to be diligent falls on the shoulders of all, not a small few, and should be embraced and assumed through whatever means possible. This may require educating ourselves and, most importantly, educating the public so that information on environmental protection is widely available.

In some critical ways, it is incumbent upon human society to determine what constitutes nature or the environment and are thus worth researching and preserving. With this view in mind then, the question of what is the environment? What people call "nature," begins with several stages. First, a scientist puts in work to make a discovery of life in need of protection, which is then publicized to the public at large. Then, each country through the use of a scientific approach, tries to discover how things are, a

with water currents. Like land vegetation, phytoplankton uses carbon dioxide, releases oxygen, and converts minerals to a form animals can use.

For more information see "phytoplankton" Encyclopedia Britannica, Inc. 2015, available at <https://www.britannica.com/science/phytoplankton>

¹¹⁷ UN General Assembly negotiations for protection of biodiversity beyond national jurisdiction BBNJ). [A/RES/69/292](#) or Hubert, Anna-Maria. "UN General Assembly Resolution to develop a new legally binding instrument on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction." *The JCLOS Blog (The blog of the KG Jebsen Centre for the Law of the Sea):[caïm]* 17 (2015).

process that is highly beneficial if we are to learn how to truly protect the matter in need, and in turn, protect ourselves. For instance, the discovery of a hole in the ozone layer presents a huge deal to humanity and although every country is cooperating to help prevent the widening of the hole, most individuals have never seen the hole. It is all by scientific study that have deduced the consequences of this issue, including the rapid increase in the number of cancer patients.

8. Future generations

There are many questions regarding treatment of the environment and how it will affect future generations. For example, how will humans to protect future generations if they do not know how to educate ourselves on the issues pressing today's environmental world? Many people excuse their own acts to avoid the responsibility of worrying about the future and the uncertainties. However, if humans follow precautionary principles and act to protect nature and the environment, then future generations as many options as possible rather than closing doors on account of negligence. One way to help towards this goal is to embrace research and keep an eye out for current as well as future events that may affect the generations. More importantly, when people thoroughly analyze the environment, it ensures that society is considerate and sensitive to what may occur and issues that it might not have anticipated. It is not enough to draw rational decisions. Governments and human communities must also hypothesize on what may take place eons down the line and how to learn how this can be altered for the better.

The previous chapter examined the concept of Islam as a way to think of caring for nature in the future, a concept that is necessary and expressed in the *Qur'an*. The concept of thinking beyond today's issues is not so foreign to what we know. In fact,

many have already displayed sensitivities to the future through the actions for centuries. The mere planting of a tree or establishment of a park, for example, is done for the sake of the moment but for the betterment of the future.

9. Future Dimension

In this thesis, Chapter Eight will examine the duty to protect water in the example of “*Zamzam* water.” Protecting water is done not just for our generation but for the generations that come beyond today’s children. The need to protect nature is greater than those alive today can know. It is essential for many things, including our access to new medicines, since many items needed for medicine are found within nature. People are still making discoveries about nature.

Concern should not be solely with what is known or can be anticipated or for the issues currently affecting our ecosystem. Concern should be with those issues affecting society that cannot be anticipated, issues that cannot be foreseen. The effect, for example, that may be borne on the ocean from dumping waste and the effect that it may have on sea creatures can be mammoth. The question of course is, that unless issue, is known it will not be possible to remedy it. To say that one cannot see the issue or anticipate, it is ineffective as a response and irresponsible for dealing with serious issues. These issues deserve immediate attention, and the resources necessary to understand them, in order to meet the challenges they raise.

The effect of this problem over the long-term, is devastating to the planet Earth. For example, consider the pollution levels in China and their impact on for rest of the

world.¹¹⁸ The mere fact that the issue currently is visible in China does not take away the importance of the issue world wide. Most notably, the same cloud created by air pollution in China will travel to North America and South Asia, and other regions, where it will cause pollution to our air. Eventually, the pollution will make its way down as acid rain and poison our water systems. The Earth is one place and must be thought about as a whole and problems be solved for the whole.

10. Scientific research in Islam:

The first word of the *Qur'an* is “Read.” God says: “Read in the name of your Lord who created.”¹¹⁹ This commandment was clear. All human beings should read before all else. The command reminds us that Islamic religion imposes clear obligations on humans and particularly, the obligation to read and acquire knowledge. The requirement to read allows everyone an opportunity to explore the cornerstone building blocks of scientific research into the facts of life, thoughts and our presence as humans. What is important to understand is that the obligations imposed by Islam are imposed collectively on humanity and that the failure by everyone to observe them means all are responsible. The scientific community has proven that the universe is wider and deeper with cognitive development and that the current view of the universe is only our perception rather than what the universe purports to be. God says: “And of knowledge, you (mankind) have been given only a little.”¹²⁰ And the Prophet Mohammed (PBUH)

¹¹⁸ Topal, Claire, and Yeasol Chung. “China’s Off-the-Chart Air Pollution: Why It Matters (and Not Only to the Chinese)–Part Two.” (2014). Available at <http://www.nbr.org/research/activity.aspx?id=397>

¹¹⁹ Qur’an: Surat al-’Alaq (96) ayah1. (قُرْأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ). This is the authentic Arabic for this quotation text in English.

¹²⁰ Qur’an: Surat al-Isra (17), ayah 85. (قَلِيلًا إِلَّا الْعِلْمَ مِّنْ أَوْتَيْنَا وَمَا). This is the authentic Arabic for this quotation text in English.

responds “O my Lord! Advance me in knowledge.”¹²¹ We each have obligations to strive to understand our world so that we may live better lives. As our understanding of the interconnectedness and fragility of our environment grows, we realize that our obligation to study likewise grows, that we may avoid harms and promote a good life.

Islam emphasizes the importance of knowledge as a basis for understanding the relationship between God, the universe and humanity. The Holy *Qur'an* through its many verses brings human attention to what would be the right approach in dealing with the universe. Based on that approach, in a matter of years the earliest generations of Muslims became a learned and refined people, for Islam had awakened in them the faculty of intellect and they understood it to be necessary for the benefit of humanity and themselves. Their hunger for knowledge led them ahead of many nations in terms of development and growth.

Muslim history abounds with examples of scientific growth that nurtures and develops the knowledge acquired by nations that came before it. But Muslims did more than that; they developed and strived even while other nations struggled. For example, during the European dark ages, Muslims were making great advances in the fields of medicine, mathematics, physics, astronomy, geography, architecture, literature, and historical documentation to mention but a few of the fields of knowledge in which they made early and notable contributions. Much of the European advances during medieval times came to Europe from Muslim nations. Arabic numerals with the principle of the zero vital to the progression of mathematics and the use of algebra are examples.

Sophisticated instruments, including the astrolabe and the quadrant, as well as good

¹²¹ Qur'an: Surat Ta-ha (20), ayah 114. (عَلِّمْنَا زِدْنِي رَبِّ وَقُلْ). This is the authentic Arabic for this quotation text in English.

navigational maps, were first developed by Muslims.

Islam imposes on Muslims the duty to acquire a worldly view of life and the universe requiring that they acquire both religious and worldly knowledge. In fact, Islam encouraged knowledge at a time when the whole world was engulfed in ignorance. Similarly, today's Islamic views do not now oppose any modern inventions that are beneficial to mankind but only require that they are used in the name of God and for His cause. Of course, the reality is simply that machines, instruments and devices have no religion or homeland since they can be used for any objective: good or bad. The Earth is full of prime examples of inanimate objects that affect Earth and our everyday life. For example, television can provide education or immorality – the user has absolute discretion. Muslims are commanded to make good use of all the means at their disposal while being prohibited from causing harm to themselves or others; failure to do so is, in effect, a violation of Islamic teachings. Islam understands the need for certain doctrines and imposes this on its community. Education is for all and it obliges all qualified to study every field beneficial to him and society, in essence requiring that for example, an individual study science and medicine to fulfill the need of society. Prophet Muhammad (PBUH) said: “Seeking knowledge is an obligation upon every Muslim.”¹²² He also said, “For one who treads a path to knowledge, Allah will make easy the path to Paradise.”¹²³ The *Qur'an* contains numerous references to knowledge and its importance, such as: “Indeed, in the creation of the heavens and the earth and the alternation of night and day are signs for those of understanding”.¹²⁴ Also God (the Glorified and Exalted) (says

¹²² Narrated by Ibn Majah.

¹²³ Narrated by Muslim.

¹²⁴ Qur'an: Surat al 'Imran (3), ayah190. (في خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ لآيَاتٍ لِأُولِي الْأَلْبَابِ). This is the authentic Arabic for this quotation text in English.

“Say, ‘Are those who know equal to those who do not know?’”¹²⁵ “Allah will raise those who have believed among you and those who were given knowledge by degrees.”¹²⁶

Since the thirst for knowledge is imbedded within Islamic culture, when Muslims have a sincere and wholesome intention to obtain knowledge, it will have a positive effect on their faith.

Thus, when a Muslim has a sincere and wholesome intention to obtain knowledge, it will also have a positive effect on his faith. For knowledge reinforces textual evidence for the existence of the almighty Creator and assists in appreciation of the many scientific allusions found in the *Qur'an*. Islam and knowledge are therefore, hand in hand and there cannot be said that there exists a contradiction. As such, Islam constantly and consistently encourages scientific knowledge and technological advances, as well as human ingenuity and endeavors in order to study God’s signs in nature.

11. History of Arabic Islamic science

Islam has a long, distinguished history of scientific exploration and education – a history that reinforces the cultural inclinations to deploy science in service of God. Islamic states established by the Prophet Muhammad (PBUH), continued under the name of the Caliphate in the Umayyad and Abbasid periods¹²⁷ until it reached the Umayyad dynasty, which was the largest Arab-Muslim state in history. The Umayyad Empire

¹²⁵ Qur’an: Surat az-Zumar (39), ayah 9. قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ إِنَّمَا يَتَذَكَّرُ أُولُو الْأَلْبَابِ. This is the authentic Arabic for this quotation text in English.

¹²⁶ Qur’an: Surat al-Mujadila (58), ayah 11. دَرَجَاتٍ الْعِلْمِ أَوْثُوا وَالَّذِينَ مِنْكُمْ آمَنُوا الَّذِينَ اللَّهُ يَرْفَعُ. This is the authentic Arabic for this quotation text in English.

¹²⁷ Al-Andalus, Ummayyad Emirate, Abbasid Caliphate, Emir, Khalifah, Banu Ummaya.” WordReference Forums. N.p., Jan. 2006.

See <http://forum.wordreference.com/threads/al-andalus-ummayyad-emirate-abbasid-caliphate-emir-khalifah-banu-ummaya-91710/?hl=ar>

stretched from the borders of China and India, across Central Asia, the Middle East, North Africa, Sicily, and the Iberian Peninsula, to the Pyrenees. The Ottoman Empire expanded territory to Europe and Greece. Islamic society focused on science and on the religious aspects of Islamic civilization. Therefore, the caliphate constituted a civilization that combined mind and spirit deriving from many prior civilizations. Its universal teachings required Muslim to observe its law.

Many Muslim scholars were distinguished scientists and Abbasid Caliph Al-Ma'moun urged them to seek knowledge.¹²⁸ He established the library of the House of Wisdom¹²⁹ to be the Academy of Scientific Research in Baghdad under his personal care. During the two centuries following the death of the Prophet Muhammad (PBUH), a book industry disseminated books all over the Muslim world and beyond. There were royal, public and private libraries all over the place. Book trading was widespread.

12. Golden Age

Muslims were world leaders in science and technology a millennium ago during the era we call the Golden Age. This period of time between 750-1258 represents the approximate apogee of Muslim science, which flourished in Baghdad, Damascus, Cairo, and Cordoba, among other cities. Significant progress was made in such areas as medicine, agronomy, botany, mathematics, chemistry, and optics.¹³⁰ The Arab world profited from much knowledge as they led the world in a new understanding of life and

¹²⁸ For more information see <http://www.muslimheritage.com/article/abbasids'-house-wisdom-baghdad>

¹²⁹ The House of Wisdom was in fame, status, scope, size, resources, patronage, etc. similar to that of the present day British Library in London or the Bibliotheque National in Paris, in addition to being an Academy for the Arts and the Sciences where scholars came together for dialogue, discussions and discourses.

¹³⁰ For more information see Falagas, Matthew E., Effie A. Zarkadoulia, and George Samonis. "Arab science in the golden age (750–1258 CE) and today." *The FASEB Journal* 20.10 (2006): 1581-1586. Available online at <http://www.fasebj.org/content/20/10/1581.full>

nature. The *Qur'an* urges the pursuit of knowledge and soon other religions also started to look at their religious duties for a better understanding of nature without asking the moral question – men then asked what does our religion require us to do- so they get to big problem.

The Golden Age of Islam which was a result of many factors, began with the beginning of the Umayyad Caliphate and the establishment of the largest empire, an Umayyad dynasty. One of the most important factors was following the guidelines of the Holy *Qur'an* and *Sunnah* – the teaching of the Prophet's studies and the sharing of knowledge.¹³¹ The *Qur'an* is clear: “The scholar's ink is more sacred than the blood of martyrs,” while the Prophet promoted medical research preaching, “For every disease, Allah has given a cure.” The Muslim community united many far-flung areas leading to easier communication, sharing of knowledge and the movement of scholars. The unification of languages into the Arabic language also helped bring about the Golden Age of Islam. The various translations from Greek, Latin, and Chinese into Arabic helped scholars by eliminating language barriers. At the same time, Arabs learned the art of creating paper and books from the Chinese, making the spread of knowledge that much more efficient and easier. As a result, libraries were established in Cairo, Aleppo, Baghdad, and urban centers in Iran, central Asia, and Spain, while bookshops with thousands of titles opened in several cities.¹³²

Thus, during this period, the Muslim world became a cultural and intellectual groundbreaker in the world of science, philosophy, and medicine and an education center

¹³¹ Id.

¹³² Id.

where Umayyads led in knowledge.¹³³ During this period the environment was not corrupted.

The religion gave rise to five of the greatest scientists in the history of Islamic civilization such as Ibn al-Haytham, who laid the foundations for the invention of the camera and video production and film. All of this was through his interpretation of how the eyes work and how we see things. Another was Abbas Ibn Firnas, whose attempts to fly gave a head start to the current history of flight. Another worth mentioning is Mary Alasitrlaba, a woman, a leading astronomer and finally, Aljazri who was an outstanding mechanical engineer.

There was a very interesting time in the Middle East when Arab culture was quite advanced. Scientists asked all sorts of questions that explored theories about the origins and the development of Earth as well as theories on how things work. The questions that they were asking are the same questions that we are still asking today, some of which have been answered and others that have yet to be answered. Some of these questions will be discussed more in Chapter Six of this thesis.

The above discussion shows us that Islamic philosophy embodies environmental principles and can assist in effectuating progress with regards to the protection of the environment. The foregoing demonstrates that commitment to environmental responsibility, social justice and good governance including care for nature, is rooted in the origins and sources of Islam. Therefore, following these key Islamic principles is a significant contribution toward attaining what today is known as sustainable development. This is occasioned by taking advantage of sustainability derived from the

¹³³ Zachariah M. "The Golden Age of Islam". (2004). Available from: http://www.irfi.org/articles/articles_401_450/golden_age_of_islam.htm.

values of Islam and to pay deference to the active role played by cultural and spiritual dimensions in achieving sustainability. This thesis explores the overall vision towards sustainable development and the relationship between Islam and sustainable development. The next chapter discusses the principles of sustainable development.

Chapter 4: Environmentally Sustainable Development

“The ‘environment’ is where we live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable”.

World Commission on the Environment and Development
Our Common Future (1987)

This chapter surveys the concept of sustainable development in general and then critically explains its application in *sharia*. It starts with a brief discussion of the ecological circumstances that compel mankind to change its approach to development. Voracious development with little thought to preserving the environment has led to widespread devastation of ecosystems around the world. It discusses the half-century long history of the international efforts to grapple with this twin challenge through scientific research, diplomatic conferences, global compacts and national implementation plans. In particular, this chapter offers sustained analysis of the tremendous significance of the adoption of the UN’s Sustainable Development Goals that sensibly tackle the twin challenges of economic development and environmental sustainability; they also align nicely with the obligations, constraints and wisdom offered by *sharia*. The discussion of *sharia*’s role in explaining and implementing sustainable development plans focuses on land and water. It argues that the principles of common but differentiated responsibility, intergenerational equity and balance more generally are each consonant with *sharia* and therefore ought to guide the faithful to more sustainable practices.

1. Introduction

In September 2015, the United Nation General Assembly (UNGA) adopted Sustainable Developments Goals (SDG's).¹³⁴ For Islamic countries these SDGs are important. Sustainable development is one of the most vibrant current topics in the development of domestic and international law. The legal dimensions of the SDGs constitute also one of the least developed topics in international law, legal jurisprudence and scholarship.¹³⁵

Sustainable development is not just a technical or political matter or an environmental concern. It is a holistic global problem, an ethical obligation humanity shares to improve the lives of the present generation and to ensure a high quality of life for future generations.¹³⁶ Because ethics are guided by religion, Islam is important to this topic. The fate of the planet Earth may well turn on how quickly human societies can improve the legal framework for sustainable development. The UN General Assembly¹³⁷ observed that humans have but a decade or two before critical global ecosystems suffer significant irreversible consequences. But people can still choose a sustainable future, by learning how to manage their relationship with the earth.¹³⁸

All people have a duty to do whatever they can, including establishing a rule of law as a foundation for a fair and sustainable society. In order to do this, laws must draw on our deepest values and principles, including the principle of intra-generational equity,

¹³⁴ United Nations General Assembly (UNGA) Res, 70/1. (2015). Available at <http://www.fsngov.org/2030.pdf>

¹³⁵ Segger, Marie-Claire Cordonier, and Ashfaq Khalfan. "Sustainable development law: principles, practices, and prospects." *OUP Catalogue* (2004). p 80.

¹³⁶ Ramlogan, Rajendra. "Sustainable development: towards a judicial interpretation" Vol. 9. Martinus Nijhoff Publishers, 2010.p.7.

¹³⁷ UN General Assembly Resolution available at <http://www.un.org/en/ga/70/resolutions.shtml>

¹³⁸ Segger, Marie-Claire Cordonier, and Ashfaq Khalfan. "Sustainable development law: principles, practices, and prospects." *OUP Catalogue* (2004).

which requires poverty alleviation and protection of human rights, and the principles of inter-generational equity, which require respect for future generations.¹³⁹ Building on those deepest values ensures the legitimacy of law and fosters in all humanity a sense of obligation to one another, to our local and global community, and to future generations. Of particular importance is the need for societies to foster the emergence of a global ethos for the Earth as they strengthen the rule of law for sustainable development. Sustainable development cannot be established or attained unless laws governing society, the economy, and peoples' relationship with the planet Earth correlate with humanity's deepest values and are put into practice internationally and locally. Law must be enforced and complied with by all of society, and all of society must share this obligation.

In 1992, at the United Nations Conference on Environment and Development (UNCED), the States adopted the Rio Declaration on Environment and Development. All nations agreed to the challenge of ensuring sustainable development for all, including future generations, and yet humanity has not succeeded in effectively arresting the growing deterioration of its critical ecosystems. UNCED adopted *Agenda 21* as blueprint for attaining sustainable development.¹⁴⁰ Principle 27 of the Rio Declaration states "States and people shall cooperate in good faith and in a spirit of partnership in the fulfillment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development."¹⁴¹ The rules of international

¹³⁹ Id.

¹⁴⁰ Nicholas A. Robinson, "The Law of Sustainable Development," 13 *Pace Envtl. L. Rev.* 507 (1996) Available at: <http://digitalcommons.pace.edu/pelr/vol13/iss2/4> See also Agenda 21: Program of Action for Sustainable Development ; Rio Declaration on Environment and Development ; Statement of Forest Principles: The Final Text of Agreements Negotiated by Governments at the United Nations Conference on Environment and Development (UNCED), 3-14 June 1992, Rio De Janeiro, Brazil. New York, NY: United Nations Dept. of Public Information, (1993).

¹⁴¹ R. Revesz, P. Sands and R. Stewart. "Environmental Law, the Economy, and Sustainable Development" (2000).

environmental law have developed in pursuit of two principles which pull in opposing directions: that the states have sovereign rights over their natural resources, and that states must not cause damage to the environment.¹⁴²

Of course, deriving the meaning of sustainable development is not an easy task since it encompasses a myriad of notions.¹⁴³ Due to the complexity of this topic, it is vital important to look at the importance of sustainable development in a way that analyzes the systematic issues. This will make clear also the relevance of Islam for concepts of sustainable development. Sustainable development refers to at least four agreed objectives. *First*, it refers to a commitment to protect natural resources for the benefit of present and future generations. *Second*, sustainable development embodies the appropriate standards for the exploitation of natural resources based on renewable harvesting or use. *Third*, it requires an equitable use to meet the needs of other states and people. And a *fourth* category of agreements requires that environmental considerations be integrated into the economic and other development sectors.¹⁴⁴ Most notably, Islamic principles also comprehend sustainable development through the holy *Qur'an* and interviews with the Prophet Mohammed (PBUH). Islamic principles require that everyone share in ways that improve the lives of the present generation and to ensure a

¹⁴² Stockholm Declaration on the Human Environment, Principle 21, (1972) Available at <http://www.unep.org/documents.multilingual/default.asp?documentid=97&articleid=1503>

¹⁴³ "Our common future, Chapter 2: Towards sustainable development." *World Commission on Environment and Development (WCED)*. Geneva: United Nation (1987).

Chapter 2 defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Available at <http://www.un-documents.net/our-common-future.pdf>

¹⁴⁴ Sands, Philippe. "International Law in the Field of Sustainable development"(1994)." *Brit. YB Int'l. L.* 65: 303.

high quality of life for future generations. This chapter carries out an analysis of the concept of sustainable development in both international law and Islamic principles.¹⁴⁵

This chapter will focus on sustainable development for the following reasons:

- 1) Although sustainable development constitutes a relatively new combination of insights, there is global public consensus that favors exploring this topic and advancing its principles.
- 2) All nations are finally at a point where governments across the globe are moving in the direction of some of the principles found in Islamic scriptures. This thesis traces the growth of sustainable development policy to see how it relates to specific Islamic principles.
- 3) Humanity is in a crucial period, with no definite answer as to how much time is left to avoid or mitigate environmental catastrophes. Thus, according to the precautionary principle (and common sense) society must act soon and employ all available means to prevent or mitigate these harms..

Hence, this chapter will focus on advancing the understanding of sustainable development law by providing a discussion on how it relates to both international law and Islamic principles. A clearer understanding of these norms will facilitate society's well-informed and decisive efforts to meet the enormous challenges facing humanity in the Anthropocene era.

a. The Global Setting

Humanity is placing ever more demands on the environment. As elaborated further in Chapter Five, in 1950 the world's population had increased to approximately

¹⁴⁵ Id.

2.5 billion people. In 2000, the world's population had reached 6.3 billion. It is expected that by the year 2100, this number will grow to approximately 11 billion people, despite the numerous efforts to limit growth already in place.¹⁴⁶ What is more pressing is that despite the increased capacity for food production to meet the needs of this growing population, population pressures and environmental degradation weaken agricultural capacity and, thus, prospects for meeting the challenges posed by growth for the future.¹⁴⁷

To help meet the challenges that growth of human activity pose to health of the natural environment, UNCED adopted *Agenda 21* as a plan of action to implement sustainable development. *Agenda 21*, adopted in Rio de Janeiro in 1992, provides recommendations to cope with human needs in a sustainable way. Agricultural production can be improved in some developed countries, as *Agenda 21* recommends.¹⁴⁸ However, the solutions are not without flaw. Many of the shortcomings show up in the efforts of poor countries to provide food for their citizens. Many less developed regions will continue to suffer real deterioration as it relates to agricultural production. For example, Africa is home to many farmers who are unable to deal with the rapid increase in population since these areas suffer from abject poverty and a weak purchasing power, which in turn, limits the people's ability to acquire the necessary nutritional requirements. Additionally, such human failings as wars and conflicts both internal and external, dampen both the production and distribution of food. Chapter 8 of *Agenda 21* called for

¹⁴⁶ Our Forests, Our Future: Report of the World Commission on Forests and Sustainable Development.” Choice Reviews Online 37.04 (1999): n. pag. Available at <https://gssd.mit.edu/ar/>

¹⁴⁷ Id.

¹⁴⁸ *Agenda 21* - Chapter 14: “Promoting Sustainable Agriculture and Rural Development”, Earth Summit, (1992). Available at <https://www.iisd.org/rio+5/agenda/chp14.htm>.

states to strength their national environmental laws to meet these challenges among others.¹⁴⁹

b. Manifestations of Planetary Deterioration

Humans not only face the prospect of a sharp decline in food availability, but also from a variety of other threats.¹⁵⁰ Heavy pressure on the global tropical forest and soil resources occurred during the 150 years since colonialism brought the widespread and shameless exploitation of lands and forests. It is known that as a result of colonial invasion and exploitation, indigenous populations were deprived of biological diversity resulting in the dependence on planting of crops for export into global markets, not those that met the sustenance needs of local populations.

During the second half of the twentieth century, nearly 11% of the land covered with vegetation across the world suffered serious deterioration. Destruction of green areas during the past two centuries has caused serious risks that affected the diversity of living organisms and ecological communities. Freshwater sources are also on the decline as a result of increasing water diverted for agricultural use and in order to meet the drinking needs of the growing numbers of human inhabitants on the planet.¹⁵¹

Countries with advanced economics in the Organization for Economic Co-operation and Development (OECD) would likewise be affected since they account for a tremendous portion of the demand on the world's natural resources. For example, up to

¹⁴⁹ Agenda 21 - Chapter 8: "Integrating Environment And Development In Decision Making", Earth Summit (1992). Available at <http://www.un-documents.net/a21-08.htm>.

¹⁵⁰ Global Environment Outlook Geo 5: *Environment for the Future We Want*. Nairobi, Kenya: United Nations Environment Program, 2012. Available at <http://www.unep.org/geo/geo5.asp>

¹⁵¹ El Raey, Mohamed. "Air quality and atmospheric pollution in the Arab region." United National Environment Programme, (2006). UN General Assembly, *United Nations Conference on the Human Environment*, 15 December 1972, A/RES/2994, available at: http://www.un.org/esa/sustdev/csd/csd14/escwaRIM_bp1.pdf

43% of the total global consumption of thermal energy is consumed by these countries. These countries also contribute to the large-scale impact of global pollution. For example, in 1989, nearly 40% of global emissions of sulfur oxides and 45% of the emission of nitrogen oxides, which are the main sources of acid precipitation, were produced by these countries.¹⁵² These countries have also produced 6.8% of the industrial waste in the world (if measured by weight) and caused 38% of the impact on the atmosphere leading to global warming, despite the fact that the population of these countries is approximately 1.3 billion people, representing only 20% of the world's population.

Clearly, all of this growth – generated disproportionately to benefit the wealthy nations – is becoming increasingly unsustainable. It destroys or degrades ecosystems locally and because of its global impact, certain locales will likely suffer even more grievously. While projections vary, Greenpeace¹⁵³ has announced that by 2080, some countries could disappear under the water's surface. This could happen as a result of global warming and the melting of the Greenland ice cap, which in turn will cause a rise in sea level of up to more than five meters, sufficient to flood coastal areas. This, along with droughts and floods, which will become fiercer, will subject hundreds of millions of people to the risk of disease, hunger, and severe water shortages as well as the loss of their homes as regions become uninhabitable for significant periods of time or even permanently.¹⁵⁴

¹⁵² National Acid Precipitation Assessment Program Report to Congress: "An Integrated Assessment" No. DOE/ER/62639-1. DOC/NOAA, (2005). Available at <http://www.esrl.noaa.gov/csd/AQRS/reports/napareport05.pdf>

¹⁵³ Benkovitz, Carmen M., et al. "Compilation of regional to global inventories of anthropogenic emissions." Emissions of Atmospheric Trace Compounds. Springer Netherlands, 2004. 17-69.. Available at <http://www.ecd.bnl.gov/pubs/BNL68896.pdf>

¹⁵⁴ Intergovernmental Panel on Climate Change (IPCC), "Expert Meeting on Industrial Technology Development, Transfer and Diffusion" (2004). Available at https://www.ipcc.ch/pdf/supporting-material/PROCEEDINGS_%20ITDT.pdf Also see <http://www.greenpeace.org/international/en/>

After all the research was conducted and the results proclaimed, the key question become unavoidable: whether humans will continue to ignore the self-destruction wrought over two centuries through unsustainable economic patterns of consumption which will likely destroy human, animal, plant, water resources, and the environment? It is time to stop the destruction of the environment and think about saving the planet. The world is on a path that is unsustainable, with humanity careening toward widespread and devastating disasters. In 1948, IUCN was established.¹⁵⁵ However, it was only after the 1972 UN Stockholm Conference on the Human Environment¹⁵⁶ that nations began to recognize that environmental problems are inseparable from the problems of human welfare and economic development.¹⁵⁷ In addition, many of the current forms of development are limited to the environmental resources upon which human life and well-being are based. In recognition, the UN General Assembly established the World Commission on Environment and Development (also known as the Brundtland Commission) in 1985 and placed it in charge of studying these issues and making recommendations in this regard.

2. The Definition of the World Commission on Sustainable Development

In 1987, the Brundtland Commission issued its report, *Our Common Future*, arguing for a new path of development "...one that sustained human progress not just in a

¹⁵⁵ "International Union for Conservation of Nature (IUCN)". *Encyclopedia Britannica. Encyclopedia Britannica Online*. Encyclopedia Britannica Inc., 2016. Available at <<http://www.britannica.com/topic/International-Union-for-Conservation-of-Nature>>. Also available <http://www.iucn.org/about/>

¹⁵⁶ "United Nations Conference on the Human Environment". *Encyclopedia Britannica. Encyclopedia Britannica Online*. Encyclopedia Britannica Inc., 2016. Available at <<http://www.britannica.com/topic/United-Nations-Conference-on-the-Human-Environment>>.

¹⁵⁷ UNEP, "United Nations Environment Programme," "The Stockholm Convention"(2004). Available at <http://www.unido.org/en/what-we-do/environment/capacity-building-for-the-implementation-of-multilateral-environmental-agreements/the-stockholm-convention.html>

few pieces for a few years, but for the entire planet into the distant future.”¹⁵⁸ Sustainable development, according to the definition that was set by the Brundtland Commission, is to be able to “make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹⁵⁹

a. Acceptance of the Idea of Sustainable Development

The idea of sustainable development has since been broadly accepted and approved on a large scale. However, it turns out that translating this idea into the objectives, programs, and policies is a most difficult task. Nevertheless, the 1992 United Nations Conference on Environment and Development (UNCED) helped find common ground among conflicting interests and contributed to the process of change that sustainable development needs. Many books and articles examining the UNCED deliberations seek to explain and elaborate what sustainable development may mean.¹⁶⁰

The adoption of the goals for sustainable development left a great deal of space for interpretation. More recently, however, the 17 SDGs established a more concrete framework for discussing what should be done sustainably. Although there is still some room for disagreement, people are increasingly interested in what must be done to maintain a level of sustainability. Moreover, people want to know what they can do and how to make decisions that can improve not harm society. Specifically, individuals are acknowledging the cluster of problems that are rapidly degrading the environment. They

¹⁵⁸ World Commission on Environment and Development (WCED). *Our Common Future*. Oxford: Oxford University Press, 1987 p. 13. Also found at: <http://www.un-documents.net/our-common-future.pdf>.

¹⁵⁹ World Commission on Environment and Development (WCED). *Our common future*. Oxford: Oxford University Press, 1987 p. 43.

¹⁶⁰ See Robinson, Nicholas A., “Agenda 21 and the UNCED Proceedings.” (Oceana, Publ. 5 volumes) (1992).

are the physical, the economic and the biological definitions of sustainable development. And people around the world are experimenting with solutions.

3. The concept of sustainable development

In order to make the concept of sustainable development clearer, some authors narrow the definition to emphasize six different dimensions, each illuminating our thinking about justice and fairness.

a. Physical definition of sustainable development

Agenda 21 emphasizes the need to use natural resources in a renewable way that does not lead to extinctions or degradation of the environment or to a lack of resources for future generations,¹⁶¹ while effectively maintaining a balance of natural resources such as soil, groundwater, biomass, and water.¹⁶² These objectives are reaffirmed in the SDGs, such as goals 14 and 15, dealing with life below the surface of the water and on land. The climate is emphasized in SDG13, 14 and 15. Water is the focus of SDG6.

b. Economic definitions

Some definitions of economic sustainable development focus on the management of natural resources, emphasizing the imperative to generate maximum benefits while protecting natural resources and quality of services. Other economic definitions focus on the idea that the use of resources today should not reduce real income in the future. This focuses on the notion that current decisions should not harm the potential to maintain

¹⁶¹ See Agenda 21 - Chapter 2 “International Cooperation To Accelerate Sustainable Development In Developing Countries And Related Domestic Policies”, Earth Summit, 1992. Available at <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

¹⁶² Shiffman, Cari. “Making Law Work: Environmental Compliance & Sustainable Development by Durwood Zaelke, Donald Kaniaru, and Eva Kružíková Cameron May Ltd., 2005.” *Sustainable Development Law & Policy* 6.1 (2005): 21. Volume 1, p. 35.

standards of living in the future. In other words, our economic systems should be managed in order to live on the profits of our resources while preserving and improving physical assets.

c. Biological definitions

Biological definitions of sustainable development focus on the impact of human practices that harm animal populations and particularly ecosystems. Currently, tropical forests and ecosystems, coral reefs, coastal forests and other wetlands, as well as other areas, are undergoing rapid destruction. At the same time, a growing number of animal and plant species are becoming extinct. Sustainable development in this area means that people must maintain the land in such a manner as to promote biological diversity for future generations by creating processes that will reduce the number of new extinctions and the destruction of shelters and ecosystems significantly – and, if possible, completely halt these losses. This definition parallels the manner in which the subject is defined by the Convention on Biological Diversity (CBD),¹⁶³ which was signed in 1992 in Rio with *Agenda 21*, and entered into force on 29 December 1993.

The CBD contains the following three main objectives: 1) the conservation of biological diversity; 2) the sustainable use of the components of biological diversity; and 3) the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.¹⁶⁴ These objectives should be thought of as a unit since it is through this unity that one can accomplish sustainable development. By focusing on these objectives in their entirety, one understands that sustainable development is not a mechanical formula or simply an economic policy that is focused on one particular aspect. Rather it embodies

¹⁶³ United Nations Convention on Biological Diversity (CBD), (1992). Available at <https://www.cbd.int/convention/>

¹⁶⁴ See Agenda 21, Chapter 15: “*Conservation of Biological Diversity*” Earth Summit, (1992).

many notions that make it more than a simple political policy. For example, sustainable development also requires having a spiritual vision that can help drive the overall agenda. A lack of spiritual vision would leave the solution set incomplete as one must understand that environmental problems have deeper roots that require understanding nature's connections with spirituality. Seeing these connections makes clear our religious duty to solve these problems by acknowledging this spiritual commitment and religious obligation. This reminds humans that they are the stewards of God's creation and have a duty to care for other species, wild plants, and the environment as a whole.

d. Human status within the definitions of sustainable development

People are central to the definitions of sustainable development, which include human development as it relates to improved health care, education, and a level of human social welfare. Moreover, today human development is recognized as being the crucial basis for economic development. According to the Human Development Report issued by the United Nations Development Program,¹⁶⁵ men, women and children should be the focus of attention by weaving development around people and not people around development. Increasingly, sustainable development definitions emphasize that development should be participatory so people participate democratically in the decisions that affect their lives politically, economically, socially, and environmentally.¹⁶⁶ The SDGs seek to integrate humans and nature.

¹⁶⁵ See Agenda 21 - Preamble Chapter 1.1 "Humanity at a defining point in history" Earth Summit, (1992). Available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=52&ArticleID=49>.

¹⁶⁶ Organization for Economic Co-operation and Development, "Frameworks to Measure Sustainable Development": An OECD Expert Workshop. Paris, 2000. P.195–206

e. The status of technology in the definition of sustainable development

Some authors of Millennium Ecosystem Assessment in 2000 expanded the definition of sustainable development to include the achievement of rapid transformation in the technological base of industrialized civilization. They also point out that there is a need for new technology to be cleaner, more efficient and better able to save natural resources and reduce pollution, thus helping to achieve climate stability and accommodate population growth and economic activity.¹⁶⁷

f. Equity in the definition of sustainable development

The crucial point recognized by these different definitions of sustainable development is the element of fairness or justice. With that in mind, there are two key forms of equity and fairness that ought to be reflected in a notion of sustainable development: first, justice for the human generations yet unborn, whose interests are not taken into account when developing economic analysis. Second, fairness is related to those who are living today and do not have equal access to natural resources. Sustainable development must take into account these two types of pleas for fairness, neither of which would be possible to accrue under the absolute domination of some countries and current popular pressure. Sustainable development includes four critical dimensions and interactive overlap: economic, human, environmental, and technological dimensions.

g. Water and sustainable development

The SDG goals make clear reference to water and sanitation as a principle at the very core of sustainable development and necessary for the survival of humans and the

¹⁶⁷ Rees, William. "Whats blocking sustainability? Human nature, cognition, and denial." *Sustainability: Science, Practice, & Policy* 6.2 (2010). Available at <http://www.google.com/archives/vol6iss2/1001-012.rees.html>.

planet. SDG Goal 6 states “Ensure access to water and sanitation for all.”¹⁶⁸ This not only addresses the issues related to potable water but also those issues surrounding sanitation and hygiene, and the quality and sustainability of water resources worldwide. This SDG goal is to locate and secure sustainable water for all. In other words, it is critical to secure reliable, sustainable sources of fresh potable water that will meet the developing needs of societies promote human dignity are sustainable over the long term.

In addition to the goals set forth within the SDG, *Agenda 21*, chapter 18 also focuses on water preservation. In 1994 and 1998, the Commission on Sustainable Development (CSD) recommended supporting the implementation of chapter 18 to address the issues of water. In 1997, the United Nations General Assembly sought to review the implementation of Agenda 21. In 2004, the Commission on Sustainable Development reviewed and assessed implementation of three thematic issues, including water and sanitation. At its thirteenth session, in 2005, the Commission discovered policy options for furthering implementation on the issues of water and sanitation as well as on human settlements as reflected in its decision.¹⁶⁹ After the CSD was terminated, the review of the SDGs became the focus of the high level session of the UN General Assembly.

4. Common but Differentiated Responsibilities

There is a global debate between developed and developing countries related to Common but Differentiated Responsibilities. The principle of Common but Differentiated Responsibilities was first promulgated at the 1972 UN Conference on the

¹⁶⁸ Sustainable Development Goals, “Goal 6 - Ensure Access to Water and Sanitation for All” (2015). Available at <http://www.mdgmonitor.org/sdg6-ensure-access-to-water-and-sanitation-for-all/>.

¹⁶⁹ See <https://sustainabledevelopment.un.org/>.

Human Environment in Stockholm. The notion argues that the protection of the environment is a “shared responsibility” for all mankind. Thus, the argument proposed was simply that environmental problems in developing countries are largely the result of inadequate development.¹⁷⁰ Yet, this notion was not formalized until 1992, when Article 4 of the United Nations Framework Convention on Climate Change Convention (“UNFCCC”) formally explained the principle by saying: “All Parties, take into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, etc.”¹⁷¹ This principle is reflected in the Paris agreements of 2015 and the 1992 CBD, as well as in other international instruments. This principle argues the need for initiatives from developed countries first, as a means to pave the way to reducing the amount of emissions. Moreover, it requested developed countries to provide much-needed financial and technical support to developing countries in order that developing countries could work on achieving both economic and social development and eradicating poverty while undertaking environmental protection. Finally, the principle argued that the push for financial and technical support could be used as a trade off to encourage these developing countries to mitigate climate change and adaptation.

The principle of common but differentiated responsibilities includes two main components:

¹⁷⁰ Rio Declaration on Environment and Development, (1992), UN Doc. A/CONF.151/26 (vol. I) / 31 ILM 874(1992) available at

<http://www.unep.org/documents.multilingual/default.asp?documentid=78&articleid=1163>

¹⁷¹ See United Nations Framework Convention on Climate Change,” Article 4 – commitments” (1992). Available at <http://environment-ecology.com/climate-change/599-united-nations-framework-convention-on-climate-change.html>

- 1- The common responsibility of the state to protect the environment or protect parts of it on the national, regional and international levels.
- 2- The need to take into account the different circumstances of each country, and to consider in particular what aggravates a specific problem, find how to prevent it or to reduce the threat of environmental problems.

Following on this principle entails at least two consequences. The first is the possibility of applying an across-the-board requirement for all concerned countries to participate in the international response measures to environmental problems. This should be carried out while highlighting the role of each country and identifying emerging problems and how to contribute to the resolution and prevention of similar issues in the future. The second consequence is the imposition of different obligations on the concerned countries in proportion to their resources and needs.

- a. Existence of Common but differentiated responsibilities in Islam.

This principle of “Common but Differentiated Responsibilities” reflects a key Islamic principle. Islam commands us to cooperate in righteousness and piety and forbids us from sin and transgression through the Holy *Qur'an* and through the interviews with the Prophet Mohammed (PBUH) himself. God says, “Cooperate in righteousness and warding off (evil), and do not cooperate in sinfulness and transgression.”¹⁷² From this verse, it is clear that God has bestowed upon us an obligation to be righteous and pious with regard to all our dealings and with all our relationships. That means that the focus on what matters is our common endeavor for good. Through this verse, God has forbidden

¹⁷² Qur'an: Surat al- Ma'ida (5), ayah 2. (وَتَعَاوَنُوا عَلَى الْبِرِّ وَالتَّقْوَىٰ وَلَا تَعَاوَنُوا عَلَى الْإِثْمِ وَالْعُدْوَانِ). This is the authentic Arabic for this quotation text in English.

us from cooperating with people in sin and transgression, regardless of who they are. In this way, Allah has defined for us the limits of cooperation, but He has not placed restraints on those with whom we can cooperate. When Allah says: “Help one another in righteousness and piety,” He refrains from making any reference regarding with whom we are to engage with, so that the verse can encompass every possible act of righteousness conceivable so long as it serves a greater good. It is an exhortation to pursue the common good, each according to our capacity.

God also says: “People, We have created you from a male and a female, and made you into nations and tribes that you might know one another.”¹⁷³ This verse shows us that our cooperation with people extends to those who are far and near, to those who are familiar to us and those who are different. Likewise, we are prohibited from dealing in sin and transgression with anyone, no matter how familiar or close to us they may be. *Sunnah*, on the other hand, determines shared responsibility, inviting all people to take care of and love each other. The Prophet (PHUP) said “love for your brother what you love for yourself.”¹⁷⁴ This shows how much the Prophet honored this notion of cooperation and of acting together for what people have in common in consideration of the general welfare.

5. Soft law and Sustainable Development

Soft law also militates for supporting sustainable development. Soft law refers to a vast body of legally non-binding or incompletely binding norms, the most important of which are guidelines, resolutions, declarations and recommendations that are made by

¹⁷³ Qur'an: Surat al-Hujurā (49), ayah 13. (يَا أَيُّهَا النَّاسُ إِنَّا خَلَقْنَاكُمْ مِنْ ذَكَرٍ وَأُنْثَىٰ وَجَعَلْنَاكُمْ شُعُوبًا وَقَبَائِلَ لِتَعَارَفُوا). This is the authentic Arabic for this quotation text in English.

¹⁷⁴ Hadith on the authority of Abu Hamzah Anas bin Malik. Available at <http://40hadithnawawi.com/index.php/the-hadiths/hadith-13>

parties to international agreements in the course of its implementation. In understanding sustainable development, some believe that the concept of sustainable development is simply soft, unsettled and normative law, but as mere principle, not yet obligatory. Some scholars may even say that this concept is only aspirational. Others see it as hard, settled and obligatory law; they see sustainable development as a practical area of the law in a very real sense.¹⁷⁵ There is no doubt, however, that the concept of sustainable development is truly a global concept, which is gathering momentum quickly and has become part of accepted international law.

Compliance with soft law can shape legitimate expectations and allow participants in a given regime to demonstrate good faith. The Rio Declaration and Agenda 21 from the 1992 United Nations Conference on Environment and Development, UN General Assembly resolutions, such as the *World Charter For Nature*,¹⁷⁶ and the 2002 World Summit for Sustainable Development Johannesburg Plan of Implementation are all examples of soft law statements requiring protection of the environment. Sustainable development duties exist in more obligatory treaties also. Prof. Edith Brown Weiss¹⁷⁷ goes further, arguing that the soft law obligations are maturing, that international agreements need to be viewed as living agreements, into which parties continuously breathe life and to which they give new directions by acting as informal legislatures. In many cases, a state will follow soft law although it may not be required to do so as it would for a treaty, which is hard law. Over time, this conformity helps ripen the obligations into harder forms. Despite all the debate, one thing can be agreed to: the

¹⁷⁵ See Sustainable Development Goals (SDGs), “the 2030 Agenda for Sustainable Development“ (2015).

¹⁷⁶ UNGA Res.87/7)(1982)

¹⁷⁷ Edith Brown Weiss, *International Environmental Law: Basic Instruments and References* (1992).

concept of sustainable development is strong, and it is less important whether it is found in a soft or hard law instrument.

The question that we have to think about is how do we achieve global sustainable development through the law? Above all, countries and courts must attempt to administer and implement sustainable development law, just as is done with other hard and established rules.¹⁷⁸ For this purpose, states must be willing to surrender some part of their sovereignty to the rest of the world, accepting common guidance by the global community, as states clearly did in joining the UN through adoption of the UN Charter, a leading example of hard law that has taken the form of a constitution, a living document. When all nations agree on global values or actions and rules, they use their sovereignty in harmonious ways. The multilateral environmental agreements (MEAs), such as the CBD, desertification convention, or the UNFCCC and Paris agreements are examples of this cooperation.

6. Sustainable Development statements

a. Sustainable Development since Stockholm

“Our Common Future,” popularized the concept of sustainable development in international discourse. However, the concept is based on older environmental principles.¹⁷⁹ They are evident in the establishment of IUCN in 1948.¹⁸⁰ In the mid-twentieth century, the UN began to support greater recognition for an international sustainable development agenda. As a forum for the development and negotiation of

¹⁷⁸ See Middle East Environmental Ministries, Partners and other Resources. Available at <http://www.eaaa.gov.eg/cmuc/arabic/main/pops.asp>.

¹⁷⁹ Barkemeyer, Ralf, et al. “What happened to the ‘development ‘in sustainable development? Business guidelines two decades after Brundtland.” *Sustainable Development* 22.1 (2014): 15-32.

¹⁸⁰ Holdgate, Martin. *The green web: a union for world conservation*. Routledge,(2014).

cooperative strategies and binding rules, the UN has had a critical role in promoting sustainable development. For example, in 1962, the UN General Assembly passed a resolution urging governments to take natural resource conservation measures at the earliest stages of economic development and called for assistance to be provided to developing countries in that respect.¹⁸¹

(1) Stockholm Conference

In 1968, a second resolution by the UN General Assembly pledged to find solutions to problems related to the environment.¹⁸² Subsequently and as noted above in 1972, the UN held the Conference on the Human Environment (UNCHE) in Stockholm. The conference provided a forum to discuss international cooperation in the area of environmental protection.¹⁸³ The UNCHE was convened in accordance with the General Assembly Resolution 2398 of 1969. Its purpose was to discuss the state of the global environment, specifically with hopes of “stimulating and providing guidelines for action by national government and international organizations,”¹⁸⁴ Representatives of 113 countries attended, along with nineteen inter-governmental agencies, and more than 400 inter-governmental and non-governmental organizations. The result was a Declaration of twenty-six principles, an Action Plan with 109 recommendations, and a Resolution. The key environmental principles are:

- Environmental education is essential.

¹⁸¹ UN General Assembly Resolution 1803 (XVII) Dec. 14, 1962.

¹⁸² United Nations “The Stockholm Convention”, (2004). Available at <http://www.unido.org/en/what-we-do/environment/capacity-building-for-the-implementation-of-multilateral-environmental-agreements/the-stockholm-convention.html>.

¹⁸³ Id.

¹⁸⁴ Elizabeth DeSombre, *Global Environmental Institutions*, (Rutledge, (2006), pp. 22–23

- Environmental research must be promoted, particularly in developing countries.
- Natural resources must be safeguarded.
- The Earth's capacity to produce renewable resources must be maintained.
- Wildlife must be safeguarded.
- Non-renewable resources must be shared and not exhausted.
- Pollution must not exceed the environment's capacity to clean itself.
- Damaging oceanic pollution must be prevented.

The principles contained in the Stockholm Declaration make clear that the numerous ecological crises threatening the planet at the time required worldwide attention and effort. Principle 21 restated a rule of customary international law and made clear that states could not harm the environment of other states or the international commons shared among all states. UNCHE also recommended adoption of UNGA Resolution 2997 (XXVII), which established the United Nations Environmental Program (UNEP). UNEP started its operations in 1973 and focused on strengthening environmental policy, especially in developing countries.

Subsequently, further support for the general principles and attitudes of environmental conservation was expressed in the Stockholm Declaration adoption by the UN General Assembly of the World Charter for Nature in 1982, which was recommended by IUCN and UNEP. For instance, like the Stockholm Declaration, the World Charter for Nature,¹⁸⁵ was soft international law. That said, the Stockholm Declaration represents a remarkable degree of international convergence on the essential

¹⁸⁵ See UN General Assembly, *World Charter for Nature*, 28 October 1982, A/RES/37/7, available at: <http://www.refworld.org/docid/3b00f22a10.html>

elements of international environmental law and policy, and as such it has great persuasive authority.¹⁸⁶

(2) Our Common Future

Our Common Future called for worldwide political transformation based on the concept of sustainable development, that the parallel problems of environmental degradation and lack of social and economic development be addressed together. The report laid the groundwork for the 1992 Earth Summit and adoption of Agenda 21, the Rio Declaration and establishment of the U.N. World Commission on Sustainable Development (WCSD). *Our Common Future* report represents a synthesis of “senior government representatives, ‘scientists and experts, research institutes, industrialists, representatives of non-governmental organizations, and the general public’ throughout the world. It presents environmental concerns at the forefront of the international agenda”¹⁸⁷, and is especially concerned with Third World development and environmental preservation. “The Commission focused its attention in the areas of population, food security, the loss of species and genetic resources, energy, industry, and human settlements - realizing that all of these are connected and cannot be treated in isolation one from another.”¹⁸⁸ The report contains “recommendations for a sustainable course of development” in developing societies. “Sustainable development” is defined in

¹⁸⁶ For further information on the development of international environmental law, look at. Sands, Philippe, and Jacqueline Peel. *Principles of international environmental law*. Cambridge University Press, 2012.

¹⁸⁷ World Commission on Environment and Development. “Our Common Future, Annexe 2: The Commission and Its Work - A/42/427 Annex, Annexe 2 - UN Documents: Gathering a Body of Global Agreements.” Available at <http://www.un-documents.net/ocf-a2.htm>.

¹⁸⁸ Id

the report as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹⁸⁹

A 2002 report *Weaving the Rules for our Common Future* merits extensive reference.

The Brundtland report decried the disconnection between existing environmental and development law, and emphasized the increasing interdependence of ecosystem and resource availability with the economic components of development. Noting that international law often lagged behind advancements in economy and industry, the Commission called for gap-filling measures to catch up with the accelerating pace and expanding scale of impacts on the ecological basis of development. It went on to explain how some forms of development erode the environmental resource upon which they must be based and how environmental degradation can undermine economic development and prevent the enjoyment of its benefits. In calling for a realignment of humanity’s relationship with the environment, countries were urged to reorient their development strategies towards more sustainable paths by taking environmental considerations into account. The adoption of the Brundtland report is widely viewed as the moment at which sustainable development became a broad global policy objective.¹⁹⁰

Unfortunately, many of the problems in the common future have not been solved. Three and a half decades have since elapsed, and the problems have not been fixed but are instead growing more grave.

(3) Agenda 21

In 1992, world leaders gathered in Rio de Janeiro for the first ever Conference on Sustainability and the Environment. This meeting led to the adoption of several declarations and treaties.

¹⁸⁹ Id.

¹⁹⁰ Report of the World Commission on Environment and Development: Our Common Future available online at <http://www.un-documents.net/our-common-future.pdf>. Marie-Claire Cordonier Segger, Ashfaq Khalfan, Salim Nakhjavani, *Weaving the Rules for Our Common Future: Principles, Practice and Prospects for International Law of Sustainable Development*, Centre for International Sustainable Development Law, Faculty of Law, McGill University, Montreal, Canada, 2002, p 15.

- the Rio Declaration on Environment and Development;
- the Statement of non-binding Principles for the Sustainable Management of Forests;
- *Agenda 21*;
- UN Framework Convention on Climate Change;
- UN Convention on Biodiversity;
- UN Convention on Desertification;

This meeting, known in UN circles simply as the “Rio Earth Summit” (or “Rio”) was a groundbreaking event marking the first time in history the international community agreed that the environment was something worth protecting, and more importantly, that long-term economic development cannot be achieved without attention to sustainability.¹⁹¹

Agenda 21 is somewhat of a misnomer insofar as it is not an “agenda” in the ordinary sense of the word, but rather, a statement of common values, coupled with recommendations about how to put those values in practice via public policy. *Agenda 21* is a lengthy blueprint of local-to-global sustainable development, which summarized the three “E”s: Equity, Economy and Environment. Maurice Strong, the Secretary General of that conference, announced that “current lifestyles and consumption patterns of the affluent middle class involving high meat intake, use of fossil fuels, appliances, home and work air conditioning, and suburban housing are not sustainable.” According to its preamble, “the developmental and environmental objectives of *Agenda 21* will require a

¹⁹¹ *Agenda 21*, supra note 20. See also N. Robinson, ed., *Agenda 21 and the UNCED Proceedings* (New York: IUCN/Oceana Publications, 1993).

substantial flow of new and additional financial resources to developing countries.”¹⁹²

“Recommendations of *Agenda 21* provide both a blueprint for future actions of governments and an indicator of the progress (or lack thereof) within a jurisdiction towards ‘sustainable development.’”¹⁹³ Such assessments are performed every five years.

There are 178 signatory nations, including all of the predominantly Islamic member states of the UN as well as such developed nations as the United States, which signed on under President George H. W. Bush. *Agenda 21* is considered soft law and not a treaty, obviating the necessity of Senate approval. As such, it does not have the status of law under the US Constitution.¹⁹⁴ U.S. compliance is entrusted to the Executive branch, which has taken steps to ensuring its enforcement. For example, in 1993, President William J. Clinton signed Executive Order 12852 creating the President’s Council on Sustainable Development. The order requires every cabinet agency to advance *Agenda 21*’s sustainable development policy.¹⁹⁵ Other nations passed similar legislation; however, presidents after Clinton did not continue his Council.

Agenda 21 represents an efficient manner to promote international agreement since each country’s representative played a crucial part in developing it, which reflects the values and ideas of each region, their legal and religious systems, and a mutual agreement amongst the representatives of every country. Thus, it represents the international consensus statement on how nations should practice sustainable development.

¹⁹² Id.

¹⁹³ Robinson, Nicholas A. “Agenda 21” Article at xiv, “Promoting Sustainable Agriculture and Rural Development”, Earth Summit, 1992.

¹⁹⁴ U.S Constitution, Article VI provides that “all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land. “Available at <http://constitution.laws.com/article-6-of-the-constitution>.

¹⁹⁵ Id.

Chapter 8 of *Agenda 21* addresses implementation via national law. For example, Saudi Arabia currently has environmental laws, but they do not cover all topic areas regarding the environment. In this manner, *Agenda 21* supplements Saudi law and strengthens domestic law that is relatively weak in its coverage of certain matters.¹⁹⁶ An example of this is Section 9.13, which states that the transport sector has an essential and positive role to play in economic and social development, and recognizes that transportation needs undoubtedly will increase. However, because the transport sector is also a source of atmospheric emissions, this section calls for review of existing transport systems, and greater effectiveness in the design and management of traffic and transport systems.

Likewise, section 9.14 states the basic objective that member nations develop and promote cost-effective policies or programs “to limit, reduce or control, as appropriate, harmful emissions into the atmosphere and other adverse environmental effects of the transport sector, taking into account development priorities as well as the specific local and national circumstances and safety aspects.” Section 9.15 states that signatory governments, in conjunction with the cooperation of relevant UN bodies, intergovernmental, non-governmental and private sector organizations, should study, develop, and share transport systems that reduce atmospheric pollution.¹⁹⁷

¹⁹⁶ See *Agenda 21* available at <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=52>

¹⁹⁷ See <http://www.un.org/esa/agenda21/natlinfo/countr/saudi/inst.htm> Specifically, section 9.15 states that signatories should:

- (a) Develop and promote, as appropriate, cost-effective, more efficient, less polluting and safer transport systems, particularly integrated rural and urban mass transit, as well as environmentally sound road networks, taking into account the needs for sustainable social, economic and development priorities, particularly in developing countries;
- (b) Facilitate at the international, regional, subregional and national levels access to and the transfer of safe, efficient, including resource-efficient, and less polluting transport technologies, particularly to the developing countries, including the implementation of appropriate training programmes;

Nations have referred to *Agenda 21* to guide national action. For example, in December of 1994, the Council of Ministers approved implementation of *Agenda 21*, and Saudi Arabia's Ministerial Committee on Environment (MCE), the apex policy-making body on environmental issues, which was then chaired by Prince Sultan Bin Abdulaziz, the Second Deputy Premier and Minister of Defense and Aviation and Inspector General, began an elaborate study of *Agenda 21*. The MCE is the highest institutional authority for environment and related issues, including *Agenda 21*. The Committee sought to create a national implementation plan that conforms and accommodates the Kingdom's capabilities, policies and strategies. The relevant MCE sector ministries are: Agriculture and Water; Municipal and Rural Affairs; Industry and Electricity; Health; Petroleum and Mineral Resources; Foreign Affairs; Interior; and Finance and National Economy. Other than these ministries, MEPA, the King Abdul Aziz City for Science and Technology (KACST), and the National Commission for Wildlife Conservation and Development (NCWCD) are also members of MCE. The MEPA President acts as Secretary-General of the MCE. The United Nations General Assembly (UNGA) set up a Commission on

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- (c) Strengthen, as appropriate, their efforts at collecting, analysing and exchanging relevant information on the relation between environment and transport, with particular emphasis on the systematic observation of emissions and the development of a transport database;
 - (d) In accordance with national socio-economic development and environment priorities, evaluate and, as appropriate, promote cost-effective policies or programmes, including administrative, social and economic measures, in order to encourage use of transportation modes that minimize adverse impacts on the atmosphere;1
 - (e) Develop or enhance, as appropriate, mechanisms to integrate transport planning strategies and urban and regional settlement planning strategies, with a view to reducing the environmental impacts of transport;
 - (f) Study, within the framework of the United Nations and its regional commissions, the feasibility of convening regional conferences on transport and the environment.

Sustainable Development. Countries submitted reports to the CSD.¹⁹⁸ This remained the case until 2012, when the CSD closed and the high level segment of the UNGA launched.

(4) Rio Declaration

As discussed briefly above, the Rio Declaration on Environment and Development was a UNCED statement of twenty-seven principles that calls for equitable development to meet the “environmental needs of present and future generations.”¹⁹⁹ The Rio Declaration links environmental protection with development: “to achieve sustainable development, environmental protection shall constitute an integral part of the development process chain and cannot be considered in isolation from it,”²⁰⁰ with the stated goal of eradicating poverty.²⁰¹ Principle 4 is important in this regard as it affirms that in order to achieve sustainable development, environmental protection must constitute an integral part of the development process. These views are also reflected in Principle 1, which advances the admittedly anthropocentric position that human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature. The declaration also reflects the Brundtland Report’s emphasis on poverty and equity in Principle 3, the right of people to development, and in principle 10²⁰² supporting public participation in environmental policymaking, access to information and justice in environmental matters and in Principle

¹⁹⁸ Agenda 21 - Chapter 8 Integrating Environment and Development in Decision-Making, Earth Summit, 1992.”Kingdom of Saudi Arabia, country profile, Implementation of 8 National Implementation of Saudi CSD report available online at <http://www.un.org/esa/agenda21/natlinfo/countr/saudi/>

¹⁹⁹ Rio Declaration, Principle 3 of the Rio Declaration on Environment and Development, June 1992. Available at <http://www.unep.org/documents.multilingual/default.asp?documentid=78&articleid=1163>

²⁰⁰ *Id.* Principle 4

²⁰¹ *Id.* Principle 5

²⁰² *Id.* principle10

5 which embodies the indispensable role of alleviating poverty in achieving sustainable development. The social aspect of sustainable development was recognized in this way.

(5) Rio + 10 2002 World Conference on Sustainable Development - Johannesburg Plan of Implementation of Agenda 21 (2002)

The World Summit on Sustainable Development (WSSD) of 2002 took place in Johannesburg, South Africa ten years after the Earth Summit in Rio de Janeiro.²⁰³ The event drew an estimated 45,000 participants, including over 100 heads of state, and focused on the same concerns as the Rio Declaration, addressing the failure of implementation as discussed during the Earth Summit of 1992. In the Johannesburg Declaration on Sustainable Development and the Johannesburg Plan of Implementation, countries assume a collective responsibility to advance and strengthen the interdependent nature of sustainable development, economic development, social development and environmental protection at the local, regional and global levels.²⁰⁴ It consisted of nearly 300 Type II “partnership initiatives” which are aspirational goals distinguished from Type I Partnerships, which are binding international treaties. These partnerships are designed to achieve the Millennium Development Goals established at the UN Millennium Summit of 2000 signed by all member states.²⁰⁵

²⁰³ WSSD “Sustainable Development Knowledge Platform. United Nations, (2002). Available at <http://www.iisd.ca/wssd/infonews9.html>.

²⁰⁴ Economic and Social Council Explores Integration of Three Sustainable Development Pillars - Economic, Social, Environmental - to Achieve 'Triple Win' Solutions | Meetings Coverage and Press Releases.” United Nations. Available at http://www.academia.edu/11125137/The_Three_Pillars_of_Sustainable_Development_Critical_Issues_and_Perspectives

²⁰⁵ The goals are to:

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equality and empowering women
- Reduce child mortality rates
- Improve maternal health
- Combat HIV/AIDS, malaria, and other diseases

(6) Rio + 20 UN Conference (2012)

The United Nations Conference on Sustainable Development (UNCSD), popularly known as “Rio+20” was the third international conference on sustainable development. The Conference sought to reconcile economic and environmental goals of the international community. Its declaration, “The World We Want,” reaffirmed the global green program and was centered around *Agenda 21* and the WSSD three pillars of sustainable development: economic growth, social improvement and environmental protection. The Conference sessions were dedicated to reducing poverty, promoting job growth, clean energy, and sustainable uses of resources, all of which were goals first established at Earth Summit in 1992.²⁰⁶

Rio+20 agreed to secure political commitments made at the prior Earth Summits and to assess gaps in achieving Agenda 21 goals and discussing new issues. Neither the U.S. president and nor prime ministers of Britain and Germany attended indicating the lower priority accorded to sustainable development by these major powers. *The Future We Want* also asked the UNGA to replace the UN Commission on Sustainable Development with a new procedure, and the UNGA later started a process to prepare the SDGs.

(7) 2015 UNGA adopts SDGs

The condition of the environment of the world is becoming critical and requires that high priority be given to environmental law and environmental management. People

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- Ensure environmental sustainability
 - Develop a global partnership for development

²⁰⁶“United Nations Conference on Sustainable Development, Rio+20, “Sustainable Development Knowledge Platform.”(2012). Available at <<https://sustainabledevelopment.un.org/rio20>>.

are all living on planet Earth, linked together by science, ecosystems and mythology. Therefore, our nations have to take care of the Earth in unison despite the differences in their laws, which are affected by different interpretations, patterns of consumption, and religious frameworks. What matters is that the overall goal, is accepted by everyone and that everyone work to achieve it. So, first are millennial development goals and then these SDG goals. Both will be described:

b. Overview of sustainable development goals 2015- 2030

The SDGs apply to all nations and replace the MDG's that were applicable only to developing countries. MDG's goals made no mention of the environment and did not specifically address economic development as SDGs do now. Conversely, each country will be expected to work towards achieving the SDGs.²⁰⁷

c. Millennium Development Goals (MDGs) 2000- 2014

As the World Bank explains, "Following the Millennium summit of the UN in 2000, the UN Secretary General's Road Map for implementing the Millennium Declaration formally unveiled eight goals, supported by 18 quantified and time-bound targets and 48 indicators, which became known as the Millennium Development Goals (MDGs). Each of the goals had precise targets and timeline for realizing those targets. The MDGs focused the efforts of the world community on achieving significant, measurable improvements in people's lives by the year 2015."²⁰⁸ They establish targets

²⁰⁷ SUSTAINABLE DEVELOPMENT KNOWLEDGE PLATFORM, Transforming our world: the 2030 Agenda for Sustainable Development. Available at <https://sustainabledevelopment.un.org/post2015/transformingourworld>

²⁰⁸ UN Millennium Development Goals, Available at <http://data.worldbank.org/about/millennium-development-goals>

and yardsticks for measuring results—not just for developing countries but for the rich countries that help fund development programs and for the multilateral institutions that help countries implement them.”²⁰⁹ When the 2015 target date of the MDGs approached, the international community agreed at the Rio+20 Earth Summit to start anew process of establishing global set of Sustainable Development Goals (SDGs).

The main difference between the SDGs and the MDGs should be evident from their names: the SDGs are not merely about development but clearly planned to promote sustainable development, which expresses a specific substantive concern in the Anthropocene era.²¹⁰ Whereas exterminating poverty was the overall objective of the MDGs, environmental protection constitutes an essential part of the development process under the post-2015 sustainable development agenda.²¹¹

d. 2015 SDGs 17 goals

SDG’s guide the efforts of virtually all organizations working in development and have been commonly accepted as a framework for measuring the progress of development.

The 17 goals are the following:

- 1- End poverty in all its forms everywhere;
- 2- End hunger, achieve food security and improved nutrition and promote sustainable agriculture;

²¹⁰ Rakhyun, E. Kim. SDGs and the Principle of Sustainable Development in International Law, Mar 13th, 2014. Available at <http://sdg.earthssystemgovernance.org/sdg/news/2014-03-13/sdgs-and-principle-sustainable-development-international-law>.

²¹¹ Jackson, Jordana. “Sustainable Development Goal 15: Protect Terrestrial Ecosystems.” GreenBiz. GreenBiz Group Inc., 14 Oct. 2015. Also SDG on water, terrestrial+ marine environments at <http://www.greenbiz.com/article/sustainable-development-goal-15-protect-terrestrial-ecosystems>.

- 3- Ensure healthy lives and promote well-being for all at all ages;
- 4- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- 5- Achieve gender equality and empower all women and girls;
- 6- Ensure availability and sustainable management of water and sanitation for all;
- 7- Ensure access to affordable, reliable, sustainable and modern energy for all;
- 8- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- 9- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- 10- Reduce inequality within and among countries;
- 11- Make cities and human settlements inclusive, safe, resilient and sustainable;
- 12- Ensure sustainable consumption and production patterns;
- 13- Take urgent action to combat climate change and its impacts;
- 14- Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- 15- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and loss of biodiversity;
- 16- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels; and
- 17- Strengthen the means of implementation and revitalize the global partnership

for sustainable development.²¹²

The above goals are important because they clarify the norms that are essential for reaching saving the planet at this critical juncture. Society has to learn to make the Earth work for humanity in a manner that is sustainable for the environment *and* for ever greater levels of human prosperity. Thus, humanity has to learn to co-exist at peace with the universe. However, in order to achieve the discussed goals, the world needs effective laws, policies and practices to address these issues effectively. To do this would mean to overcome and mitigate the effects of human development that are degrading the Earth at an alarming rate.

There are many challenges in order to effectuate a working plan to achieve the SDGs. As shown in Chapter 3, Islamic principles require doing so. For example, the biggest challenge faced by the Arab regions is the difficulty in integrating economic, social and environmental issues in their decision-making. Although the goal has been articulated and reiterated in numerous regional declarations, implementation of these goals faces many obstacles and in some instances stands in priority behind issues of national security, economic growth and cultural preservation. Most Arab countries allocate the responsibility regarding sustainable development to various ministries. These include issues facing the environment, health, water resources, energy, agriculture, fishery, forests and tourism. These are delegated and become the responsibility of the many ministries, leaving government and institutional implementation out of the equation.

²¹² “Sustainable Development Goals,” Sustainable Development Knowledge Platform.” United Nations. September 25th, 2015 Available at <https://sustainabledevelopment.un.org/?menu=1300>

For example, Rio Principle 10 has been in effect for several years in the Arab region; however, it is not yet implemented in any manner reasonably expected to achieve significant results. Some of these institutions rely on conventions such as the Kuwait Agreement for the Gulf States.²¹³ Others have already been adopted as well. Nations are agreeing on values similar to those values of Islam – that is, that humans and the Earth are one – which requires a comprehensive, balanced, view that the earth is in need of protection due to its limited resources and failing systems. But they are not creating effective systems for implementing these values.

(1) Water and Terrestrial nature

There is no doubt that SDG goals, in general, have achieved some progress, yet there is much to be done to turn these important aspirations into tangible reality. When discussing environmental preservation and natural aspects such as water and wild nature, both SDGs 6 and 15 are most pertinent.

SDG Goal 6 recognizes that the managing of water includes much more than providing a safe water supply and sanitation (targets 6.1 and 6.2). Specifically, water management includes working to ensure the quality of water, effective wastewater management, reducing pockets or times of scarcity, ensuring efficient usage of water and water resources and protecting water ecosystems.²¹⁴ On the other hand, Goal 15 focuses on restoring degraded lands, managing forests sustainably, successfully combating

²¹³ Gelil, Ibrahim Abdel. “The Sustainable Development Initiative in the Arab Region.” (2011). Available at http://www.un.org/esa/sustdev/partnerships/activities_initiate/101202_sd_initiative_arab_region.pdf also see <http://www.kw.undp.org/content/kuwait/en/home/presscenter/articles/2015/08/11/transforming-our-world-the-2030-agenda-for-sustainable-development.html>

²¹⁴ Stephane, Dahan. “SDG 6 on water and sanitation is essential for sustainable development”, World Bank Blogs. (2016). Available at <https://blogs.worldbank.org/team/stephane-dahan>

desertification, reducing degraded natural habitats and ending biodiversity loss. This goal is further helpful because it demands the protection of forests that currently do not have their own goal.

SDGs goals are important because their engagement helps address and meet other goals. For example, deforestation reduces biodiversity and clean water accessibility (SDG 6), as well as, limiting communities who heavily rely on them such as indigenous people (SDG 5 and 8). Therefore, by focusing on the protection of forest and prevention of deforestation, we can help maintain or even increase biodiversity and water accessibility. This, in turn, ensures the sustainable use, restoration and conservation of inland and terrestrial freshwater systems.

Goal 15 also contributes towards other commendable goals. For example, forest preservation directly affects impoverished communities (Goal 1) by reducing vulnerability to natural disasters. It also contributes to food security (Goal 2), water and sanitation (Goal 6) by regulating the impact of rainfall and run off. Forests contribute to healthy lives (Goal 3) by providing clean water and reducing disease. The preservation of forests helps combat climate change by serving as a natural carbon capture and storage system.

7. Sustainable Development & Islamic principles

All SDGs are very important and useful in making the world work together towards the protection of the environment and its component. But in addition to these goals, humans should remember that Islam imposes a duty to protect the environment as well. As noted above, the teachings of Islam contain numerous environmental

sustainability elements which are mentioned in different chapters in the Holy *Qur'an*.²¹⁵ In Islam, mankind and the environment's relationship are harmonious because of the view of the person as an overseer of our home, planet earth. Muslims have been directed to keep the environment in proper order rather than to damage it. Consequently, an Islamic approach to a sustainable development is completely in accordance with *Sharia*.

Having summarized the progression of policies on sustainability, one can examine some of the principle elements of sustainable development through the definite reference point of the Holy *Qur'an* and the words of Prophet Muhammad (PBUH). A huge number of verses in the *Qur'an* and several sayings of the Prophet Muhammad show the great importance given to environmental concerns and the responsibility of man to the environment. Sustainable development can be defined, from an Islamic perspective, as a multi-dimensional process that seeks to “strike a balance between economic and social development on one side, and the environment on the other. It seeks for humans to use resources in the best possible way, accounting for the environment upon which those resources rely.”²¹⁶ From an Islamic point of view, human beings are representatives of God on Earth, and they are entitled to benefit from the Earth's resources without depleting or monopolizing.²¹⁷ Instead humans shall see to it that they develop the planet in accordance with the provisions of the Holy *Qur'an* and the teachings of Prophet Muhammad, the *Sunnah*, with the understanding that current needs must be met without jeopardizing the rights of future generations.

²¹⁵ Umar, Usman Aminu, and M. F. Khamidi. “Green And Sustainable Development In An Islamic Perspective.” 2012.

²¹⁶ Nouh, Muhammad. “Sustainable Development in a Muslim Context.” *Faith Values and Education for Sustainable Development* (2012): 39. p 39. For more information see http://earthcharter.org/invent/images/uploads/11%20Manuscrip_Muhammad.pdf

²¹⁷ Id

Development is reported in *Qur'an* under the expression “Architecture and Construction.” God says: “It is He who hath produced you from the earth and settled you therein”²¹⁸ indicating the necessity of expansion and building land.²¹⁹ On the other hand, Prophet Muhammad (PBUH) said: “if the Final Day comes upon you while you were planting a seed, then continue on planting it.”²²⁰ Clearly, the dictate is to honor the environment as a gift from God.

a. The Makings of Sustainable Development

(1) Honoring Human beings

Islam’s vision of sustainable development also pays special attention to human beings, as they are the ones who both bring about development and are the first to benefit from its returns. Human beings are part of this universe; made of earth’s clay; full of sophisticated spirituality that makes them similar to angels.²²¹ These two elements - body and spirit - are integrated into one holistic creature.²²² The relationship between the two elements can be explained from different perspectives as follows. God honored human beings and favored them over many other creatures. In the *Qur'an*, God Almighty says, “We have honored the sons of Adam; provided them with transport on land and sea; given them for sustenance things good and pure; and conferred on them special favors, above a great part of our creation.”²²³ People are not only consumers but also producers

²¹⁸ Qur’an: Surat Hud(11), ayah 61 (وَإِلَىٰ نُوحٍ أَخَاهُم صَالِحًا ۖ قَالَ يَا قَوْمِ اعْبُدُوا اللَّهَ مَا لَكُمْ مِنِّ إِلَهٍ غَيْرُهُ ۗ هُوَ أَنشَأَكُم مِّنَ الْأَرْضِ وَاسْتَعْمَرَكُمْ فِيهَا فَاسْتَغْفِرْ لَهُ ثُمَّ تَوْبُوا إِلَيْهِ ۗ إِنَّ رَبِّي قَرِيبٌ مُّجِيبٌ)

²¹⁹ Nouh, Muhammad. “Sustainable Development in a Muslim Context.” *Faith Values and Education for Sustainable Development* (2012). P 40. For more information see http://earthcharter.org/invent/images/uploads/11%20Manuscrip_Muhammad.pdf

²²⁰ Id

²²¹ Id.

²²² Id.

²²³ Qur’an: Surat al-Isra(17), ayah 70. (وَلَقَدْ كَرَّمْنَا بَنِي آدَمَ وَحَمَلْنَاهُمْ فِي الْبَرِّ وَالْبَحْرِ وَرَزَقْنَاهُم مِّنَ الطَّيِّبَاتِ وَفَضَّلْنَاهُمْ عَلَىٰ كَثِيرٍ مِّمَّنْ خَلَقْنَا تَفْضِيلًا)

for themselves and others.

Furthermore, Islam instructs us to perfect any work we undertake. God endowed human beings with many seen and unseen strengths to build the earth and promote life on it. God Almighty made all other creatures and blessings in the universe (e.g., water, air, animals, plants, inanimate creatures, the earth, sun, moon, night, and day) accessible to human beings. God (the Glorified and Exalted) says, “Do ye not see that Allah has subjected to your (use) of all things in the heavens and on earth, and has made his bounties flow to you in exceeding measure, (both) seen and unseen?”²²⁴ That means that human beings are entitled to utilize for these resources to build their own lives and expand on the universe, always in accordance with God’s instructions. The proper management of these resources includes maintaining an overall balance with the surrounding environment, ensuring the survival of all species of life, and using only the amount needed in order to avoid waste and the irreparable depletion of resources.

(2) Comprehensiveness of the Environment: water and life in nature

Comprehensiveness is related to a vision according to which the environment is one integrated entity, and the components of the environment are interchangeably connected in a system where the existence of every creature – living or inanimate – relies upon these components. Likewise, the UN General assembly declared all SDGs to be interdependent and interrelated. Scientifically, the biosphere of Earth is a single entity that relies on all its parts and, similarly, the parts rely on the whole entity for survival. Islam makes this same point. Many verses in the *Qur’an* which address the unity of the universe express the existence of this relationship. When God (the Glorified and Exalted) talks about the

²²⁴ Qur’an: Surat Luqman (31), ayah 20. (أَلَمْ تَرَوْا أَنَّ اللَّهَ سَخَّرَ لَكُمْ مَّا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ وَأَسْبَغَ عَلَيْكُمْ نِعْمَهُ ظَاهِرَةً ۚ وَبَاطِنَةً ۗ وَمِنَ النَّاسِ مَن يُجَادِلُ فِي اللَّهِ بِغَيْرِ عِلْمٍ وَلَا هُدًى وَلَا كِتَابٍ مُّنِيرٍ)

universe, He does so by referring to its large components (*i.e.*, the earth, heaven, and water), which, according to modern ecology, are part of a massive ecosystem known as the biosphere. In addition, many verses in the *Qur'an* associate earth with heaven, whereas others refer to what is between them. What this shows is the fact that the *Qur'an* speaks about comprehensiveness, which was only discovered by scientists in recent years after concluding that Earth and its surroundings comprise an integrated and indivisible environmental system.

God Almighty says in the *Qur'an*, “in the creation of the heavens and the earth; in the alternation of the night and the day; in the sailing of the ships through the ocean for the profit of mankind; in the rain which Allah Sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the clouds which they Trail like their slaves between the sky and the earth; - (Here) indeed are Signs for a people that are wise.”²²⁵ Islam considers the environment as comprehensive and holistic and thus, of concern to all of humanity. The requirement extends to all Muslims to strive and develop and protect it from harm and corruption, in accordance with Islamic ethics.

(3) Balance

Much like the concept of sustainable development, Islam counsels balance. “Land, sea, air, forests, the arctic, the desert, the mountains, etc., are different types of environmental systems which together form one integrated environmental system comprising the planet Earth, including its atmosphere, waters, continents, and the plants,

²²⁵ Qur'an: Surat Al Baqara, (2), ayah 164. (إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَالاخْتِلافِ اللَّيْلِ وَالنَّهَارِ لآيَاتٍ لِأُولِي الْأَبْصَارِ)

animals and human beings which exist in its air, land, and water.”²²⁶ The various systems coexist in a balance that must be preserved by humanity, lest people destroy the capacity for ensuring the wellbeing of generations to come. Unfortunately, humans have not respected this environmental balance and have begun to affect it to such an extent that the effects are felt in every corner of the world. The reason for people’s failure to observe the protection of the environment is their disconnect from the environment and nature itself. To often they fail to see the environment as inseparable from themselves which leads to abuse of available resources. This is without a doubt a selfish and self-centered human failing, which, without modification, will destroy hope for the well-being of generations to come. In the *Qur’an* God Almighty says, “Mischief has appeared on land and sea because of (the need) that the hands of men have earned.”²²⁷ This and other sections of the *Qur’an* remind us that God (the Glorified and Exalted) detests all forms of corruption and this includes the damage that has been inflicted on the environment. Evidence of this short-sightedness abounds in the extensive damage that is occurring from all human activity including pollution, excessive and unnecessary exploitation of resources and disregard of the need to preserve natural settings.

(4) Limited Resources

The Holy *Qur’an* acknowledges the limitations within our environment insofar as we have limited resources. For example, the *Qur’an* states:

And there is not a thing but its (sources and) treasures (inexhaustible) are with us; but we only send down thereof in due and ascertainable

²²⁶ Nouh, Muhammad. “Sustainable Development in a Muslim Context.” *Faith Values and Education for Sustainable Development* (2011) p39.

²²⁷ Id.

measures.”²²⁸

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).”²²⁹

He set on the (earth), mountains standing firm, high above it, and bestowed blessings on the earth, and measure therein all things to give them nourishment in due proportion, in four Days, in accordance with (the needs of) those who seek (Sustenance).”²³⁰

These verses point out that human beings must handle resources wisely with an understanding that they are limited and must be handled rationally.²³¹

(5) Environmental Protection

The Holy *Qur'an* calls for protecting the environment by requiring human beings, as the custodians of the Earth, to actively seek its protection. Moreover, the command to guard and protect the environment is to be strictly observed, lest you fall in violation of the scriptures and thus, in sin. God Almighty says, “And Allah loveth not those who do mischief,”²³² “But waste not by excess: for Allah loveth not the wasters”²³³, “and do no mischief on the earth after it has been set in order: that will be best for you, if ye have Faith.”²³⁴ Through the scriptures, God has ordered men to avoid mischief and committing waste, so that the environment may be preserved.²³⁵

The notion of preserving the Earth and the environment is very important in Islam. God has bestowed upon us much blessing and fruit to be derived from our Earth but it comes at the price of obligating the beneficiaries of this blessing to protect the source of

²²⁸ Qur'an: Surat al- Hijr (15), ayah 21.

²²⁹ Qur'an: Surat al- Mumenoun(23), ayah 18.

²³⁰ Qur'an: Surat Fusselat (41), ayah 10.

²³¹ Id.

²³² Qur'an: Surat al-Ma'eda (5), ayah 64.

²³³ Qur'an: Surat al-An'am (6), ayah 141.

²³⁴ Qur'an: Surat al-A'raf(7) ayah 8.

²³⁵ Jamil, Mohammad Assayed. *A Study on Environmental Issues with Reference to the Qur'an and the Sunna*. Islamic Educational, Scientific and Cultural Organization, 1999.

the benefit in order that the next generation will reap the benefits as well. But the obligations of the righteous do not end there. Just as people have a right to enjoyment of the Earth and the benefits it bestows upon us, likewise, humans must be aware that there are others who share this right to the fruits of the Earth, such as animals. The scriptures are clear when they state “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. Nothing have we omitted from the Book, and they (all) shall be gathered to their Lord in the end.”²³⁶ Moreover, God (the Glorified and Exalted) has ordained a time for which we will enjoy the Earth. It states in the scriptures, God Almighty says, “On earth will be your dwelling-place and your means of livelihood - for a time.”²³⁷ This specific timeframe obligates human beings to adopt a disciplined behavior in handling natural resources, since they are not the property of the current generation alone, but also future ones.²³⁸

(6) General Rules for Protecting the Environment from Harm

Islamic jurisprudence includes many rules that serve as the foundation of many regulations and laws concerning sustainable development. For example:

- “Do no harm”: This rule requires that people cause no harm to themselves and or to others. This admonishment from doing any harm extends to the environment. For example, inattention to protecting and preserving clean water would harm others and infringe on their right to enjoyment of water for drinking and or personal use.
- “Warding off evil takes precedence over bringing benefits”: This wise rule ensures that acts that are both beneficial but cause harm are forbidden under Islamic principles. It

²³⁶ Qur’an: Surat al-An’am (6), ayah 38.

²³⁷ Qur’an: Surat al-Baqara(2), ayah 36.

²³⁸ Nouh, Muhammad. “Sustainable Development in a Muslim Context.” *Faith Values and Education for Sustainable Development* (2011): 39.

presages the precautionary principle. An example of this is governmental disposal of chemical waste in bodies of water where the goal is to help clean up waste that must be removed, but the attendant result is harm to both sea life and humans. Therefore, such an act is forbidden.

- “Sustaining personal harm to ward off public harm”: This notion is noble and implores a sacrifice on the individual who is asked to incur a personal harm in order to benefit the public at large. This requirement illustrates the principle of common but differentiated responsibility.
- “Harm shall be removed”: The causes of harm must be removed. For example, when ships dump waste in the sea, they pollute and destroy sea life and disturb the environment’s balance.²³⁹ This principle requires that the entity causing harm to the environment take all necessary measures to remove the adverse effects. This mandate shows the correctness of the polluter pays principle.

8. Evaluation: Sustainability in Islam.

Given the aforementioned, it is evident that Islam and Islamic principles take into serious account the preservation of the environment and the development and protection of its resources to be a crucial part of the religion. These principles and doctrines contain strong language to ensure that the message gets across and that it is clear to all that it is not an option, but rather an imposition on every Muslim to monitor his own behavior and acts of others to better promote environmental stability. Moreover, the texts from both the Holy *Qur’an* and the *Sunnah* are fundamental sources of rules and laws and contain

²³⁹ Mattar, Mohamed Y. “Human Rights in Islamic Law, Specifically the Guarantee of Procedural Justice.” *Eur. JL Reform* 16 (2014): 274.

provisions on how to best handle the environment and ensure sustainable development. Unfortunately, despite these doctrines and the rules that have been promulgated by Muslims pushing for sustainable development, lack of media attention and public awareness of these rules, doctrines and necessity, lead to modest application and enforcement within the Islamic world. If humans begin to observe the teachings and doctrines, then humanity will soon learn that these will ensure sustainable development for the entire world.

The values that lead to sustainable development in accordance with Islamic Sharia are namely, respecting and honoring humans, maintaining environmental balance, and developing plans to sustain environmental resources for the longest amount of time possible.²⁴⁰ “The utilization of all natural resources – land, water, air, fire (energy), forests, oceans – are considered the right and the joint property of the entire humankind. Since each human is *Khalifatullah* (the vicegerent of Allah) on earth, humans should take every precaution to ensure the interests and rights of others, and regard his mastery over his allotted piece of land as a joint ownership with the next generation.”²⁴¹

Allah has created in the universe in due proportion and measure both quantitatively and qualitatively. The controversy on sustainable development thus centers on the worry about deteriorating environmental quality. The destruction persists unabated also in the Muslim world even as Islam preaches moderation in utilization, exhorts to prevent wasteful use of natural resources, reminds people of the delicate proportions in

²⁴⁰ Nouh, Muhammad. “Sustainable Development in a Muslim Context.” *Faith Values and Education for Sustainable Development* (2011). Available at https://earthcharter.org/virtual-library2/images/uploads/11%20Manuscrip_Muhammad.pdf

²⁴¹ Abumoghli, Dr Iyad. “Sustainable Development in Islam.” (2010). Available at https://www.researchgate.net/publication/267271364_ENVIRONMENTAL_AND_SAFETY_SUSTAINABLE_DEVELOPMENT

the universe and enjoins humanity to sustain the natural equilibrium. It cautioned that greed will induce the human race to disrupt the proportions and the balance. The following verses from the *Qur'an* provide sufficient testimony on the point. "It is He who created the heavens and the earth in true (proportions)."²⁴²

The Holy *Qur'an* is not a book on ecology; however it really ought to be considered a reference for environmental science. The fact that scientists and green thinkers have deduced had previously been described in the Book centuries ago.²⁴³ One should simply contemplate the words of the Creator, which covered anything contemporary societies may be focused on. Virtually every concept explained in these Holy Verses has an equivalent common principle in environmental law and sustainable development policy. There are some general principles which might be the foundation of an Islam-oriented sustainable development and can be worked out from Allah's Words.²⁴⁴ This does not mean Islam has its own sustainable development approach and denies the notion as it is agreed upon by science, but surely it can play a role in assisting modern research to transform humanity's approach towards managing the environment.

Whether the model of *Agenda 21* is still as good as we thought, we now have a quarter century of experience since 1992. Many scholars have been very critical of the idea of sustainable development, stating that it is good for some things but will not be effective enough. Several schools, including scholars at Pace University's Haub School of Law, have published about this issue.²⁴⁵ They described what is useful and what is not

²⁴² Qur'an: Surat al-An'am (6), ayah 3.

²⁴³ Schwencke, A. M., M. S. Berger, and W. B. Drees. "Globalized Eco-Islam." *A Survey of Global Is* (2012).

²⁴⁴ Umar, Usman Aminu, and M. F. Khamidi. "Green And Sustainable Development In An Islamic Perspective." (2012).

²⁴⁵ Jessica Owley & Keith H. Hirokawa, eds, "Rethinking Sustainable Development to Meet the Climate Change Challenge" 41-62 (*ELI* 2015)

regarding the notion of sustainability. However, these scholars have failed to incorporate the question of religion and how it plays a role in the success of sustainability. These scholars then went on to state that the idea of sustainability was not strong enough on its own to solve the issues now faced by humans. Based on these studies, it is imperative on us to ask if sustainability is the most effective principle and if not, then what is.

Moreover, we have to ask ourselves whether religion can give us better guidance to address these pressing issues. What we hope for is the proposition that since humans put much credence and emphasis on religion and the religious values instilled in them, then, they may also take seriously the need to protect God's creations here on Earth. To accept this, of course, is to accept the fact that sustainability will only survive when humans put into practice the doctrines of an intimate human relationship with nature both on international and domestic levels. As scholars have stated "law must be enforced and complied with by all of society, and all of society must share this obligation."²⁴⁶ The reality is, however, that the present generation has been given the challenge of ensuring sustainable development for all, including our future generations, yet is not yet "succeeding sufficiently in order to arrest the continuing deterioration of critical ecosystems."²⁴⁷

As of 2015, the UN General Assembly including all Islamic states, voted in favor of SDGs and consequently brought the environment and its development together in soft international law as they are in life. The follow up question is what do the SDGs mean and how they are to be implemented to address these issues. The future of sustainable development is not clear from the SDG's. The SDG's maintain all things should be

²⁴⁶ Hoagland, N. Theresa. "D. Zaelke, D. Kaniaru, E. Kružiková (eds): Making law work: environmental compliance and sustainable development, vol 1 and 2." (2006): 138-140.

²⁴⁷ Id.

holistic and integrated. However, the way governments work, some ministries hold more power and will not give up their power to integrate unless there exists a clear mandate that they must. Thus, states and all other human agencies must provide a framework that allows integration. In this instance, if the Islamic states can use the teachings and spiritual notions of the Holy *Qur'an* as well as the teachings of the Prophet Muhammad (PBUH), then integration can be achieved.

Chapter 5: Environmental Degradation in the Arab World and Climate Change

“Imagine our descendants in the year 2200 or 2500. They might liken us to aliens who have treated the Earth as if it were a mere stopover for refueling, or even worse, characterize us as barbarians who would ransack their own home. Living up to the Anthropocene means building a culture that grows with Earth’s biological wealth instead of depleting it. Remember, in this new era, nature is us.”

Paul J. Crutzen, Nobel Laureate

This chapter provides further detail on the environmental challenges facing our planet and in particular people of the Arabian Gulf region. It discusses the ways in which environmental scientists and policy analysts have assessed data to conclude that our planet has entered a new global epoch, the Anthropocene – an era created by climate changes wrought in great part by human activity, most notably the release of carbon into the earth’s atmosphere as a byproduct of the combustion processes used to power our homes, move ourselves and our goods, and make the things we consume. Trends in climate change menace every facet of our civilization, no less in the Arabian Gulf region where rapid growth in population and economic activity are placing every greater demands on fragile ecosystems, particularly stressing fresh water supplies. Moreover, because of its costal location, the Arabian Gulf region is particularly vulnerable to the harmful effects of sea level rise. All this means that governments in the region must redouble efforts to work individually and collaboratively to prevent climate change and to mitigate its effects.

This chapter proceeds as follows. It discusses the overall threats posed to the environment with a focus on climate change through discussions of successive international reports deploying the resources of the environmental sciences, the World Commission on the Environment and Development’s *Our Common Future*, the Intergovernmental Panel on Climate Changes five Assessment Reports and UNEP’s successive Global Environment Outlook reports. It explains the clear scientific consensus about the causes, scale and gravity of the environmental challenges facing this planet. It argues that planetary-scale challenges require global responses reflecting international law and regional values. Then this chapter offers an extensive analysis of the particular situation of the Gulf region

where climate change and the resulting sea level rise pose dual and dangerous threats. The sea level raise threatens to destroy precious territory, including significant portions of the already limited arable land. Climate change is also threatening to destroy valuable terrain by reducing quantities of reliable fresh water and increasing temperatures and thus demand for that same water. These challenges are further exacerbated by governments' inability or unwillingness to embrace forward-looking policies, to make the investments in law, policy and infrastructure necessary to survive these challenges. It concludes with a call to arms, an appeal to the Moslem cultures and governments of the region to accept the burdens of stewardship that *Sharia* imposes and save their environment.

1. Introduction

The global environment demonstrates that individuals and organizations need to undertake a proactive approach to understand the complex problems emerging in the environment. This chapter examines each individual's understanding of the process of environmental change and how that affects the world population. The growing awareness of environmental problems can be enhanced by understanding Islamic principles for care of the environment.

As in discussed in chapter 4, the World Commission on Environmental and Development chaired by Gro Harlem Brundtland, completed *Our Common Future*²⁴⁸ and published it in 1987, providing a definitive global assessment of major environmental concerns. Since then, many more reports contribute to a significant understanding of the complex environmental challenges facing humanity today. The Brundtland Commission report remains an important contribution in the environmental context because it

²⁴⁸ *Our Common Future*. By World Commission on Environment and Development. (London, Oxford University Press, 1987, pp. 383)

increases the public's awareness of the necessity to undertake drastic measures to preserve the environment and its natural resources. The UN Environment Programme's GEO-5 report and the 5th Assessment Report of the Intergovernmental Panel on Climate Change make clear the worsening global environmental trends.

2. Transformation of the Global Environment

The transformation of the global environment resulting from climate change, pollution, shortages of potable water, and degradation of environmental services, is increasing the risks and reducing the opportunities for poor, vulnerable, and helpless populations. Such global environmental change has occurred in an increasingly globalized, developed, and fast-moving world amidst fluctuating geographical and political power. Expanding goods and services, financial capital and technology, information and labor has stimulated a rising global population with repercussions for patterns of consumption and production. Global environmental problems require constant and cooperative efforts to meet internationally agreed upon environmental goals. Responses to global and regional problems is evident, but tackling the fundamental drivers of global environmental degradation, rather than symptoms, would require the continual development of rules, institutions, economic systems and principles to transform the current approach to global environmental management. In addition, adequate, satisfactory, and stable financial resources, political commitment, knowledge, and operational capability are also essential.

However, the necessary governance mechanisms and structures differ significantly between regions and countries. There is no specific, comprehensive solution

to global environmental challenges.²⁴⁹ However, many environmental problems, in particular those related to the climate, can be addressed only through collective and combined action. Global responses are also important for enhancing national capability and facilitating the acceptance of solutions among countries. Reactions at national and global levels can also interact and create incremental, formational, and transformational change. While states are important, the commitment of non-state players at different international levels is also important and has, for example, encouraged and promoted the exchange of knowledge and strengthened capacities.²⁵⁰

The objective of this chapter is to provide an extensive discussion of environmental problems and future trends that state and non-state players, and individuals, by focusing on major aspects included in GEO-5, the Arab environment report, IPCC and Anthropocene. These are the physical conditions that exist on Earth, and the law and policies to attain of sustainable development must reflect the Earth's environmental conditions. Once these conditions are understood, Islamic principles can guide how Moslem societies should respond.

3. Global Environmental Outlook (GEO) 5- The Factual Basis for Designing Global Solutions

The Global Environmental Outlook (GEO) of 2012²⁵¹ built on previous reports and continues to provide an analysis of the state, trends and outlook of the global environment. It differs from previous GEO reports in its emphasis on internationally

²⁴⁹ More information on the United Nations Environmental Program for Development can be found at: <http://www.unep.org/geo/about.asp>

²⁵⁰ *Id.*

²⁵¹ United Nations Environment Program , Global Environment Outlook Geo 5, "Environment for the Future We Want", 2012.

agreed-upon goals and shifts from assessing ‘problems’ to providing possible ‘solutions’. Every time a new GEO is completed, it comes with “comprehensive, science-based, policy-relevant information on the current state and future prospects of the global environment and its interactions with human well-being.”²⁵² Progressively, the GEO methodology also functions as a foundation for formulating integrated environmental assessments and outlooks at the sub-global—regional, national, ecosystem or local—levels around the world. Every GEO creates new opportunities for learning. The GEO 5 report has for the first time incorporated “earth science” as part of the report. Earth science is therefore a novel addition to this report.

Continued effort in the study of earth sciences and climate systems eventually led to the formation of the Intergovernmental Panel on Climate Change (IPCC) in 1988. During that time, neither the United Nations Environment Program (UNEP) nor the World Meteorological Organization (WMO) had any precise idea about what was happening to the climatic system. It was, however, evident that there were changes in climate, but the level of change and its significance was not well comprehended. The IPCC brought scientists together. They went through all the previous reports from studies regarding the climate systems in order to bring about a substantial valuation on the extent of climate change. The success of GEO resulted in the creation of the IPCC. The IPCC has published five reports, which when considered together with the GEO reports, describe conditions known today as the Anthropocene epoch.²⁵³

²⁵² United Nation Environmental Program ,” *Environment Under Review*”. see <http://web.unep.org/node/887>

²⁵³ International Commission on Stratigraphy definition of Anthropocene Epoch on Earth. Available at <http://quaternary.stratigraphy.org/workinggroups/anthropocene/>

The most significant focal areas of the GEO-5 report include water issues, climate change, urban air pollution, sea level rise and biodiversity. All these areas need to be examined to facilitate a better understanding of recent environmental challenges. Since the primary principle of the UN and international law is cooperation among states, there is a shared duty to care for the environment. Cooperation is also rooted in basic social structure in terms of identifying specific patterns of human cooperation and interaction. UNGA deliberations have produced sustainable development policies to guide cooperation with regard to the environment. In sum, main purposes of international environmental law and of the SDGs are to consider the best ideas about cities, air pollution or water sea level rise and to promote the exchange such information in a relevant way so others could utilize it as well.

In this dynamic context of environmental change, another emerging issue is capacity building through providing adequate education and training opportunities. For capacity building, each country needs to be aware of the key data surrounding major environmental issues. Cooperation about capacity building should refer to identify the best practices in the field and consider different stages of implementation. Undoubtedly, this should be done in an optimal way to reflect the attainment of positive outcomes. Likewise, it is essential to consider the implications of international environmental law in terms of maintaining vigorous cooperation. Using relevant examples of water, climate, air pollution and sea level rise are essential in devising appropriate strategies. A significant part can be accomplished through creating cooperation and SDGs as analogies to the Holy *Qur'an* and Islam in order to facilitate a proper understanding of key value systems. The chief goal is cooperation between individuals and organizations. The Arab world

provides good opportunities for cooperation because of its strong and widely shared religious traditions.

A methodical, comprehensive, results-based global approach for attaining sustainable development could involve six responsive or reactive options: (1) structuring the environmental goals in the framework of sustainable development; (2) improving the effectiveness of global environmental institutions including education and capacity building; (3) financing increasing capacities for addressing environmental transformation; (4) supporting technological modernization and development; (5) supporting rights-based approaches and access to the environmental justice system; and (6) expanding and broadening stakeholder engagement.

These strategies can be developed through the global analysis recognized in GEO-5.²⁵⁴ Modifying environmental goals and strategies within a universal understanding of environmental trends lies at the source of an integrated approach, which could be influential in enhancing the effectiveness and efficiency of global response at an international, national, and local level. It is important to assess the current position of global responses and highlight gaps and obstacles that have delayed the collective and combined ability to control environmental change. Proposals and recommendations were made for results-based responses involved in dissimilar centers of governance for tackling the global environmental challenges and advancing human well-being.

²⁵⁴ United Nations Environment Programme (UNEP), "Global Environment Outlook" Available at <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=387&menu=35>. Also see [http://www.pnuma.org/geo5/Policy%20Briefs/Brief_governance\(webpags\).pdf](http://www.pnuma.org/geo5/Policy%20Briefs/Brief_governance(webpags).pdf)

4. Global Responses to Environmental Problems

Over the past forty years, an extensive range of global responses to environmental problems has been implemented through a set of cooperative systems with various countries on different scales.²⁵⁵ Sustainable development responses at national and global levels include: the establishment of rules, laws and institutions with international organizations established to serve as conveners at the global level; as negotiators for exchange, sharing experiences, expressing interests and cumulative preferences; and as sources of expertise and as enablers of a broader community dialogue.

a. The evolution of the GEO-5 Report and part 1

This Global Environment Outlook reports analyze the status and trends of the environment. The first Global Environment Outlook (GEO-1) was issued and released in 1997. The second edition of GEO was released in 2000, while the GEO editions 3, 4 and 5 were released in 2002, 2007, and 2012 respectively.²⁵⁶ The GEO-5 assessment report focuses solely on three distinctive, yet related parts.²⁵⁷ Part 1 is an environmental assessment of the current position and trends of the global environment in relation to key globally agreed upon goals such as the Millennium Development Goals decided in 2000. Included in the environmental assessment were the goals of numerous bilateral environmental agreements based on national, regional, global studies and datasets. It

²⁵⁵ Measuring Progress - Environmental Goals and Gaps.” Environmental Development” 6 (2013): 100-07 Available at https://na.unep.net/geas/archive/pdfs/GEAS_Dec2012_MeasuringProgress.pdf

²⁵⁶ Id.

²⁵⁷ UNEP GEO-5 Report Considerations, “ World Remains on Unsustainable Track Despite Hundreds of Internationally Agreed Goals and Objectives.” Available at http://www.3csc.it/index.php?option=com_content&view=article&id=645:unep-geo-5-report-world-remains-on-unsustainable-track-despite-hundreds-of-internationally-agreed-goals-and-objectives&catid=145:pubblicazioni&Itemid=158

provides an evaluation of the gaps or barriers to achieving globally fixed goals and their implications.

b. Priorities of Part 2 of the GEO-5 Report

Part 2 of the GEO-5 assessment prioritizes a changing number of environmental matters per region and globally selected based on agreed-upon goals under each subject through a review process. The regional environmental review focuses on recognizing policy responses that would assist in speeding up the success of joint internationally accepted goals. It has been observed and experienced that there are many environmental policies that have worked in more than one country. Nevertheless, these policies need to be more widely and broadly supported, adopted and executed according to national conditions to boost the achievement of global goals. The analysis is accessible using case studies that demonstrate the application of policies at a national or regional boundary level within each region. This indicates the benefits and barriers of implementing environmental policies and the facilitating factors and barriers that improve or obstruct their acceptance.²⁵⁸ Responses in different countries have been found to be effective and some extremely promising approaches are also explained in the regional sections on GEO-5. Together, these structures are considered a possible policy agenda that would support and maintain a comprehensive green economy approach and is worthy of closer analysis by governments when investigating policy options.

²⁵⁸ Kagel, Alyssa, Diana Bates, and Karl Gawell. *A guide to geothermal energy and the environment*. Washington, DC: Geothermal Energy Association, 2005. Available online at : <http://geo-energy.org/reports/environmental%20guide.pdf>

c. Part 3 of GEO-5 Report

Part 3 of GEO-5 identifies and recognizes the possible options for action to move towards sustainable development including rapidly the improved coordination, contributions and cooperation by various nations required to maintain the achievement of globally agreed upon goals of sustainable development at the international level.²⁵⁹ The development of GEO-5 also involved broad collaboration and cooperation between UNEP and a multi-disciplinary network of environmental experts.

GEO-5 reinforces and refocuses the significance of setting measurable goals and objectives to effectively observe the development, progress and advance of the sustainability plan. Goal setting at the international level includes not only public institutions such as the United Nations, but also civil society groups, private sector institutions, and others. Global environmental goals need to be integrated with regional, national and local goals, as well as with national action plans. The Millennium Development Goals (MDGs), which preceded the SDGs, have been thought to play a significant role in GEO-5 representing a results based approach to advancing human well-being by setting and observing global development results.²⁶⁰ Furthermore, it is important to learn lessons from the MDGs to execute a framework with global objectives for sustainable development, including the environment, and give a clear system for assessing and tracking GEO-5 progress. The MDGs also addresses environmental sustainability objectives as MDG Goal 7, for example, establishing challenges to execute in most countries, not least because of a lack of substantial indicators. The MDG 7

²⁵⁹ Sustainability | Green Living | Eco-Friendly, “Biodiversity Global Environmental Outlook.” Available at <http://greenconduct.com/news/2012/07/05/biodiversity-global-environmental-outlook-geo-5/>

²⁶⁰ *Id.*

demonstrates the target of incorporating the principles of sustainable development into government policies and programs, tipping over the loss of environmental resources. This is the only non-quantitative goal in the MDG framework.

As a result, according to the OECD 2010, MDG Goal 7 was frequently pushed sideways in the agenda of mutual donors and global financing institutions. A more reasonable and logical set of objectives for sustainable development could economically help tackle the risks that environmental transformation may create.²⁶¹ This can be verified by the investigation of circumstances from the Human Development Report 2011, which confirms that countries with a very high Human Development Index ranking are expected to be less influenced by environmental-related problems than others.

5. Current Environmental Situation in Gulf States

Arab countries established the Arab Forum for Environment and Development (AFED) in June 2006, as a regional non-governmental institution. The forum has received financial and capacity building support from *Environment and Development* magazine, based in Beirut.²⁶² The environment and development conference thoroughly discussed the survey results on regional environmental development to the Arab public, to determine the level or scope of environmental awareness and categorize issues that concern people.²⁶³ The survey outcomes highlighted the public perception and understanding of the objectives of the Arab Environment Forum. The Forum's main responsibilities are to encourage Arab communities to protect and care for the

²⁶¹ *Id.*

²⁶² For more information see Arab Forum for Environment and Development (AFED), "The Future of Arab Environment", (2006). Available at <http://www.afedonline.org/afedreport/full%20english%20report.pdf>

²⁶³ Elasha, Balgis Osman. "Mapping of climate change threats and human development impacts in the Arab region." *UNDP Arab Development Report—Research Paper Series, UNDP Regional Bureau for the Arab States* (2010). Available at <http://www.unep.org/newscentre/default.aspx?DocumentID=2756&ArticleID=10678>

environment and utilize natural resources sensibly, leading eventually to accomplishing sustainable developmental goals. The Arab Environment and Development Forum initiated a wide collection of activities, noticeably issuing the independent report about the status of the Arab environment.²⁶⁴ It is understood that every conclusion focused on the current Arab environmental situation and public opinion.

The current existing comprehensive report is the first in a series of annual reports that focused on detailed topics which are considered to have significance for the Arab region.²⁶⁵ Besides emphasizing local and regional environmental issues and challenges, the annual report also concentrated on developing a foundation for assessing whether the Arab environment in some way allows for the identification and detection of the nature of the future changes. The analysis of the scientific data and reliable information is included in the report to determine findings and recommendations. It helped the general public and decision makers to understand the current Arab environmental trends.

The report also centered on the Arab environment and future challenges. It highlights five main questions regarding the respective environments. The first question is associated with an inquiry about changing environmental conditions in the Arab world. The second question focuses on the causes of environmental degradation and its association the human activities and other forces.²⁶⁶ The third question examines why the environment is an important issue for the Arab world, while the fourth question focuses on strategies to address this issue and how the Arab community responded to the

²⁶⁴ Tolba, Mostafa Kamal, and Najib Saab, eds. "Arab environment: future challenges." Arab Forum for Environment and Development, 2008. Available at <http://www.amin.org/Print.php?t=opinion&id=4162>

²⁶⁵ *Id.*

²⁶⁶ Symposium on Environment Problems of Arab Countries, Available at http://omansea.org/index.php?option=com_content&view=article&id=89%3Asymposium-on-environment-problems-of-arab-countries&Itemid=84

environmental challenge through government plans. The last question demands if enough actions were taken by the government to prevent the waste of capital and to avoid environmental destruction of the natural atmosphere.

Since the beginning of the 21st century, it is obvious that the most important challenge that the world is experiencing today is the degradation of the environment wrought by mankind. This is why the 21st century is called the Anthropocene Epoch. The environmental crisis has appeared in scientific warnings and public misgivings. In addition, media awareness has pushed the world to establish specific political programs.²⁶⁷ The Arab world is not isolated from other countries in relation to this matter. The Arab Environment and Development forum report underlined the broadest and most comprehensive environmental issues faced by the Middle East. The report also consulted with decision makers in the field: those in public, scientific, and academic institutions and in the media to obtain insights about how to reduce the risks caused by environmental degradation. The Arab world has observed and experienced tremendous environmental changes in the last century.²⁶⁸ The population across the Arab world has increased from about 50 million people a century ago to more than 325 million today. This upsurge in population has deteriorated the environment and reduced natural resources, thereby rendering the developmental model non-sustainable to a large extent.

In most cases, environmental policies in the overwhelming majority of groups try to develop short-term provisional measures and intend to tackle environmental challenges in real time without connecting with long-term development and planning processes.

²⁶⁷ Selim, Mohammad El-Sayed. "Environmental security in the Arab world." *Facing Global Environmental Change*. Springer Berlin Heidelberg, 2009. 843-853. Available online at https://link.springer.com/chapter/10.1007/978-3-540-68488-6_64#page-1

²⁶⁸ *Id.*

Some have observed that growing parts of the Arab region are unprecedented or exceptional. Thus, most decision makers have discussed certain initiatives to bring financial, economic and social success to millions of Arabs.²⁶⁹ This is due mainly to the high income and earnings from oil and gas. Policy makers have argued that by continuing the developmental model in many Arab countries will negatively affect their lives.

At the same time, increased awareness and understanding of environmental challenges, as well as other signs indicate that political and social action will enable countries to pursue more sustainable development. The Arab Environment and Development forum report is considered the first report of its type, arranged and prepared by independent environmental experts from different Arab countries.²⁷⁰ It is understood that most of the information obtained from the GEO helps experts to recognize current global environmental trends. The report provides a comprehensive analysis of the condition of the ecosystem in the Arab world, highlighting the environmental problems and patterns of social, community, political, geographical, and developmental aspects in regional cooperation with other global environmental institutions, and it offers some recommendations for future remedial actions.

The financial costs of environmental degradation in the Arab region are frequently invisible or ignored, but they are genuine, substantial and rising. In addition, the natural resources of the Arab region are used in an unsustainable manner that weakens economic development and poverty improvement efforts. The World Bank assessed that the annual expenditure of environmental degradation ranges between 4% and 9% of GDP in some Arab countries, with an average yearly increase of 5%. By

²⁶⁹ El-Naggar, Mr Saïd, ed. *Economic development of the Arab countries: selected issues*. International Monetary Fund, 1993. p. 29.

²⁷⁰ *Id.*

comparison, the annual expenditure rate in Eastern Europe is 5% with between 2% and 3% in some countries according to the Organization for Economic Cooperation and Development (OECD).²⁷¹ At the same time, governments in the Arab region are considered relative ineffective at dealing with the rising costs of inadequate environmental policies. The financial fund which was allocated in the environmental budgets does not even approach one percent of GDP in any Arab country. Moreover, current environmental institutions do not provide any genuine support or strong incentives to introduce new legislative tasks; these failures constrain the capacity of their governments to effectively to respond to the environmental crises the region faces.

It is clear from the Arab environmental report that these issues need to be accorded political and economic priority, like other major macroeconomic issues.²⁷² It is especially important that Arab countries include the issue of environmental sustainability in all features of development and other macroeconomic policies. These policies can be implemented by strengthening the capability to take practical and sensible measures, which can be completed and achieved through a two-pronged approach: first, development and improvement in environment sustainability is required, and second, comprehensive legislation should be effectively developed.

The second approach is to guarantee that environmental institutions approve and support the political resources and authority to achieve the necessary improvements. Along with reinforcing the state institutions and legislation, the governments of the Arab region should also uphold and promote the efforts of scientific research and development

²⁷¹ *Id.*

²⁷² The website provides adequate information on the impact of NGOs in tackling environmental issues: <http://www.mei.edu/content/role-ngos-tackling-environmental-issues>

in the environment.²⁷³ Furthermore, the private sector must also take additional initiatives to incorporate conservation into planning methods, moving from inventory problems to the theory of social and ecological responsibility. The GEO and Arab environment report underscored that these measures cannot work and cannot be useful without extensive political support. Therefore, it is important for Arab countries to develop political determination to resolve the environmental crisis and to raise awareness.

Through the provision of the information previously discussed, it is worth noting that there is still much to be done in order to fully understand the environmental situation in the Arab world. Consequently, efforts to develop plans aimed at solving these problems should be reached sooner rather than later. Such plans and related schools of thoughts will be explored later in this thesis.

6. Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) has long since emerged as the most authoritative international body responsible for assessing the dimensions of climate change. It was established by the UN in 1988 to provide adequate guidelines with regard to climate change.²⁷⁴ The IPCC has adopted relevant activities and initiatives on climate change internationally. One such activity refers to outlining comprehensive assessment reports that indicate scientific as well as socio-economic aspects of climate change, along with its root causes, consequences and solutions. Another function of IPCC

²⁷³ Symposium on Environment Problems of Arab Countries: http://omansea.org/index.php?option=com_content&view=article&id=89%3Asymposium-on-environment-problems-of-arab-countries&Itemid=84

²⁷⁴ Carbon Trust summary of the United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report with regards to the latest scientific evidence on climate change. Available at <http://www.ipcc.ch/activities/activities.shtml>

is to produce special reports containing information on methodology pertaining to the impact of greenhouse gas emissions.²⁷⁵

The reports produced by the IPCC reflect the main assumptions that support major principles on climate change identified by the UN.²⁷⁶ The IPCC assessment reports also provide details on risks pertaining to human-induced alterations in the climate system, including strategies for mitigation. The framework outlined by the IPCC allows climate experts to evaluate essential climate science findings and report them to global political leaders. Some of the most comprehensive assessments done by the IPCC were completed in the 1990s, and in 2001 and 2007. The most recent report is from 2013, the Fifth Assessment Report.²⁷⁷

7. IPCC Fifth Assessment Report (AR5)

As scientific data accumulates, our understanding of the situation grows more reliable and sophisticated. The 5th Assessment Report of the IPCC is a review of published, peer-reviewed studies. This composite assessment is not entirely new, because the data used in the report had already been peer-reviewed and published by scholars. The data contained in the fifth AR covers published scientific studies of three to five years. This means that the information contained IPCC 5 was already in accumulated five years ago, and therefore, the reality is worse than described. The IPCC report is thus very cautious to only report that which scientists have agreed upon.

²⁷⁵ Id.

²⁷⁶ A relevant objective identified by the UNFCCC is to achieve an adequate level of stabilization of greenhouse gas emissions; the basic idea is to prevent inappropriate anthropogenic interference with the climate system.

²⁷⁷ Moss, Richard H., et al. "The next generation of scenarios for climate change research and assessment." *Nature* 463.7282 (2010): 747-756.

The evaluation about the Arab countries conditions in 1993, can be updated by reading the IPCC, but will not be current. In any case, the prevailing conditions are not improving fast enough. The lack of supplemental information relating to the Arab world limits an understanding of how bad environmental conditions actually are. Governments and the public have no idea what is happening.

The Fifth Assessment Report (AR5) provides extensive information on a wide range of factors pertaining to climate change. There were three planned installments of the report released between 2013 and 2014. The final synthesis report was scheduled for October 2014.²⁷⁸ In general, the IPCC represents scientists in a substantial group of governments (180) throughout the world and operates under the guidance of the UN Environment Programme and WMO. The assessments are done by experts in the field and thus the information provided to the public is credible and reliable.²⁷⁹

Furthermore, IPCC 5th emphasizes the importance of providing new scientific evidence on a regular basis. There is strong emphasis on conducting independent scientific analyses not only by observing the current details of the climate system but also historical climate changes, with archived documents pertaining to the issue of climate change and proper studies. Experts in the field assume that the prevailing cause of climate change is human activity. In comparison to the previous report, such information reflects a higher percentage of certainty. Nonetheless, natural variables such as solar irradiance have not overlooked to scrutinize any substantial influence on the warming

²⁷⁸ The following website provides substantial details on the dimensions of climate change-Center for Climate Change and Energy Solutions: <http://www.c2es.org/science-impacts/ipcc-summaries>

²⁷⁹ Solid evidence on climate change can be found in the website of the University Corporation for Atmosphere Research, NCAR Scientists Available to Discuss New IPCC Report on Physical Science of Climate Change. Available at <http://www.ucar.edu/news/releases/2007/ipcctips.shtml>

trend.²⁸⁰

An essential point introduced in this report is that global warming, dating back to 1850, has been identified as unprecedented. The report shows that the period from 1983 to 2012 was the warmest it had been in the past 1,400 years. Another significant trend clarified in the report is that global combined land and ocean surface temperatures have increased by 0.85°C since 1850.²⁸¹ Therefore, specific climate models may reproduce the previously mentioned patterns on a large scale due to the influence of the human factor. There are significant differences within a 10-15 year period.²⁸²

The AR5 report provides policymakers with constantly updated information on the current state of climate science. In this way, it may be concluded that the respective report ensures the most comprehensive details on climate change research. Thus, individuals, researchers, and practitioners in the field may better understand climate change implications and take appropriate action. One of the most important assessments outlined in the report concludes that the extensive warming observed in the past several decades is a result of human activity. In addition, the report states that sea level rise reflects a rapidly increasing trend because of constantly moving ice sheets. A common expectation is that the Arctic Ocean will eventually be free of ice. The following assessments hold serious implications for all areas of the Earth, including the Arab world.

a. Global Changes

The main conclusion outlined in the AR4 refers to the unequivocal basis of the

²⁸⁰ Carbon Trust summary of the United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report on providing the latest scientific evidence with regards to climate change.

²⁸¹ *Id.*

²⁸² *Id.* Likewise, note that 2016 was the third year in a row of record-breaking heat. "Earth Sets Hottest Year Record for Third-Straight Time" *N.Y. Times* (January 18, 2017).

<http://www.nytimes.com/aponline/2017/01/18/science/ap-us-sci-hottest-year.html>.

warming occurring within the climate system. However, the AR5 goes much farther in providing adequate conclusions. One such conclusion was that the majority of the observed changes were a result of global warming as well as persistent rise in sea levels. Such changes were identified as unprecedented.²⁸³ As outlined in AR5, the Arctic Ocean's rapid rate of warming represents significant challenges for world governments as they deal with the negative consequences of the climate change phenomenon.

b. Sea Level Rise

Furthermore, the AR5 report has substantially expanded the notion of sea level rise over the next century as a result of new research in the field. Climate change experts have indicated strong arguments about the formation of ice sheets, along with processes of movement and melting. Thus, such new projections indicate a rise in sea level of 10 to 22 inches by the year 2100 based on a low emissions scenario.²⁸⁴ In a high emissions scenario, the projected increase of sea level rise is 20-39 inches. It is important to point out that the AR4 report did not discuss the impact of ice sheet movements as a result of global warming. For that reason, the report published very low estimates compared to the AR5 report.

c. Sea and Land Ice

According to a statement made in the AR5 report, there is an approximately 66% chance that the respective oceans would contain no ice during the summer before 2050. This projection refers to a high emissions scenario that obviously indicates a substantial shift from the fourth report which strongly indicated that the Arctic Ocean would not be

²⁸³ *Id.*

²⁸⁴ Pilkey, Orrin H., and Rob Young. *The rising sea*. Island Press, 81 (2010).

ice-free in the 21st century.²⁸⁵ Another finding introduced by the AR5 report is that the ice surface of the Arctic sea has been reduced by approximately 3.5%-4.1% per decade. This amount is higher than the estimate provided in the AR4 report that designated 2.1%-3.3% per decade.

d. Cumulative Carbon Budgets

A significant advantage of the AR5 report is the comprehensive information it provides regarding variations in carbon ‘budgets.’ The latter refers to a specific amount of carbon emissions in a particular period. An internationally set standard by governments would limit the average warming to at least 2⁰ C. For that reason, the identified budget is based on greenhouse gas emissions and amounts to 840 Gt of carbon. Nonetheless, more than half of the proposed amount of carbon budget has been already emitted. The current emission rates are represented by the approximate value of 10 GtC per year. Therefore, the report concludes that at these rates, the entire carbon budget will be spent in only 30 years.

e. Future Scenarios with Regard to Greenhouse Gas Emissions

The fact that the AR5 report provides information on different alternative scenarios regarding greenhouse gas emissions shows the concerns of the international community of climate change specialists. The report outlined three main scenarios for the future, each scenario relating to different carbon budgets. These three scenarios indicate certain pathways with an insignificant amount of warming as a result of the application of mitigation policy. There is also a fourth scenario described in the report which actually appears more as a business case concerning global warming.

²⁸⁵ *Id.*

A common aspect indicated in all future scenarios is the one of global surface temperature increases will exceed 1.5⁰ C. In fact, it seems that the temperature will keep rising beyond the year 2100 in all the various scenarios except for the lowest greenhouse gas emissions scenario. The projected estimates of higher rates of emissions pose important questions to the international community. The scenarios identified with fairly high emission rates state that global warming is more likely to exceed 2⁰ C by 2100.²⁸⁶

However, critics of the IPCC claim that it produces inadequately objective reports because they indicate only one side of the main climate change problem.²⁸⁷ At the same time, in accordance with basic IPCC principles, skilled authors and researchers in the field are expected to record their views in the text in order to represent its scientific or technical validity. In other words, reaching a consensus on certain issues surrounding the debate on climate change may be problematic.²⁸⁸

f. Implications for the Arab world

Among the global environmental and ecological issues, climate change receives the most attention in almost all sectors - political, scientific, technological, media and civil society. Though the Arab region does not contribute or add more than 5% of greenhouse gas emissions that constitute the leading cause of climate change, the situation in the region seems considerably inflexible and challenging. There is solid evidence that the Arab region is extremely vulnerable and weak. The region's special vulnerability arises from the insufficiency of water resources, high levels of drought, and the long extension of the coastlines, which are threatened by rising sea levels. The

²⁸⁶ *Id.*

²⁸⁷ Masood, Ehsan. "Head of climate group rejects claims of political influence, Nature" (1996).381:455 .

²⁸⁸ Substantial scientific evidence provided by the Union of Concerned Scientists. See <http://www.ipcc.ch/>.

physical and natural environment of the Arab world is already experiencing great pressures that will increase with higher temperatures and lower quantities of rainfall. According to recent studies conducted by the IPCC, scientists have studied climate models and discovered that the earth, specifically the Arab region, will experience an increase in average surface temperature. These temperatures will be between 2 degrees Celsius and 5.5 degrees, with an average 3 degrees Celsius by the end of the current century.

Along with the rapid temperature increase, rainfall is expected to decline by an average of 20%. In the Arab region, there will be shorter winters and higher temperatures in summer, more heat waves with increased climate unpredictability, and other severe climatic events will become more frequent. It is clear that Arab countries must complete and perform research on adjustment and improvement strategies, including discussion and implementation.²⁸⁹

Furthermore, sea level rise as an outcome of rising temperatures, is expected to cause the failure of significant sections of agricultural land in the Arab region. For example, a sea level increase of one meter could potentially result in the loss of 12% to 15% of agricultural property in the historically fertile Nile Delta region, and could decrease the amount of agricultural land in Qatar by 2.6%. These marginal changes could have devastating consequences in a region with relatively little arable land and fast-growing demand for food.

In addition to agriculture, the industrial sector, technology, tourism, urban areas and the GDP in a number of Arab countries are all at risk of being negatively affected by sea-level rise. The report shows that there is an alarming deficiency in scientific and

²⁸⁹ *Id.*

technological capabilities, as well as a lack of political determination to handle the problems influenced by climate change in the Arab region.²⁹⁰ There are no adequate and sufficient scientific facilities for study because of the lack of sufficient funds for conducting research. The research still has gaps that must be linked. The approaches to ease the impact of major climate alterations must be incorporated in development strategies with the help of the IPCC, and tied rapidly to the issues of development and scientific capability, the contribution of stakeholders, and public awareness.

With the constant and progressive deterioration of air quality in Arab cities raising the costs of health and environmental issues, the consequences are considered substantial. Furthermore, health problems related to air pollution from the transport sector have cost Arab countries more than five billion dollars per year. Many countries in the Arab region rely, to a large extent, on personal ground transportation, a fact confirmed by the high rates of car ownership. For example, the number of cars per 1,000 citizens is 434 in Lebanon, while there are 378 cars per citizen in Qatar and 357 in Kuwait, respectively.²⁹¹ Saudi Arabia has 336 cars per 1,000 citizens and Bahrain, 322. The transport sector is mainly responsible for approximately 90% of the total emissions of carbon dioxide in Arab countries, a fact which should prompt a critical planning process to promote further action to minimize growth. The transport sector must make car engines more efficient, promote the use of hybrid cars and clean fuels, and improve public transport. Reducing the use of cars is necessary and demands support for public transportation systems.

²⁹⁰ Intergovernmental Panel on Climate Change. *Climate Change 2014: Mitigation of Climate Change*. Vol. 3. Cambridge University Press, 2015.

https://www.ipcc.ch/report/ar5/wg1/docs/WGIAR5_SPM_brochure_en.pdf

²⁹¹ See *Impact of Climate Change on Arab Countries*. Available at file:///C:/Users/m/Downloads/6784.pdf

There is indeed a major crisis in the Arab region.²⁹² Only a few countries examine and check air pollution levels in ways that are considered to be sufficient, systematic and reliable, which makes it difficult to conduct technical research and make political decisions based on real data. Research shows that the monitoring system of Egypt's emission levels in urban areas and industrial parks occasionally shows coastal pollution levels (between) six and eight times higher than the restrictions provided in the Egyptian environmental laws.²⁹³ Similar coastal pollution results have been reported in Lebanon and Syria. But overall the region lacks the kind of good data necessary to inform good decision making.

8. The Anthropocene Epoch and the Sustainable Development Goals

Space age technology has enabled mankind to expand the scope of science, to see the planet as one ecosystem. When the U.N. Stockholm conference was held in 1972, very few satellites were in existence. As a result, our global system of looking into the earth was very limited compared with today. Even so, Stockholm served as an eye opener, causing many to view the world as one entity for the first time. Thereafter, UNEP was established to assist us in focusing on the gaps in knowledge that reflected the fact that most studies were previously regional in scope, not global. Since its creation UNEP has been issuing the GEO reports, and national academies of sciences and other scientific institutes have focused on the earth. More scientific innovation is being undertaken to comprehend Earth. In quite a number of ways, these innovative studies are confirming that Earth is in the Anthropocene.

²⁹² Riccardo Alcaro, Miguel Haubrich-Seco “*Re-thinking Western Policies in Light of the Arab Uprising*” 2012 p34

²⁹³ *Id.*

The history of how the Anthropocene has come to be recognized shows the importance of three distinct stages that are all new, adequately mentioned by Paul Crutzen and Eugene Stoermer.²⁹⁴ The first identification of the Anthropocene was made by the ecologist Will Steffen who believed it had begun the industrial era. Thereafter, the scientists Crutzen and \ Steffen's initiative of introducing the so-called international debate on stratigraphy. Stratigraphy refers to classifying geological time periods of the Earth's development. Their third stage, the Athropocene suggests important implications for the earth's system in the sense that humankind will most probably remain a substantial geological force irreversibly reshaping our planet for many generations.²⁹⁵

During the Holocene, the post-glacial geological era of the past 10-20 thousand years, mankind's actions steadily developed into a large geological and morphological force. More recently, human activities and actions have cumulatively impacted the earth and its atmosphere with greater effect since around the final part of the eighteenth century. Using the term Anthropocene for the existing geological period was proposed in order to highlight the central role of mankind in geology, ecology, and environmental science. Humans have been considered the significant geophysical force.²⁹⁶ Humans have considerably and extensively altered numerous biogeochemical factors (carbon, nitrogen, phosphorus, sulfur and other chemical elements) and cycles that are fundamental to life on Earth. In addition, human beings have strongly altered the water cycle by interrupting

²⁹⁴ Crutzen, P. J. & Stoermer, E. F. The Anthropocene. *IGBP Global Change Newsl.* 41, 17–18(2000).

²⁹⁵ Rockström, Johan, et al. "Planetary boundaries: exploring the safe operating space for humanity." *Ecology and society* 14.2 (2009).

²⁹⁶ Ellis, Erle C., et al. "Dating the Anthropocene: Towards an empirical global history of human transformation of the terrestrial biosphere." *Elementa* 1 (2013). Also see <http://www.elementascience.org/article/fetchArticleInfo.action?articleURI=info%3Adoi%2F10.12952%2Fjournal.elementa.000018>

the river flow from uplands to the sea and through land-cover adjustment, by shifting the water vapor flow from the land to the atmosphere.

During the Holocene, complex and difficult human societies could expand due to a comparatively stable and cooperative environment. The rising Anthropocene world is considered warmer, with less ice cover, rising sea level, shifting precipitation patterns, powerfully modified and insolvent biosphere, and human dominated landscapes.

According to the research, the requirement to achieve effective environmental stewardship is considered quite urgent in order to resume and recover a steady relationship between humans and the environment.²⁹⁷

Research indicates that in the years since the start of the Industrial Revolution, which may be considered the start of the Anthropocene, the distribution and allocation of fresh water on the earth's features has transformed them as a result of direct human efforts to control and manage water. This process also reflects alterations in urban and rural land use which influenced the flow and storage of water.²⁹⁸ Moreover, humans have altered the hydrological reaction of many catchments of the earth through one or more of the following means: direct distraction of water flow including inter-basin movement for water supplies to cities, industries and agriculture; conversion of the stream network, for example through the creation of dams and reservoirs or the canals of rivers; altering drainage basin features, for example through cutting trees, urbanization, drainage of wetlands and farming/agricultural practices; and actions altering the regional or universal climate, for instance by developing greenhouse gas emissions, land-cover changes, and the consumptive use of water. The worldwide nature of freshwater resources recommends

²⁹⁷ Crutzen, P. J. & Stoermer, E. F. The Anthropocene. *IGBP Global Change Newsl.* 41, 17–18(2000).

²⁹⁸ *Id.*

adequate international cooperation and a common perception of mutual dependencies in the water supply. International efforts to share information and achieve international agreement are strongly needed to move forward to promote sustainable water practices.

It is important to note that the UN adopted the SDGs in order to set obligations for attaining sustainable conditions and a means to determine the efficacy of certain environmental initiatives. In the Anthropocene, these environmental trends and SDGs have special relevance for the Gulf and the Red Sea. In the Gulf, two SDGs of importance are water SDG6 and the other is the about the oceans, SDG 14. A third essential SDG refers to terrestrial biodiversity SDG 15.²⁹⁹ It is apparent that because there is now an SDG for water, this would imply an acknowledgment of a serious responsibility of individuals and organizations to preserve the water resources in order to ensure a high level of sustainability. Moreover, people increasingly recognize access to water as a right. So while most law on water is adopted at the national or local level (a significant limitation in perceiving a universal right to water) any legitimate water goal must comply with demands for universal access.³⁰⁰

Different initiatives were undertaken by the World Water Forums, the Global Water Partnership, the Water Mandate and UN Water to promote shared, mutual agendas and action plans, such as the Sustainable Development Goals and the SDG on water. These SDGs are important for tackling the important, complex and highly interdependent water issues the world is currently facing. In many academic institutions, educational programs are still mainly oriented towards sole disciplines, while the requirement is to

²⁹⁹ Sustainable Development Knowledge Platform, “UN Secretary General releases post-2015 synthesis report”. Available at <https://sustainabledevelopment.un.org/focussdgs.html>

³⁰⁰ “IPCC – Activities”. Intergovernmental Panel On Climate Change, (2014). Available at <http://www.ipcc.ch/activities/activities.shtml>

recognize and understand the energetic and recursive relation between the physics and environmental science of water systems and community and economic developments.³⁰¹ This requires a cross disciplinary approach to understand the Anthropocene, which also includes hydrology and water engineering with an understanding of the community, economic, and policy sciences.

Scientists have established that some natural areas throughout the world are still intact. However, without developing spatial comparisons, it would be challenging to understand the changes that have occurred in ecosystems over time. In most regions, freshwater accessibility has been considered to fluctuate with the climate seasons and is limited during some months each year.³⁰² Given the fundamental nature of water for humans, all societies positioned in such climate zones developed methods to arrange, organize, and secure access to water for domestic and industrial uses. Those societies that continued over time created ways to utilize water in a sustainable manner, or at least allowed and authorized the water resource to restore itself in a way that did not demolish the natural cycle.

On some occasions, the institutional arrangements regarding water use are supposed to have been essential to societies such as those in Indonesia, Tanzania, the Netherlands and the Andes. Historically some societies that were incapable of utilizing the water in a sustainable manner collapsed.³⁰³ The more successful societies actually manipulated and influenced their environment within the bounds of sustainability, probably because those societies' capabilities to control and develop the environment

³⁰¹ Hannah, L. J. *Climate Change Biology*. Burlington, MA: Elsevier: 55. (2010).

³⁰² Savenije, H. H. G., A. Y. Hoekstra, and P. Van der Zaag. "Evolving water science in the Anthropocene." *Hydrology and earth system sciences* 18.1 (2014): 319-332.

³⁰³ *Id.*

remained inadequate. Some water management institutions have mechanisms that place limits on overexploitation. Worldwide there are growing populations in cities.³⁰⁴ Cities are required to be supplied with adequate water of satisfactory quality and sufficient food. Meeting the requirements for drinking water and food requires extensive organization, physical arrangements, and water resource development. These objectives might only be accomplished by developing new awareness and new technologies, which is why they are now provided for in SDGs.

During the 1990s, it was gradually recognized that the water system is part and parcel of the ecosystem and environmental science. The field of eco-hydrology emerged as a new field of science with the perception that the water resource system is the outcome of co-evolution of the landscape, hydrology, the ecosystem and society.³⁰⁵ Environmental institutions have thus seen a growth from hydrology to eco-hydrology and consequently to socio-hydrology. An enigma that researchers of water resources management found tough to resolve is how to deal with the environmental comfort in a water resource structure, and how to reinforce the effect on ecosystems.

Historically the financial and economic treatment of water was as a commodity, a profitable good. As ecological values of water became recognized, proposals were developed to assess ecosystem services in financial terms.³⁰⁶ The function of ensuring vitality of water ecosystems and a safety network for rural livelihoods needs to be sufficiently captured in monetized metrics. Water must be priced accurately. On top of that, environmental requirements were frequently interpreted into basic concepts such as

³⁰⁴ Karr, James R., and Daniel R. Dudley. "Ecological perspective on water quality goals." *Environmental management* 5.1 (1981): 55-68.

³⁰⁵ Thomas, Chris D. "Translocation of species, climate change, and the end of trying to recreate past ecological communities." *Trends in Ecology & Evolution* 26.5 (2011): 216-221.

³⁰⁶ *Id.*

environmental flows: the least amount of water that must be left unharmed so as to permit the survival of water/aquatic life.

In comparison to eco-hydrology, socio-hydrology emerges with more complex aspects of response because of the potential of individuals to adjust the environment in accordance with their vision. Unlike ecosystems, human beings are extremely mobile and can definitely change the environment through different means, such as initiating communication, technology, various organizations, engineering, and economic incentives.³⁰⁷

In addition, the water resource system is complex because of the presence of different scales and reactions, represented by a wide range of physical and social processes. The interdisciplinary nature of the landscape indicates extensive complexity within the system. In conclusion, human beings need to ensure the implementation of proper measures to assess and understand particular system processes. Governance systems should be employed in an attempt to manage the water resources system accordingly.³⁰⁸ In this way, adequate authority, management and adaptability are at the core of ensuring the application of high quality standards in practice.

a. The Gulf and Water

There is a two-pronged argument concerning the reduction of groundwater: the decrease is acceptable in the current environmental situation or the water consumption level per capita in the Arab Gulf countries is reasonable, although these countries have the most inadequate water resources in the world. The regrettable result of these policies

³⁰⁷ Ecology and habitat utilization of blue sheep (*Pseudois nayaur*) in Nepal. *Biological Conservation* 21: 55.

³⁰⁸ Caro, Tim, et al. "Conservation in the Anthropocene." *Conservation Biology* 2. (2012): 185-188.

is not considered to be sustainable, as these countries have lost the fundamental elements of water security. The Arab region is considered to be one of the most water-scarce regions in the world.³⁰⁹ The rate of water access per person per year in the Arab countries was 977 cubic meters in 2001, down to the lowest of the United Nations' classification of water poverty. The news is not encouraging because by the year 2023, this figure is expected to fall to 460 cubic meters. In fact, with the exceptions of Egypt, the Sudan, Iraq, Lebanon and Syria, it is also expected that all GCC countries will experience severe and harsh water pressure by the year 2025 that will significantly affect the world generally and global warming specifically. Furthermore, the ensuing result is expected to be more climate change and increased seriousness of the already diminishing water supplies.

Government policy issues are considered to be a major problem when it comes to water. More than 80% of the most accessible water supplies in the Arab region is utilized in irrigation. In addition, water use efficiency is comparatively low, typically ranging between 37% and 53%.³¹⁰ Therefore, governments need to correct the loss of water as well as inefficient and ineffective technologies. With declining supplies of water per capita, government policy should accept and adopt a strategy that will boost the efficiency of water use and improve the optimal distribution of this limited resource in the agricultural, industrial and household sectors. It will guarantee meeting humanitarian needs as well as improving and achieving sustainability.

³⁰⁹ See Waters of the Persian Gulf: Available at <http://www.livescience.com/30316-persian-gulf-waters.html>

³¹⁰ See Water Scarcity in Arab Countries: Available at http://www.ifad.org/operations/projects/regions/pn/factsheets/WWF_factsheet.pdf

Reports such as the GEO and IPCC have projected that there is an urgent requirement to introduce water policies in the Gulf region to provide reasonable water supply management to control supply and demand. In addition, they need to offer more financial resources to increase technologies to remove salt from water locally.³¹¹ The use of a significant amount of water in recreational projects in the unproductive desert area increases doubts about the possibility of low sustainability that can be considered a violation of water needs for the local community and for future generations.

It would benefit all if more financial resources were allocated to discover innovative methods such as sustainable water and desalination systems which would be appropriate to conditions in a desert environment. Research shows that environmental laws set by Arab policy makers have distinct disadvantages.³¹²

b. Arab Region and International Environmental Law

In many cases, the global environmental policy does not reflect the exact conditions nor the scientific nor economic situation in Arab countries. This problem makes it difficult, from an economic perspective, to comply with and meet these standards. There are also barriers related to environmental institutions and their employees. Institutions are responsible for environmental and legislative affairs which are frequently in the hands of management who are not specialists, as there is a shortage of qualified and experienced staff in the field of environmental laws and execution of environmental policies.³¹³ There is also a shortage of coordination between the environmental authorities, who are responsible for the execution of environmental laws.

³¹¹ *Id.*

³¹² Verner, Dorte. "Adaptation to a changing climate in the Arab countries." *Directions in Development, World Bank, Washington, DC* (2012).

³¹³ *Id.*

When considering the multilateral environmental agreements, the endorsement and implementation in the Arab region was not considered successful.³¹⁴ In approximately half of cases, Arab countries had not ratified international treaties by the time those treaties came into force.

Non-enforcement of the treaties is a contributing factor associated with the lack of participation of the Arab countries in the original drafting of international environmental treaties and the slow endorsement of the countries concerned. It is reassuring to know that the report recommends further research on the success and the speed of execution of multilateral environmental agreements, together with the accessibility of financial and technical resources.³¹⁵ The report identified the main obstacles that prevent the implementation of multilateral environmental agreements in the Arab region as the lack of adequate implementation and achievement of national and regional resources, improper infrastructure and poor proficiency to achieve the purposes of sustainability. These are obstacles that Arab states can and must overcome.

9. Conclusion

This chapter has focused on the importance of environmental issues and trends facing the world today, and highlighted some issues for Arab states. The extensive discussion of such environmental trends revealed a strong focus on water issues, climate change, urban air pollution, sea level rise and biodiversity. After thoroughly considering the implications in the GEO-5 report and IPCC AR5, it is evident that the environmental

³¹⁴ UNEP, Global Outlook on SCP Policies: taking action together, (2012). Available at https://sustainabledevelopment.un.org/content/documents/559Global%20Outlook%20on%20SCP%20Policies_full_final.pdf

³¹⁵ The Drinking Water and Sanitation Situation in the Arab States, (2006),WHO/UNICEF Report: Available at http://www.wssinfo.org/fileadmin/user_upload/resources/1251453395-WES_ArabStates_11132008.pdf

issues mentioned represent a significant concern in the global environmental context. Although water issues and only four other environmental issues were selected, there are many more environmental concerns to be discussed in an attempt to preserve or restore the environment. Human activity is the main contributing factor to the Anthropocene, but the earth has gradually transformed into a global dwelling place in which enhanced cooperation is of crucial importance. Discussing these issues is significant to derive certain conclusions about global climate change. Environmental degradation trends exist in a different manner across diverse places throughout the world, such as in the Gulf.

Considering the persistent environmental changes facing humanity today, it is important in the process to structure five significant questions. These questions are presented below and provide a better direction for future research in the field of global environmental issues:

1. What is the specific models can be used in an attempt to resolve major environmental issues?
2. How has a thorough exploration of different environmental trends enhanced our understanding of the environment and its related issues?
3. What are the implications of global climate change?
4. How has environmental degradation climate change variously impacted various places across the globe?
5. How have the Islamic states coped with global climate change?

As discussed throughout this thesis, the world is indeed one, but nations are clearly divided about these issues. Cities, towns and villages within nations are separated, and industry is alienated from education. Currently people are exacerbating climate change

and not doing enough to mitigate or prevent it. The tools and research are available to cope with the environmental crisis, so it is imperative that everyone take one step back and agree as to the correct model to use. Islamic religious values can be applied to guide how nations study these 5 questions.

This chapter has explored in detail the ecological problems that without doubt require reassessment of our laws, policies and programs. One thing is clear: the current sociological crises of the earth oblige us to scrutinize how to observe and apply our ultimate and vital principles. Precisely, it is of paramount importance to get back on the drawing board and come up with new laws and regulations that aim at reducing the ecological problems that we are currently facing. The following chapters will focus on these different aspects.

It is clear from this thesis that Islamic principles and the SDGs are consistent with each other. For example, Islamic principles emphasize God's creations such as water and plants, which are discussed in details through the Holy *Qur'an* and *Sunnah* in Chapter 3. The SDGs calls for nature conservation of water and nature through SD 6 and 15, which are discussed in Chapter 4 of this thesis.

The world has not seen these conditions before. Reports have been described showing these conditions as more extreme than any time in human history. "Humans are currently causing a level of extinction in the natural world that has not been seen since the Permian Extinction, which caused the extinction of the dinosaurs 250 million years ago. Throughout history, there have been five major extinctions. Yet scientists today agree that the world is currently undergoing a sixth massive era of extinction, an extinction caused by human beings. This will not only be a disaster for non-human life

but a crisis for human beings if we cannot get our act together given we rely on other life forms to live.” Currently people are living in a way that is ultimately unsustainable. Despite all of that, societies and governments are still not taking a strong enough action to deal with the outstanding environmental issues”.³¹⁶

This chapter shows the need to recognize that human society is on a path that damages and threatens the integrity of the biosphere. Scientific understandings of nature and nature’s degradation have not been enough to correct human behavior. Neither has the moral and ethical compass of religion. Consequently, scientific and religious leaders have advocated that science and religion should work together in a complementary fashion to address our environmental situation.

³¹⁶ “THE GLOBAL ENVIRONMENTAL CRISIS”, Available at <http://www.worldfuturefund.org/Projects/Indicators/ST/GlobalEnvironmentalCrisis.html>.

Chapter 6: The Islamic Doctrine of Environmental Protection found within Modern International Law

To meet the challenges of environmental degradation and climate change, a wide range of laws and institutions have been developed, at the international and national levels. It examines such key accords as those developed in Rio and Basel. This chapter discusses the applicability of specific hard and soft international laws to managing the environmental challenges discussed in previous chapters. It goes on to discuss the environmental laws and policies of the Kingdom of Saudi Arabia, many but not all of which adopt practices from the West by fashioning them to the truth of sharia and the realities of Saudi Arabia's culture and economy. For instance, Environmental Impact Assessments bring to light the implications of a proposed project, allowing planners to adjust or even cancel projects, depending on their projected impact. It also argues that the religious community plays essential roles in translating these rules into reality by educating people of their obligations and how to fulfill them. All this allows Saudi Arabians to serve as better stewards of God's creation through ever-better realization of the principles of sustainable development.

1. Introduction

Public environmental consciousness has risen as a result of the destructive impact pollution has had on flora and fauna over the past century. This "political awareness of environmental concerns," evolved "following the 1972 United Nations Stockholm Conference on the Human Environment."³¹⁷ Although this awareness is relatively new in the West, it is not new to the Eastern countries. It was only a bit over 125 years ago that

³¹⁷ Nicholas A. Robinson, *Comparative Environmental Law and Regulation*, Vol. 1, West (2012), p. x.

the US Congress passed the Land Revision Act of 1891 which gave the president the authority to “set aside and reserve ... “any part of the public lands wholly or partly covered with timber or undergrowth, whether of commercial value or not.” Nature conservation laws and the establishment of national parks began at this time. In 1916 the congress established legislation for national parks. In practice, the environmental movement in the United States, however, did not truly begin in earnest until the early 1970s.³¹⁸ Through a variety of events, the public, government, and educators came together in the realization that serious damage to the air, water, and land had been caused in past years and that unified action was needed.³¹⁹

Despite the current realization of the extensive damage and its century of protected area management in Europe and North America, environmental consciousness has been in place older regions for hundred, of years earlier. While the U.S. Congress passed the Endangered Species Act only in 1973, the Muslim judge, Izzad-Din Ibn Abdas-Salam, had formulated a bill of legal rights for animals back in the 13th Century.³²⁰ Moreover, in the 8th Century, Al-Kindi, known as “the Philosopher of the Arabs,” wrote about the damage caused by pollution of air, water and soil, and the need to conserve these vital resources.³²¹

As noted by Richard Foltz, professor of religion at Montreal’s Concordia University,

“Islam is a religion that was born in the desert, and as such the first Muslims seem to have had a keen sense of the fragile balance that existed

³¹⁸ DiStefano, Melinda. *The Organic Citizen: Reimagining Democratic Participation and Indigeneity in US Late 19th and 20th Century Eco-narratives*. ProQuest, 2008.

³¹⁹ See <https://www.nrep.org/history.php>

³²⁰ Muslim Declaration on Nature Assisi Faith Declarations, (1986) - See more at: <https://www.parliamentofreligions.org/content/muslim-declaration-nature-assisi-1986#sthash.Dx5wsWc5.dpuf>

³²¹ Abu Yūsuf Ya’qūb ibn Ishāq as-Sabbāh al-Kindī (c. 801-873).

in the harsh ecosystem that made their lives possible. This awareness is abundantly reflected in the Holy *Qur'an*, which contains many references to water and other vital natural resources and lays down clear guidelines for their conservation and equitable distribution”.³²²

For more than a millennium, Muslims have protected the natural world via two kinds of “inviolable zones,” *haram* areas, within which development is prohibited to protect fragile natural resources, and *hima* areas for conservation of fields, wildlife and forests. Saudi Arabia’s 618 square mile Asir National Park, home to more than three hundred species of birds, is one of them. From the Seventh Century until today, it has been forbidden to harm any plant or animal in and around the holy cities of Mecca and Medina.

What has brought on this attitude towards environmental preservation is Islam’s insistence on divine ownership of the earth and its core belief that the whole world belongs to God (the Glorified and Exalted) .³²³ “To Him belongs every being that is in the heavens and on earth...”³²⁴ God knows all that is on the Earth and in the sea: “Not a leaf falls but with His knowledge: there is not a grain in the earth’s shadows, not a thing, freshly green or withered”³²⁵ unknown to Him. Creation in all its diversity and complexity symbolizes God’s majesty, power, and wisdom, and praises God by its very being.³²⁶

Divine ownership means that, while humans are free to make use of the Earth, they are prohibited from destroying its resources. “O children of Adam! ... eat and drink: but waste not by excess for Allah does not love the wasters.”³²⁷ Humans are regarded as

³²² Foltz, Richard C. “The Globalization of Muslim Environmentalism.” *Available online at the Zeri Islam website: <http://www.zeriislam.com/artikulli.php>* (2009). Available at <http://www.zeriislam.com/artikulli.php?id=942>

³²³ Qur’an: Surat al-Baqara(2), ayah 107, and Surat al-Mā'idah (5), ayah120.

³²⁴ Qur’an: Surat ar-Rum (30), ayah 26.

³²⁵ Qur’an: Surat al -an'am (6), ayah 59.

³²⁶ Qur’an: Surat al-Hashr (59), ayah 24.

³²⁷ Qur’an: Surat al-A'raf (7), ayah 31.

transitory guardians (*khalifa*) obliged to protect nature as God's trust (*amanah*). This trust includes other species that, like humans, are treated as *umma*, peoples or communities – “No creature is there crawling on the earth, no bird flying with its wings, but they are nations like unto yourselves,” because God created the Earth for humans and animals alike: “And Earth - He set it down for all beings, therein fruits and palm trees with sheaths, and grain in the blade, and fragrant herbs”³²⁸ because animals share with mankind a common origin in water, the substance of life.³²⁹ ³³⁰ God “sent down rain from the sky and made every kind of species grow on the Earth,”³³¹ and “sends down rain from the sky, so that in the morning the Earth becomes green”.³³²

Islamic law (*shari'ah*)³³³ includes a category of jurisprudence called *fiqh al-bi'ah*, or law of the environment.

Lawmakers have borrowed some of the foundational concepts of Islam such as *rahmah* (mercy), *tawazun* (harmony) and *shukr* (gratitude) and apply them to this ethical-juridical discipline which links ecological health to the psychological health of man. Environmental degradation is indicative of human sickness, his ego and man's inability to give up short-term gratification in favor of long-term prosperity.³³⁴

Despite literally hundreds of treaties and conventions, mankind continues to consume the earth's resources with no end in sight.³³⁵ In the preface to *Islam and*

³²⁸ Qur'an: Surat al -an'am (6), ayah 38.

³²⁹ Qur'an: Surat al-Nur (24), ayah 45.

³³⁰ In *Islamic Law*, Abdul Haseeb Ansari explains the significance of this verse, namely, that Muhammad is warning against arrogance, that Muslims are “no better than other creatures” (p. 34).

³³¹ Qur'an: Surat Luqman (31), ayah10.

³³² Qur'an: Surat al-Haj (22) ayah 63.

³³³ “Sharia is the comprehensive religious normative system of Islam which is derived from interpretations of the Qur'an and Sunna...” Abdullahi Ahmed An-Na'im, *Religion, the State, and Constitutionalism in Islamic and Comparative Perspectives*, 57 Drake L. Rev. 829, 829 (2009) (hereinafter as An-Na'im).

³³⁴ Kamali, Mohammad Hashim. “Environmental Care in Islam: A Qur'anic Perspective.” *Islam and Civilisational Renewal (ICR)* 3.2 (2012).

³³⁵ The United Nations Conference on The Human Environment Stockholm 1972.” *The Forestry Chronicle* 48.3 (1972): 118-118., World Commission on Environment and Development of 1983, Conference on Environment and Development of 1992, and World Summit on Sustainable Development of 2002 represent major international efforts to combat this trend.

Ecology, Fazlun M. Khalid of Sri Lanka, a consultant to the World Wildlife Fund and Founder of the Islamic Foundation for Ecology and Environmental Sciences (IFEES), has observed:

“I have a mental picture of people sharing in a massive banquet completely oblivious to the fact that the roof is crumbling and will eventually come crashing down on their heads. There are other people standing at the exits warning the diners to leave but they don’t take any notice since the meal is too good”.³³⁶

The Organization of Islamic Cooperation (OIC), also known as “the collective voice of the Muslim world,”³³⁷ is “an intergovernmental organization.” established “to preserve and promote all aspects related to environment for present and future generations.” The OIC charter in Art. 2 § 8 states, “Member States shall protect and preserve the environment.”³³⁸ The OIC affiliate, the Organization of Islamic Capitals and Cities, was established in 1980 to “achieve and enhance sustainable development in member capitals and cities and establish and develop comprehensive urban norms, systems and plans” to protect, *inter alia*, the environment.³³⁹ OIC anticipated the principle of sustainable development.

OIC member states stretch from the Pacific Ocean across the Middle East and North Africa all the way to Latin America. These states have a total population of 1.6 billion people, *i.e.*, 23% of the world’s population,³⁴⁰ and “the world’s Muslim

³³⁶ Richard C. Foltz, Frederick M. Denny & Azizan Baharuddin, *Islam and Ecology: A Bestowed Trust*, Preface p __ (Center for the Study of World Religions, 2003).

³³⁷ See Organization of Islamic Cooperation (OIC) at http://www.oic-oci.org/oicv2/page/?p_id=58&p_ref=30&lan=en

³³⁸ Id

³³⁹ Id

³⁴⁰ See <http://www.pewresearch.org/fact-tank/2013/06/07/worlds-muslim-population-more-widespread-than-you-might-think/>.

population is expected to increase by about 35% in the next 20 years, rising from 1.6 billion in 2010 to 2.2 billion by 2030.”³⁴¹

There are an estimated 1.6 billion Muslims around the world, making Islam the world’s second-largest religious tradition after Christianity, according to the December 2012 Global Religious Landscape report from the Pew Research Center’s Forum on Religion & Public Life. Although many may associate Islam with countries in the Middle East or North Africa, nearly two-thirds (62%) of Muslims live in the Asia-Pacific region, according to the Pew Research analysis. In fact, more Muslims live in India and Pakistan (344 million combined) than in the entire Middle East or North African region (317 million).³⁴²

The diverse Muslim world is bound together in the shared belief that Muhammad (PBUH) was the original and exclusive human sovereign and sole source of law. As discussed in chapter 3, environmental norms are shred across this regain. These regains agree on what the law is, interpreting and implementing it in practice, as well as adjudicating disputes.”³⁴³

a. Islam as a Resource to Promote Compliance with International Environmental Law

It is evident that Islam is an unexplored yet valuable resource to inspire environmental policies and practices in OIC member states. A recent experiment by Fazlun Khalid makes the point. He introduced a system of conservation using Islamic teachings on the islands of Misali and Pemba, off the coast of Tanzania in Africa, after traditional conservation methods failed to gain the locals’ support. Misali is home to

³⁴¹For more information see <http://www.pewforum.org/2011/01/27/the-future-of-the-global-muslim-population/>

³⁴² OIC members are sovereign, territorial states with majority Muslim populations. The organization explicitly adopts the doctrine of noninterference in the internal affairs of its members which are free to pursue their own political, military, and economic goals, while sometimes using Islamic vocabulary to justify their policies. *See generally*, Saad S. Khan, *Reasserting International Islam* (New York: Oxford University Press, 2001). See more at <http://www.pewresearch.org/fact-tank/2013/06/07/worlds-muslim-population-more-widespread-than-you-might-think/>

³⁴³ An- Nacim, Abdullahi Ahmed. “The compatibility dialectic: Mediating the legitimate coexistence of Islamic law and state law.” *The Modern Law Review* 73.1 (2010). at 837.

more than 300 species of fish and 42 types of coral. The 12,000 residents of Pemba, many of whom are Arab Muslims, depend on fishing and tourism in Misali for survival, but overfishing, deforestation, and destructive poles and nets that broke the coral were destroying the ecosystem. As Fazlun Khalid observes:

One *Qur'anic* verse that Khalid and religious leaders preached to spoke quoted to the villagers of Pemba was Sura 6:141: "it is He [Allah] who produces gardens, both cultivated and wild.... Eat of their fruits when they bear fruit and pay their dues on the day of their harvest, and do not be profligate. He does not love the profligate." Today, IFEES and CARE International have encouraged fishermen to switch to sustainable equipment and promote other industries as alternatives to fishing.³⁴⁴

As Yusuf al-Qaradawi, of the International Union of Muslim Scholars emphasized that "today, at a time of environmental crises, the *Qur'an* can once again play a pivotal role and provide those of us who believe in its truth...with a fresh perspective and consciousness of nature."³⁴⁵

The high social standing of religious leaders in the Muslim world (*ulama*) makes them ideal preachers of the environmental message. In 2007, the Algerian Ministry of Religious Affairs, with help from Germany, created a manual citing *Qur'anic* verses for imams to use in spreading the Islamic view of environmental consciousness and

³⁴⁴ Khalid, Fazlun M. "Islam and the Environment." *Encyclopedia of Global Environmental Change* 5 (2002): 332-339. See also <http://www.businessinsider.com/heres-why-islam-could-end-up-being-a-key-ally-for-environmentalists-2012-5?op=1#ixzz2o0Yd7g00>. "The Koran is not widely known as a source of guidance on environmental and conservation issues, but that has not stopped one development organisation in Tanzania from using it to help conserve an island marine park.... Religious leaders have been asked to promote conservation messages using the texts of the Koran - an approach which has proved a great deal more successful than government regulations.... Destructive fishing methods were damaging the corals and harming species that lived there. Government bans had little impact." Care International Project Director Ali Thani said, "Islamic environmental ethics might be better to create awareness in the community to protect their environment." Sure enough, "These fishermen have learned the benefits of fishing in a sustainable manner without harming the island's bio-diversity." Salum Haji has fished these waters for as long as he can remember. "There have been a lot of bad things happening here," he says. "People have used dynamite and guns to fish here. This has destroyed the coral. I am happy that now we have learnt that the Koran tells us to protect everything in this world, including the environment. I am more dedicated to protecting the environment now and a more committed Muslim as well." Daniel Dickinson, BBC News, Feb 17, 2005, reproduced by Alliance of Religions and Conservation at <http://www.arcworld.org/news.asp?pageID=70>.

³⁴⁵ *Id.*

responsibility. A 2010 textbook explaining the importance of biodiversity was introduced in Algerian Islamic schools (*madrassahs*). Use of the manual and textbook have now spread to other countries, but is still not widely used.³⁴⁶

Environmental laws are based on scientific consensus about industrial and agricultural practices destructive to the environment, and the policies required for sustainable development. “The field of Environmental Law must take instruction from the environmental sciences,” because “ecology and the other environmental sciences are disciplines applied throughout the Earth” and as such, “scientists reach consensus in understanding environmental conditions and phenomena that is a shared, common body of knowledge.”³⁴⁷ As a result, “environmental Law is defined by a common body of subjects and norms for guiding human conduct to consider consciously, and act to maintain, the natural systems of the biosphere that sustain human society.”³⁴⁸

An appeal to Muslim values to promote international environmental law is consistent with the SDGs and the broader UN environmental rule of law goals, because “our programmes must identify, support and empower domestic reform constituencies.”³⁴⁹ One reason an appeal to Islam and Islamic values is necessary for international environmental law to gain traction in the Muslim world is that scientific knowledge is generally lacking there, and rules based on scientific sensibility are generally regarded as less compelling than in the West. Although “there is no contradiction between Islam as a religion and the scientific pursuit of knowledge,” it is a

³⁴⁶ Michael Daniel Driessen “*Religion and Democratization Framing Religious and Political Identities in Muslim and Catholic Societies*” 2007 p 172.

³⁴⁷ Nicholas A. Robinson at xii, ix.

³⁴⁸ *Id.*

³⁴⁹ Rule of Law Statement, p 7, & 17.

fact that “the Muslim world has been beset by a downturn in scientific production,³⁵⁰ and therefore, “despite the importance of science and technology in today’s world, the Muslim world has few loci of scientific research or technology production, whether university, public, or private sector.... The proud tradition of the Islamic golden age of scientific enlightenment is not borne out today.”³⁵¹ This lack of scientific literacy is explained by insufficient public education about the environmental and by insufficient public participation. This is a result of a general absence of free speech and freedom of inquiry in the Muslim world, coupled with antiquated educational systems that elevate rote learning over critical thinking and experimentation.³⁵²

Although, “all the states of Islamic societies are bound by customary international law ... like any other state in the world, as well as by the international treaties they have ratified such as the Charter of the United Nations, which is binding on all of them as members of that organization,”³⁵³ the fact remains that Muslim societies arose out of the transnational caliphate system not from the secular Westphalian European system in which sovereignty resides in the nation, embodied politically and territorially in the state.³⁵⁴ Whereas Western democracies define nationality in secular terms by reference to

³⁵⁰Report of the Conference Organized by Dialogues: Islamic World–U.S.–The West in cooperation with the Institute of Diplomacy and Foreign Relations Malaysia (Dialogues Conference), (2006).

http://islamwest.org/publications_islam_and_the_West/Who_Speaks_For_Islam/Who-Speaks-For-Islam_06.html

³⁵¹See Dialogues Conference,

http://islamwest.org/publications_islam_and_the_West/Who_Speaks_For_Islam/Who-Speaks-For-Islam_02.html

³⁵² See, generally, *Arab Human Development Report 2004: Towards Freedom in the Arab World* (New York: United Nations Publications, 2004).

³⁵³ An- Nacim, Abdullahi Ahmed. “The compatibility dialectic: Mediating the legitimate coexistence of Islamic law and state law.” *The Modern Law Review* 73.1 (2010). at 841-42.

³⁵⁴ The Peace of Westphalia was embodied in a series of treaties signed in 1648, and marked the end of Europe’s bloody 30 Years War and the beginning of the modern state system. The unity of the Holy Roman Empire was abolished and in its stead arose the doctrine that the religion of the ruler is the religion of the state, and no state could force another state to change its religion. Subsequently, national interests began to trump religion as the basis for disputes among European states.

legal definitions of citizenship, Muslim societies define it broadly by their membership in *ummah*, the worldwide Muslim community. Thus, the *Qur'an* enjoins Muslims to “remember God’s blessing upon you when you were enemies, and He brought your hearts together, so that by His blessing you became brothers.”³⁵⁵ The shared sense of connection between Muslims forms a collective consciousness that could be mobilized for environmental protection, for example by the internal and external relations of OIC member states. For Muslims, the secular nation-state model represents a Western import and legacy of 19th century colonialism, especially in the Middle East when the British and French overthrew the Ottoman Empire and assumed control via the mandate system.³⁵⁶ In Muslim societies,

“Secularism, i.e. policies based on science and man-made rules rather than divine criteria, has been rejected as anti-Islamic. Traditionally, a Muslim is not a nationalist, or citizen of a nation-state; he has no political identity, only a religious membership in the *Umma*. For a traditional Muslim, Islam is the sole and sufficient identification tag and nationalism and nation-states are ‘obstacles’.”³⁵⁷

This chapter examines the instruments of international environmental law to outline the goals they are designed to achieve, and their relative success and failure to protect land, sea and air from environmental degradation caused by modernization and industrial development in a globalized economy. It argues that, because an appeal to scientific truth has less meaning in the Muslim world than an appeal to religious truth, there should be a calculated appeal to environmental values of Islam by the United Nations and its institutions. Doing so is likely to enhance the acceptance of international

³⁵⁵ Qur’an: Surat ali- 'Imran (3), ayah103.

³⁵⁶ Rudolph Peters, *Islam and Colonialism: The Doctrine of Jihad in Modern History* (The Hague: Mouton, 1979).

³⁵⁷ Mehmet, Ozay. *Islamic identity and development: Studies of the Islamic periphery*. Routledge, 2002. p. 57

environmental law generally in OIC member states, and move them toward greater compliance with global objectives of environmental preservation and sustainable development.³⁵⁸ Basically, this thesis suggests that an appeal to a large population in the language of Islam will be most likely to further the overall objectives of international environmental law, and conversely if this appeal is not made, sustainable development and the SDG will be retarded.

2. The Rule of Law and Concepts of Hard and Soft International Law

In the international arena, “rule of law” refers to a set of rules generally accepted as binding in relations between nation states that provides a framework for the practice of stable and organized international relations. As discussed on chapter 4, international law and policy embody environmental protection and sustainable development.³⁵⁹ All nations are obliged to recognize that:

- (a) Every State has the duty to fulfill in good faith the obligations assumed by it in accordance with the Charter of the United Nations.
- (b) Every State has the duty to fulfill in good faith its obligations under the generally recognized principles and rules of international law.

³⁵⁸ The international compacts discussed are:

- United Nations Convention on the Law of the Sea (UNCLOS);
- United Nations Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention);
- United Nations Convention on Biological Diversity (CBD);
- United Nations Framework Convention on Climate Change (UNFCCC);
- United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD);
- United Nations Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal (Basel Convention);
- United Nations Conference on the Human Environment (Stockholm Conference);
- The Brundtland Report entitled *Our Common Future*, from the United Nations World Commission on Environment and Development (WCED);
- the sustainable development plan called “Agenda 21” by the United Nations Conference on Environment and Development (UNCED); and
- The UNCED Rio Declaration on the Environment and Development.

³⁵⁹ William Slomanson, *Fundamental Perspectives on International Law* (Wadsworth, Boston 2011), pp. 4–5.

(c) Every State has the duty to fulfill in good faith its obligations under international agreements valid under the generally recognized principles and rules of international law.³⁶⁰

The UN Charter general principles of law, customary international law, and agreements by treaty and similar bi-lateral or multi-lateral instruments, comprise the rule of law in international relations. The UN Secretary General further states, “At the international level, the principle of the rule of law ... encompasses elements relevant to the conduct of State to State relations” and “recognizes the inherent link between the UN and the international rule of law.” Among “the core values and principles of the UN” are “the fulfillment in good faith of international obligations” and each member state’s “responsibility of the international community.”³⁶¹

That said, while the UN seeks through the rule of law to articulate “a common language of justice for the United Nations,” the UN ultimately defers to national norms and legal traditions because “no rule of law reform, justice reconstruction, or transitional justice initiative imposed from the outside can hope to be successful or sustainable. The role of the United Nations and the international community should be solidarity, not substitution.”³⁶²The law of environmental protection has emerged through this system.

³⁶⁰ “Declaration on Principles of International Law Friendly Relations and Co-Operation Among States in Accordance With the Charter of the United Nations, <http://www.unrol.org/files/3dda1f104.pdf>. Likewise, the UN Charter declares, “All members ... shall fulfill in good faith the obligations assumed by them in accordance with the present Charter.” Art. 2, § 2.

³⁶¹ See <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/395/29/PDF/N0439529.pdf?OpenElement>. The Secretary General states “the rule of law refers to a principle of governance ... to ensure adherence to the principles of supremacy of law, ... participation in decision-making, legal certainty, avoidance of arbitrariness and procedural and legal transparency.” Report of the Secretary-General on the Rule of Law and Transitional Justice in Conflict and Post-Conflict Societies, Available at <http://www.unrol.org/doc.aspx?n=2004%20report.pdf>

³⁶² Report of the Secretary-General, *The Rule of Law and Transitional Justice in Conflict and Post-Conflict Societies*, S/2004/616. (Rule of Law Statement).

Much of international law is consent-based governance. This means that, due to the cardinal principle of state sovereignty,³⁶³ a state is not obliged to abide by such law unless it has expressly consented to do so or under principle 21 of Stockholm, the state cannot harm another state or global commons.³⁶⁴ Most law related to Sustainable Development Goals (SDGs) has been consented to. International law becomes national law when treaties delegate jurisdiction to supranational tribunals such as the International Court of Justice (ICJ). However, other aspects of international law are not consent-based but remain obligatory upon state and non-state actors. These are established norms called customary international law.³⁶⁵ The International Court of Justice Statute defines this as “evidence of a general practice accepted as law.”³⁶⁶ The duty to undertake environmental impact assessment (EIA) is such an obligation.³⁶⁷ Some but not all customary international law rises to the level of peremptory norms (*jus cogens*) which nation states are obliged to obey with or without their consent.³⁶⁸

³⁶³ UN Charter, Art. 2, §§ 1 and 7: “The Organization is based on the principle of the sovereign equality of all its Members ... Nothing contained in the present Charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the Members to submit such matters to settlement under the present Charter....”

³⁶⁴ This does not mean a nation state is free to ignore international law simply because it has not bound itself in a particular compact. A state’s “sovereignty is something made, not assumed, and it is made for the benefit of those whose interests it protects. In its international aspect, the sovereignty and sovereign freedom of the individual state is equally an artifact of international law. What its sovereignty is and what it amounts to is not given as a matter of the intrinsic value of its individuality, but determined by the rules of the international order.” Accordingly, “In the international realm, the state remains a creature of law, a tissue of legality that is imbued with the idea of law and governed in the way that states are supposed to be governed, so far as the rule of law is concerned” Jeremy Waldron, *The Rule of International Law*, 30 Harv. J. of L. and Pub. Pol. 15, 21, 23.

³⁶⁵ Situations arise where neither conventional nor customary international law is applicable, and a general principle common to the major legal systems of “civilized nations” is invoked as international law.

³⁶⁶ Statute of the International Court of Justice, Article 38(1)(b). Chapter XIV of the United Nations Charter establishes the ICJ, and all 193 member states are subject to its jurisdiction by virtue of their membership in the UN.

³⁶⁷ *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Provisional Measures, Order of 13 July 2006, I.C.J. Reports 2006, p. 113

³⁶⁸ *Jus cogens* is enshrined in the Vienna Convention on the Law of Treaties (Vienna Convention). Article 53 states as follows: “For the purposes of the present Convention, a peremptory norm of general international law is a norm accepted and recognized by the international community of States as a whole as

The basic principles of Islam with regard to environment are consistent with both international and national laws. For example, international laws and conventions on the protection of water and plants are just a reflection of the Islamic notion which requires that we protect our environment and its various components. As this thesis makes clear, it is both useful and effective to have International Environmental Law and Islamic principles work together in order to advance the SDGs.

But international law differs from the internal law of nation states because there is no central or universal authority to enforce it. “International law has few executive resources of its own. It depends on its individual subjects sovereign nation states for the enforcement of its provisions and the integrity of its rule. Governments are the officials or officers of the international legal system.”³⁶⁹ Jeremy Waldron clarifies it as follows:

It must be understood that the state is not just a subject of international law; it is additionally both a source and an official of international law. International law regulates a small community of a few hundred members, compared to the millions that domestic law regulates. And it is horizontal law, rather than vertical law, that depends largely on treaties between states or the emergence of customs among states for the generation of new norms. Therefore, regulating a sovereign state in international law is more like regulating a law- maker in municipal law than like regulating a private individual.³⁷⁰

International law scholars distinguish between so-called hard law and soft law in the law of nations. Because “there has been a prolific amount of scholarship regarding the

a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character.” 1155 UNTS 331. Examples would be wars of aggression, genocide, piracy, the slave trade, and torture. M. Cherif Bassiouni, *International Crimes: ‘Jus Cogens’ and ‘Obligatio Erga Omnes’*, Law and Contemporary Problems, Vol. 59, No. 4 (Autumn 1996) p. 68. Under Article 53 of the Vienna Convention, any treaty that conflicts with a peremptory norm is void. 1155 U.N.T.S 331, 8 International Legal Materials 679 (1969). In addition, *jus cogens* can apply both to states and individuals. Thus, individuals who commit atrocities and other war crimes are declared *hostis humani generis*, “an enemy of all mankind.” M. Janis and J. Noyes, *International Law: Cases and Commentary* (3rd ed.), *Prosecutor v. Furundžija*, Page 148 (2006).

³⁶⁹ Waldron, Jeremy. “The Rule of Environmental Law” 24. (2011) Available at http://www.law.harvard.edu/students/orgs/jlpp/Vol30_No1_Waldrononline.pdf

³⁷⁰ Id

use of ‘hard’ and ‘soft’ law in international governance,” not surprisingly, “there is considerable disagreement in the existing literature on their definitions. International environmental law sets norms for national laws on sustainable development. Many legal scholars use a simple binary binding/nonbinding divide to distinguish hard from soft law.”³⁷¹ How scholars employ the distinction depends on whether they are categorized as legal positivists, rationalists, or constructivists.

Legal positivists tend to favor hard law and view hard and soft law in binary terms. For them, hard law refers to legal obligations of a formally binding nature, while soft law refers to those that are not formally binding but may nonetheless lead to binding hard law. Rationalists, in contrast, contend that hard and soft law have distinct attributes that states choose for different contexts. They also find that hard and soft law, in light of these different attributes, can build upon each other. Constructivists maintain that state interests are formed through socialization processes of interstate interaction which hard and soft law can facilitate. Constructivists often favor soft-law instruments for their capacity to generate shared norms and a sense of common purpose and identity, without the constraints raised by concerns over potential litigation.³⁷²

Simply stated in other words, hard international law refers to precisely defined, legally binding obligations refined by regulations and construed by tribunals in adjudication.³⁷³ Hard law typically delegates authority for interpreting it, and is reflected in instruments such as treaties, pacts or charters that are binding on the governments that ratify them.³⁷⁴ The UN Charter is perhaps the most important treaty because it established the framework for the international order and commits member states to cooperate and promote universal adherence to its resolutions, such as the SDGs. In addition, “Hard legal commitments are sometimes incorporated directly into the internal law of participating

³⁷¹ Gregory C. Shaffer and Mark A. Pollack, *Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance*, 94 Minn. L. Rev. 706, 707, 712 (2010).

³⁷² Shaffer and Pollack at 714.

³⁷³ Kenneth W. Abbott and Duncan Snidal, *Hard and Soft Law in International Governance*, International Organization 54, 3, (Summer 2000) p. 421.

³⁷⁴ *Id.*

states; even more frequently international agreements require states to enact implementing legislation, and sometimes to establish particular implementing institutions. Examples would be the Whaling Convention and the Convention on International Trade in Endangered Species (CITES). The US Congress has provided that violations of these international laws constitute violations of U.S. criminal law.³⁷⁵

Under some scholar's views, because there are no centralized institutions to enforce it, and "if an agreement does not delegate any authority to a third party to monitor its implementation or to interpret and enforce it, international law as viewed as "soft " law: " then it is regarded as soft law.³⁷⁶ Nevertheless, the many international environmental agreements form a matrix of accepted duties that each nation can implement at the national and international levels.³⁷⁷ Since the nations agree on what the problems are, as described in chapter V, they have come to adopt the same solutions as in the UN, SDGs or in the treaties described below.

3. Summary of Major International Environmental Compacts

International environmental agreements and other treaties can be contrasted with the relatively few environmental laws in OIC member states and those states' generally poor track record of environmental protection. This review of law can make clear that a calculated UN appeal to traditional Islamic environmental values could enhance compliance with international environmental laws generally.

³⁷⁵ Abbott, Kenneth W., and Duncan Snidal. "Hard and soft law in international governance." *International organization* 54.03 (2000) p. 456.

³⁷⁶ Gregory C. Shaffer and Mark A. Pollack, *Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance*, 94 Minn. L. Rev.at 714-15.

³⁷⁷ *Auditing the Implementation of Multilateral Environmental Agreements (MEAs): A Primer for Auditors*. UNEP Division of Environmental Law and Conventions Available at <http://www.unep.org/delc/Portals/119/audingmeas.pdf>

a. The Importance of Treaties

Today international treaties are considered to play a major role in the context of international law, and Multilateral Environmental Agreements (MEAs) are essential for environmentally sustainable development. Treaties are engaged with different states in the conduct of extensive international relations among various countries. Furthermore, treaties provide the structure for modern international relations and the main foundation of international law.³⁷⁸

The initial point for concluding what aspects are present in a treaty refers to the origin of international treaty itself. In this context, the Vienna Convention on the Law of Treaties is considered the main treaty law. It was completed in 1969 and came into force in 1980.³⁷⁹ The United Nations has 191 member states, and the 1969 Vienna Convention has only approximately 105 parties. International treaty is perceived as obligatory only amongst its parties. However, the 1969 Vienna Convention is not only a treaty with international participation; it is extensively recognized that many of its provisions have codified current customary international laws. Other provisions may have obtained customary international law status.

Since customary international law and treaty law have the same position at the international law level, many provisions of the 1969 Vienna Convention are considered to be obligatory on all states. International environmental law is a broad group of laws that contains laws that particularly address environmental issues and more general

³⁷⁸ UNEP, *Training Manual on International Environmental Law*, (http://www.unep.org/environmentalgovernance/Portals/8/documents/training_Manual.pdf): 23.

³⁷⁹ Alexandre Kiss and Dinah Shelton, *International Environmental Law*, (Transnational Publishers, 2004): 38.

environmental laws that have a direct impact on international and national environmental issues.³⁸⁰

The description of what represent an environmental law is as extensive as the classification of environment itself. “Environment” in the current context of sustainable development, which includes the physical and social features of the background of human beings, and incorporates land, water, atmosphere/air, climate/weather, sound, odour, taste, energy power, waste management, coastal and marine contamination, the organic factors of animals and plants as well as intellectual values, chronological sites, and monuments and aesthetics. International environmental law can be normally distinct as the body of law that includes elements to manage the human impact on the Earth and on community health.³⁸¹

4. The Self-Limiting Nature of International Environmental Obligations

One key obstacle to implementing international environmental law is that, from a realist perspective, international relations are anarchic,³⁸² and in the absence of a centralized world government, the international community lacks an effective enforcement mechanism to punish states which fail to fulfill environmental objectives set forth in the above treaties and declarations. This leaves international cooperation as the main means to achieve environmental objectives, but cooperation standing alone is insufficient to compel compliance with international environmental law obligations. This

³⁸⁰Sands, Philippe. *Principles of International Environmental Law*. Cambridge: Cambridge Univ. Press, 2003. Print.893.

³⁸¹ See N. A. Robinson and L. Kurukulasuriya, *Manual on International Environmental Law* (UNEP, 2006).

³⁸² John J. Mearsheimer, *The False Promise of International Institutions*, *International Security*, Winter 1994/95 (Vol. 19, No. 3) pp. 5-49.

is sometimes described in game theory as the Prisoner's Dilemma (PD).³⁸³ Simply stated, PD means self-interested states will pursue short-term environmental policies advantageous to their economic interests which, in the long term, are destructive to enlightened international environmental interests.

In PD models of international relations, these problems are typically addressed by creating mechanisms for monitoring state behavior and sanctioning states that violate the terms of the agreement -- i.e., international law. If the PD model is an accurate description of the situation facing states, then international regimes and international hard and soft law should indeed facilitate cooperation by monitoring compliance and (in the case of hard-law dispute-settlement bodies) providing for enforcement.³⁸⁴

PD is evident in the failure of the Basel Convention. Shipment of waste across international borders is among the most pressing concerns of international environmental law today.³⁸⁵ According to a 1990 United Nations Environment Program study, it was estimated that 300-400 million tons of hazardous waste was generated worldwide each year, and millions of tons are shipped across international borders.³⁸⁶ Inadequate disposal causes pollution of air, water, and other natural resources resulting in health hazards to local populations.³⁸⁷ Numerous national regulations and international agreements were

³⁸³ Two criminals are arrested and kept incommunicado in separate rooms. Police offer them a Faustian bargain. If one betrays the other who remains silent, the betrayer goes free while his partner gets three years in prison. If both betray each other, they each get two years in prison. If both remain silent, then get a year in prison. Logically, to hedge their bets, both prisoners will betray each other even though each would be better off if they both cooperated. See Arthur A. Stein, *Why Nations Cooperate - Circumstance and Choice in International Relations*, Cornell University Press (1990), p 11.

³⁸⁴ Gregory C. Shaffer and Mark A. Pollack, *Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance*, 94 Minn. L. Rev. at 731.

³⁸⁵ Dean M. Poulakidas, *Waste Trade and Disposal in the United States*, 21 Vt. L. Rev. 873, 873 (1997). Increased generation of hazardous waste reflects "humankind's insatiable desire for wealth and higher living standard[s]" and despite the advancement of new technology, "such waste still accumulates." Jason L. Gudofsky, *Transboundary Shipments of Hazardous Waste for Recycling and Recovery Options*. Stan. J. Int'l L. 219, 220; Laura A. Pratt, *Decrease Dirty Dumping*, 41 Tex. Env'tl. L.J. 147, 153.

³⁸⁶ Dean M. Poulakidas, *Waste Trade and Disposal in the United States*, 21 Vt. L. Rev. 873, 873 (1997).

³⁸⁷ *Id.*

promulgated to address this problem,³⁸⁸ but they increased the cost of traditional disposal methods such as incineration, deep injection and landfill storage.³⁸⁹ In order to offset increased costs, waste generators in higher income countries (HICs) starting shipping their waste to developing countries eager for foreign capital,³⁹⁰ and willing to overlook the environmental consequences.³⁹¹

To promote international cooperation, states need to consider their own share in the common and shared environmental of the Earth such as the oceans.

a. UNCLOS & Regional Sea Agreements

The United Nations Convention on the Law of the Sea (UNCLOS) was concluded after the third United Nations Conference on the Law of the Sea (UNCLOS III), which took place between 1973 and 1982. UNCLOS represented a comprehensive regime of law and order in the world's oceans, and establishes rules governing use of all oceans and maritime resources. It is predicated on the notion that all ocean space problems are interrelated and must be addressed as a whole. UNCLOS establishes guidelines for the environment and management of marine natural resources. The Convention, concluded in 1982 came into force in 1994. As of August 2013, 165 countries and the European Union have joined in the Convention. Today, it is the globally recognized regime dealing with all matters relating to the law of the sea. This generally agreed that Convention codifies

³⁸⁸ Gudofsky, Jason L. "Transboundary Shipments of Hazardous Waste for Recycling and Recovery Operations." *Stan. J. Int'l L.* 34 (1998): 219, 220.

³⁸⁹ *Id.*

³⁹⁰ In the 1980's U.S. state legislatures forced the closure of 2,700 landfill sites, "banned ocean incineration, and prohibited landfilling of a large number of wastes in the United States." These new laws dramatically increased the cost of waste disposal. Where the average cost of disposal was \$15 per ton in the 1980s, by 1990, the cost has risen to \$300-1,000 per ton. Dean M. Poulakidas, *Waste Trade and Disposal in the United States*, 21 *Vt. L. Rev.* 873, 877-78 (1997).

³⁹¹ *Id.*

customary international law of the sea. The UN general assembly in 2015 launch the negation of a new treaty to protect biodiversity in areas beyond national jurisdiction (BBAJ).

The regime for oceans and seas established by UNCLOS deals with a wide range of issues on ocean affairs and recognizes that the problems of ocean space are closely interrelated and need to be considered as a whole.

Although UNCLOS is not primarily an environmental treaty, it frequently addresses environmental concerns. In addition to having an entire section dedicated to the protection and preservation of the marine environment (Part XII), the treaty also contains numerous references to environmental duties and obligations throughout its many articles. The scattered placement of all of the environmental references makes it difficult at times to put together a comprehensive understanding of the duties of member nations and the powers they are granted to enforce the various provisions.

The Convention comprises 320 articles and nine annexes, governing all aspects of ocean space, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters. The Law of the Sea Convention defines the rights and responsibilities of member nations regarding use of the world's oceans. While its main purpose was to establish territorial boundaries extending from the coastline, and define sovereign limits over internal waters, territorial waters, archipelagic waters, continental shelf, contiguous zone and exclusive economic zones, it also contains environmental standards for management of marine natural resources.

Section 1 of Part XII of UNCLOS sets the tone for a number of the environmental provisions laid out in the treaty. Part XII opens with Article 192: “States have an obligation to protect and preserve the marine environment.” This is immediately followed by Article 193: “States have the sovereign right to exploit their natural resources pursuant to their environmental policies. Nations are then subsequently charged with creating national law to address various pollution issues and are supposed to employ “the best practicable means at their disposal and in accordance with their capabilities.”³⁹²

In addition to UNCLOS, regional conventions provide some protection. The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean of 1976 (Barcelona Convention), revised in 1995 as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (not yet in force) is an integral part of the Mediterranean Action Plan of 1975. This convention pioneered the “framework” model for environmental treaties which has since been followed in other regional seas and global environmental conventions. According to this model, governments begin with the adoption of a legally-binding general agreement, or “framework convention,” setting out what they must do to implement an Action Plan. The convention may be supplemented by protocols, separate but linked legal agreements addressing specific issues such as protected areas or land based pollution, which set forth detailed commitments by signing states.³⁹³ Finally, it bears noting that in SDG 14, the

³⁹² United Nations Convention on the Law of the Sea - Part XII Available at http://www.un.org/depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm

³⁹³ Regional actions on marine litter are being developed in the following Action Plan areas: Baltic Sea; Black Sea; Caspian Sea; East Asian Seas; Mediterranean Sea; Eastern Africa; Northeast Atlantic (OSPAR); Northwest Pacific (NOWPAP); Red Sea and Gulf of Aden (PERSGA); South Asia Seas (SACEP); South East Pacific (CPPS); and Wider Caribbean Sea. In addition, the Regional Seas Programme (RSP) supports regional activities on marine litter in the Baltic Sea.

UNGA agreed on a development objective for oceans by 2030: “Conserve and sustainably use the oceans, seas and marine resources”³⁹⁴

b. UN Framework Conference on Climate Change (UNFCCC) 1992

In SDGs 13, the UNGA decided: “ Take urgent action to combat climate change and its impacts” ³⁹⁵ This SDG supports the UNFCCC. In 1992, 195 members of the international community adopted the United Nations Framework Convention on Climate Change (UNFCCC) to collectively assess strategies to limit average global temperature increases and cope with the impact of inevitable climate change. On 2015 the UNFCCC Conference of the Parties adopted the Paris agreement, which entered into force in November of 2016.³⁹⁶ The UNFCCC reflects an urgent need for the international community to develop climate research, while taking into account the special needs and concerns of developing nations. It is a “Rio Convention,” one of three adopted at the Rio Earth Summit in 1992. “Its sister Rio Conventions are the UN Convention on Biological Diversity and the Convention to Combat Desertification. The three are intrinsically linked. It is in this context that the Joint Liaison Group was set up to boost cooperation among the three Conventions, with the ultimate aim of developing synergies in their activities on issues of mutual concern. It now also incorporates the Ramsar Convention on Wetlands.”³⁹⁷

At the Paris climate conference (COP21) in December 2015, states agreed to pledge national goals to cope with climate change.³⁹⁸ The Paris agreement was signed in

³⁹⁴ SDGs goal 14 available at <http://www.un.org/sustainabledevelopment/oceans/>

³⁹⁵ SDGs goal 13 available at <http://www.un.org/sustainabledevelopment/oceans/>

³⁹⁶ Paris Agreement. *United Nations Treaty Collection*, 8 July 2016.

³⁹⁷ See <http://www.eoearth.org/view/article/156775/>

³⁹⁸ Paris Agreement, (2015). Available at <http://on.cfr.org/1TrNtxZ>

April 22, 2016, states that nations should promise to reduce greenhouse gas emissions and each nation has submitted its “Nationally Determined Contributions” to show how it will do so.

C. Convention on Biological Diversity (CBD)

The earth’s biological resources are vital to humanity’s economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of inestimable value to present and future generations. The threat to species and ecosystems has never been greater, and species extinction caused by human activities continues at an alarming rate. The Convention on Biological Diversity (CBD) was negotiated under the auspices of the United Nations Environment Program (UNEP) and opened for signature at the Jun 1992 United Nations Conference on Environment and Development (the Rio “Earth Summit”). It remained open for signature until June 1993, by which time it had received 168 signatures. The CBD entered into force on December 29, 1993, and to date, 188 member countries have ratified it. It reflects the world community’s growing commitment to sustainable development, and represents a dramatic step forward in protecting and conserving the diversity of species. It is one of the most widely ratified international environmental treaties. World leaders agreed on a comprehensive strategy for sustainable development which is defined as meeting current needs while ensuring a healthy and viable world for future generations. The CBD was a central achievement of Rio.

Many other international environmental agreements set compulsory targets and obligations. In contrast, the CBD identifies general goals and policies, and leaves

countries free to determine the manner in which to reach stated goals. The CBD has 3 main objectives:

- conservation of biological diversity;
- sustainable use of the biosphere; and
- fair and equitable utilization of genetic resources.³⁹⁹

One of the CBD's greatest achievements is that it has generated enormous interest in biodiversity, both in developed and developing countries. Biodiversity is now recognized universally as critically important. The CBD was inspired by the world community's growing commitment to sustainable development.

The CBD determined that it would be most effective if it took into account the needs of diverse nations. Biological diversity is more apparent across shared territories and in nations with vast resources. Water is especially important in the CBD, and in particular, shared waters. Thus, the CBD contains several tenets to guide countries with regard to effective management of water resources.⁴⁰⁰ Every country is endowed with unique resources and each is tasked to ensure that such resources are not exploited beyond sustainability. Saudi Arabia, for example, has been endowed with vast coastlines which imposes on it the responsibility to care for international water.⁴⁰¹

The CBD also recognizes the close and traditional dependence of indigenous and local communities on biological resources, and the need to ensure that these communities share in the benefits derived from use of their traditional knowledge and practices

³⁹⁹ Convention on Biological Diversity, Available at <http://www.cbd.int/convention/guide/default.shtml?id=intaction>.

⁴⁰⁰ C. S. Cyrille de Klemm, *Biological Diversity Conservation and the Law*. London, Uk: The World Conservation Union (1993).

⁴⁰¹ L. Glowka, F. Burhenne-Guilmin, & H. Synge, *A Guide to the Convention on Biological Diversity Guide to the Convention on Biological Diversity Guide to the Convention on Biological Diversity*. New Jersey: Wiley (2004)

relating to conservation and sustainable use of biodiversity. Member governments have undertaken “to respect, preserve and maintain” such knowledge and practices; promote their wider application with the approval and involvement of the communities concerned; and encourage equitable sharing of the benefits derived from the knowledge and practices of indigenous populations.

A critical part of the biodiversity debate centers around access and sharing of benefits derived from commercial and other exploitation of genetic material, such as pharmaceutical products that are derived mostly from plants. Most of the world’s biodiversity is found in developing countries. They seek to use these resources to fuel economic and social development. Historically, botanical genetic resources were collected outside their places of origin, or used as inputs in plant breeding. Foreign bio prospectors searched for natural substances to develop new commercial products, especially drugs. Often, the products would be sold and protected by patents or other intellectual property rights without fair returns to the source countries.

To remedy this inequity, the CBD recognizes national sovereignty over all genetic resources, and stipulates that access to valuable biological resources be made available on “mutually agreed terms” subject to “prior informed consent” of the country of origin. Hence, when an animal, plant or microorganism is exploited for a commercial application, the country of origin is entitled to benefit. Such benefits can include cash, samples of the resource collected, participation or training of national researchers, transfer of biotechnology equipment and know-how, and participation in the profits derived from such resources.

The CBD also provides a global legal framework for action on biodiversity. It brings together the parties in a Conference of Parties (COP), the Convention's governing body, which meets every two years, or as needed, to review progress in the implementation of the convention, including milestones in achieving its objectives, and to provide policy guidance. Signatory governments are required to develop national strategies and action plans based on COP decisions and report back on implementation⁴⁰²

Recognizing the importance of biodiversity, UNGA adopted SDG 15: "Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss"⁴⁰³

d. United Nation Convention to Combat Desertification (UNCCD) 1994

Like climate change and species extinction, desertification was identified during the 1992 Rio Earth Summit as among the greatest challenges to sustainable development. UNCCD was established in 1994, and is the sole binding international agreement linking development to sustainable land management. It is specifically concerned with dry lands, *i.e.*, arid, semi-arid and dry sub-humid areas where some of the world's most vulnerable ecosystems and populations are located. A Ten Year (2008-2018) Strategy was adopted in 2007 "to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability." The UNCCD's 195 members seek to prevent drought and mitigate its effects; improve living conditions for dry lands populations; and restore land and soil productivity in dry lands.

⁴⁰² For more information see <http://www.cbd.int/convention/guide/default.shtml?id=intaction>

⁴⁰³ SDGs goal 15 available at <http://www.un.org/sustainabledevelopment/oceans/>

The UNCCD recognizes that populations which suffer directly from desertification understand the fragility of their environment better than others, and therefore, must be closely involved in decision-making which affects their way of life.

The UNCCD seeks to encourage local populations to adopt sustainable development practices. It takes into account the sociological and economic reality that local populations cannot be conscious and concerned about desertification if they are preoccupied with physical and economic survival. Hence, the compact is also concerned with equitable land use, reflecting the practical reality that local populations are more likely to care about land they tend if their entitlement to it is recognized and enforced.⁴⁰⁴

e. The Basel Convention

Developing countries lack the infrastructure to handle hazardous waste. They simply do not possess the technological or scientific expertise to store and process it safely.⁴⁰⁵ As a result, trans-boundary waste shipment presents a host of novel risks and impacts for poorer nations.⁴⁰⁶ In 1989, the Basel Convention was created to ensure environmental justice internationally. It represents an attempt to reduce the trans boundary movement of waste and ensure its safe disposal. It “has been viewed as one of the international agreements at the forefront of integrating environmental justice principles into global international trade.”⁴⁰⁷

The Basel Convention recognizes that developing countries have a sovereign right to prohibit importation of waste across their borders, and imposes upon each party a

⁴⁰⁴For more information see <http://www.unccd.int/en/about-the-convention/Pages/About-the-Convention.aspx>

⁴⁰⁵ Dean M. Poulakidas, *Waste Trade and Disposal in the United States*, 21 Vt. L. Rev. 873, 877-78 (1997).

⁴⁰⁶ UNEP, Basel Convention. The overarching goal of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. 1989

⁴⁰⁷ *Id.*

corresponding obligation not to allow export of waste to any importing state which has not consented to the specific import.⁴⁰⁸ This is achieved by prior informed consent (PIC) whereby the exporting party must inform the importing state of the waste being exported and obtain prior consent to the import.⁴⁰⁹

(1) The Basel Convention and Its Inadequacies

The Basel Convention incorporates the principles of environmental justice by providing an international framework that prioritizes human health and environmental safety, and at the same time, leaves room for parties to generate agreements to reach a compromise.⁴¹⁰ Prior to the export ban amendment, the Basel Convention sought to regulate waste trade rather than prohibit it,⁴¹¹ specifically, by way of the PIC procedure laid out in Article 4.⁴¹² Article 11 allows parties to enter into multilateral, bilateral and regional agreements with parties or non-parties, but the Secretariat must be notified, and the agreement “must be at least as environmentally sound as the convention requires.”⁴¹³

The convention aims at “environmentally sound management of hazardous wastes or other wastes.”⁴¹⁴ Hazardous waste is defined as “toxic poisonous, explosive, corrosive, flammable, eco toxic and infectious.”⁴¹⁵ The Secretariat has defined “environmentally sound management” (ESM) as “strictly controlling [the] storage, transport, treatment, reuse, recycling, recovery, and final disposal’ of wastes”⁴¹⁶ The convention addresses

⁴⁰⁸ Lisa Widawsky, *In My Backyard: How Enabling Hazardous Waste Trade to Developing Nations Can Improve Basel Convention’s Ability to Achieve Environmental Justice*, 38 *Envtl. L.* 577, 589 (2008).

⁴⁰⁹ *Id.*

⁴¹⁰ *Id.* at 588.

⁴¹¹ *Id.*

⁴¹² *Id.* at 589.

⁴¹³ *Id.*

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ *Id.* at 590.

illegal movement of hazardous and other wastes by defining illegal traffic as, “any trans boundary movement of hazardous waste or wastes undertaken without compliance with the notification or consent requirements of the convention by all states concerned, with consent obtained frequently, in a way that does not conform to the documents accompanying such movement.”⁴¹⁷

The convention allows parties to take legal, administrative and other measures to prevent and punish illegal waste transport.⁴¹⁸ The convention also provides for establishment of international compliance agencies to help punish, prevent, and provide compensation for illegal trades.⁴¹⁹ In 2003, a protocol established a compliance committee and a liability committee. The former seeks to prevent illegal transport and the latter “addresses violation of the conventions once they occur. However, the Protocol has not yet come into force.”⁴²⁰ In addition, a major drawback with the compliance committee is that it is a non-binding entity.⁴²¹

The convention’s liability features are ineffective in ensuring restitution for environmental damage, preventing such damage, deterring HICs from exporting dangerous waste, or compensating parties affected by non-compliance with the convention’s dictates.⁴²² The protocol on liability has “yet to function in a satisfactory manner”⁴²³

⁴¹⁷ *Id.* at 592.

⁴¹⁸ *Id.*

⁴¹⁹ *Id.*

⁴²⁰ *Id.*

⁴²¹ *Id.* at 593.

⁴²² *Id.*

⁴²³ *Id.*

5. Saudi Arabia as an Example of the Islamic Approach to Environmental Protection

Saudi Arabia is a Muslim nation – the *Qur'an* is the Kingdom's constitution and *shariah* its basic law – and its royal decrees embody Islam's general concern with the environment outlined in the Introduction. Saudi law underscores the importance of environmental awareness and government's responsibility for the environment, and reflects environmental protection from an Islamic perspective. Notably, the law recognizes the role played by mosques in urging society to preserve and protect the environment.⁴²⁴

Protection of the environment is enshrined in the Basic Law of Governance issued by Royal Decree No. A/91, dated March 1, 1992. Article 32 provides that: "The State shall endeavor to preserve, protect and improve the environment and prevent its pollution." The two principal regulatory mechanisms for enforcement of environmental law are: (i) the General Environment Law, issued by the Royal Decree No. 34 dated October 16, 2001; and (ii) the Executive Regulation of the General Environment Law, dated October 24, 2003.⁴²⁵ The Regulations provide details for implementing the provisions of the Environment Law.

The Environment Law contains a general mandate that all persons or entities engaged in production, servicing or other activities must take "necessary precautions" to prevent contamination of surface, ground and coastal waters; preserve the soil and land and minimize deterioration or contamination; and limit noise pollution, particularly when

⁴²⁴ Abdullah F. Ansary. A Brief Overview of the Saudi Arabian Legal System. July 2008.

⁴²⁵ Official Saudi government journal, *Umm al-Qura Gazette*, No. 3964. For more information see <http://saudigazette.com.sa/tag/umm-al-qura/>

operating machinery, and noise levels must not exceed the standards described in the Regulations.⁴²⁶

Sustainable development is reflected in regulations governing lenders, too. For example, project-financing loans from lending agencies must include, as a condition precedent to the disbursement of funds, the borrower's commitment to the environmental protection regulations and standards. Project developers are obliged to: (i) use the best available technologies to protect the local environment; (ii) use materials which cause the least pollution; (iii) prepare emergency plans to alleviate adverse environmental impact, such as chemical spills; (iv) ensure that the design and operation of a development project complies with all applicable regulations and standards; (v) minimize the probability of adverse environmental impact; and (vi) insure safe storage and transportation of hazardous waste and keep emissions within legal limits.

On February 8, 2015, a meeting was held between Saudi Arabian King Salman and the United Nations Secretary-General at which they discussed sustainable development, climate change and regional peace and security. Following this meeting, King Salman called for sustainable development in the Kingdom of Saudi Arabia. He also announced the donation of \$500,000 for the support and service of international sustainable development projects as well as to contribute to the support and the achievement of

⁴²⁶ Article 13 from the General Environmental Regulations provides that: "Anyone establishing production, services, or other activities should take all necessary steps to achieve the following: Not to pollute surface, underground, or coastal waters with solid or liquid wastes directly or indirectly. Subsection 13.1.2 mandates that municipalities and government agencies "employ the best available technologies and means and take the necessary precautions to avoid contamination of surface, ground and coastal waters; and control and minimize pollution in accordance with the approved environmental criteria. Subsection 13.1.3 mandates that government agencies "Remove all forms of contamination of surface, ground or coastal waters resulting from the said activities and bear all the costs of the prevention, control and minimization of contamination, remediation of the contaminated environment and compensate the affected parties. Subsection 13.1.4 mandates that government agencies "Prevent the discharge, in any quantity, of any type of solid or liquid wastes, substance, element, organic or inorganic compound that may be classified as hazardous into surface, ground or coastal waters."

sustainable development goals beyond 2015.⁴²⁷

Saudi Arabia's Meteorology and Environmental Protection Agency (MEPA), like the U.S. Environmental Protection Agency, conducts environmental studies; publishes environmental information; evaluates the condition of the environment in the Kingdom; engages in educational outreach to the public at large; and promulgates environmental standards and regulations. Developers are required to submit an environmental impact assessment for projects, and MEPA is empowered to monitor violations of environmental laws, regulations and standards; issue stop work orders and mandate remediation; and require the guilty party to submit reports on MEPA forms confirming steps taken to prevent further breaches of environmental laws.

Penalties for polluters can be severe. For example, a person who dispersed hazardous, poisonous or radioactive wastes into Saudi territorial waters, or failed to comply with regulations governing the management or handling of hazardous materials, can face up to five years imprisonment and be fined 500,000 Saudi riyals. Polluters also can be compelled to pay compensation to victims affected by pollution, and facilities such as a polluting factory can be closed for up to ninety days.

a. Environmental Laws in Saudi Arabia

(1) Article Provisions

Historically, the first national environmental law enforced in Saudi Arabia occurred in 2001, represented in the form of the General Environmental Regulation No. 193. The Presidency of Meteorology and Environment (PME) of Saudi Arabia published in its website three major aspects pertaining to the explored topic: general environmental

⁴²⁷ UN News Center, *Ban meets new Saudi king, looks forward to cooperation on development, climate, and regional crises*. Available at <http://www.un.org/apps/news/story.asp?NewsID=50029#.VyfnEiisHws>

law, rules for implementation, and environmental protection standards.⁴²⁸ The provisions of the general environmental law provide an extensive exploration of definition and goals. The emphasis is on environmental quality, environmental standards, and environmental criteria. Article 2 of the respective environmental law deals with preserving, protecting and developing the environment, and thus public health emerges as a main concern.⁴²⁹ At this stage, including adequate environmental planning is fundamental to achieve proper objectives in the long term. Governmental institutions and bodies hold the responsibility to expand public awareness of environmental issues in an attempt to improve the surrounding environment.

Article 3 of the environmental law is associated with reviewing and assessing the precise condition of the environment, along with developing efficient observational mechanisms that can play an important role in environmental protection. Both public agencies and individuals should be held responsible and accountable for their actions in terms of abiding by strictly defined environmental regulations and standards. Article 5 presents significant information on the necessity to verify the Environmental Impact Assessment (EIA) studies for projects that may represent a persistent negative impact on the environment.⁴³⁰ A consideration of the general environmental law is required in order to ensure a high level of implementation. For instance, it is necessary to provide a reasonable explanation of the use of natural resources to preserve and develop renewable resources, which could help alleviate the situation with the Earth's constantly increasing population.

⁴²⁸ Vincent, Peter. Saudi Arabia an Environmental Overview. 2008. For more information See http://www.pme.gov.sa/en/env_regul.asp

⁴²⁹ Arie Trouwborst, *Evolution and Status of the Precautionary Principle in International Law*, (Kluwer Law International, 2002): 40.

⁴³⁰ Id.

(2) Saudi Arabia's Initiatives for Environmental Protection

The previously mentioned national environmental legislation serves as the main environmental law in Saudi Arabia. Yet there are other specific regulations that refer to particular areas of the country. For instance, the Royal Commission responsible for the cities of Jubail and Yanbu provided comprehensive environmental regulations pertaining to pollution and contamination issues. Such aspects are important considering the industrial specificity of these cities. Moreover, Saudi Aramco presents its own rules that refer to preventing pollution of the sea.⁴³¹ The company's environmental conservation policy claims that the organization's activities should not present any risks to the surrounding environment. Aramco has indicated persistent efforts in maintaining adequate operational requirements and strict performance guidelines. It has engaged in the presentation of various sanitary codes and the conduct of proper environmental assessments.

Saudi Arabia is also a member of various international conventions including the 1992 Regional Convention for the Conservation of the Red Sea and Gulf of Aden, the United Nations Convention on the Law of the Sea, and other conventions. Undoubtedly, Saudi Arabia follows quite strict environmental standards. The country has always strived to maintain a high level of environment and ecological balance.⁴³² It is essential to indicate that environmental protection issues in Saudi Arabia cannot be separated from the process of natural resource development. From an economic perspective, the protection of the environment is perceived as a continuous process of improving and

⁴³¹EHS Journal, "Saudi Arabia Releases 9 New Environmental Laws", (2013). Available at <http://ehsjournal.org/http://ehsjournal.org/sanaa-chakibi/saudi-arabia-9-new-environmental-laws/2013/>

⁴³² Nico Schrijver, *Sovereignty over Natural Resources, Balancing Rights and Duties* (Cambridge University Press, 1997): 60.

expanding the country's vast resources of oil and gas. Likewise, Saudi Arabia places importance on protecting its citizens from the occurrence of environmental hazards. Forging a delicate balance has been a top priority to the country.

b. Principles of International Environmental Law

Saudi Arabia indicates its adherence to solid principles and concepts of international environmental law. One of the major principles refers to sustainable development and integration. Other essential concepts of international environmental law include transparency and public access to information, cooperation, prevention, and practices of good governance. The international environmental community has recognized the significance of sustainable development as an essential paradigm for improving quality.⁴³³ In fact, Saudi Arabia perceives the concept of sustainable development as an inseparable part of environmental protection. Peace and environmental protection have actually become integrated in the process of forming solid principles for international environmental cooperation.

In addition, Saudi Arabia considers the importance of integration and interdependence clearly outlined in the 1995 Copenhagen Declaration on Social Development. The country has indicated proactive steps to foster a collective responsibility to strengthen pillars of sustainable development as a major principle of environmental protection. In the context of international environmental law, it is important to note that the specificity of the biosphere is what mostly counts to explain the principles of integration and interdependence.⁴³⁴ By understanding the complex role that

⁴³³ Patricia Birnie and Alan Boyle, *International Law and the Environment*, (Oxford University Press, 1992): 59.

⁴³⁴ Kiss, Alexandre, and Dinah Shelton. *Guide to international environmental law*. Brill, 2007.

nature plays in human activities, individuals and different organizations can perceive the significance of establishing solid principles of international environmental law. It is essential to indicate the specific way in which international environmental law clearly assembles the basic structure of human society, in particular the environment.

(1) Impact of Rio Declaration

In terms of maintaining transparency and public participation in different environmental projects, individuals and organizations need to consider Principle 10 of the Rio Declaration stating that the most optimal way to deal with environmental issues is through facilitating the participation of all citizens.⁴³⁵ For instance, at the national level, it is important to ensure that every individual can access relevant information regarding the environment and principles of environmental regulation. In this context, the role of international financial institutions is significant in the sense of implementing transparent decision-making procedures.

Principle 7 of the Rio Declaration indicates that all states need to demonstrate willingness for extensive cooperation to protect the Earth's ecosystem.⁴³⁶ The mentioned principle also relates to common and differentiated responsibilities. Furthermore, prevention emerges as one of the most important principles in international environmental law. It has been emphasized that prevention of environmental harm should be at the core of preserving the environment. The obligatory nature of prevention is derived from the international responsibility not to pose any damage to the environment. Nonetheless, the concept of prevention is rather complex because it refers to various legal

51.

⁴³⁵ UNEP, 25.

⁴³⁶ Report of the International Environmental Conference on Codifying the Rio Principles in National Legislation, (The Hague, 22-24 May 1996, organized by the Netherlands Ministry of Housing, Spatial Planning and the Environment, Publikatiereeks milieubeheer, No. 1996/4).

mechanisms to be adopted in practice. One such mechanism may include prior assessment of environmental harm.⁴³⁷ Yet individuals should be aware that major preventive mechanisms involve monitoring and exchange of relevant environmental information. Certain obligations to conduct EIAs are outlined in the 1991 Espoo Convention on Environmental Impact Assessment maintained in a trans-boundary context.⁴³⁸

As mentioned, principles of good governance are important to facilitate a responsive social culture dominated by the leading idea to ensure proper environmental protection. Nevertheless, the concept of good governance is a recent one, and indicates the importance of accountable and transparent governance with regard to the environment.⁴³⁹ Different states and international organizations are required to adopt transparent principles and procedures in their respective fields, along with taking efficient measures to combat corruption in any form. Good governance practices also imply protection of human rights and public procurement done in a transparent manner.⁴⁴⁰ Good governance pays adequate attention to the principles formulated in the 1992 Rio Declaration on Environment and Development, by allowing all individuals to actively participate in the multilevel system of decision-making.

By complying with multilateral environmental agreements, Saudi Arabia has ensured its commitment to protect its environment in an effective way. Governments are constantly required to provide substantial information and global guidelines on

⁴³⁷ See http://www.pme.gov.sa/en/env_regul.asp

⁴³⁸ For more information about Espoo Convention on Environmental Impact Assessment in a trans-boundary context see <http://www.unece.org/env/eia/eia.html>

⁴³⁹ UNEP, 28.

⁴⁴⁰ EHS Journal, "Saudi Arabia Releases 9 New Environmental Laws", (2013). Available at <http://ehsjournal.org/http://ehsjournal.org/sanaa-chakibi/saudi-arabia-9-new-environmental-laws/2013/>

implementing environmental standards in practice. Compliance efforts may be presented in various forms such as education and technical assistance campaigns. In this context, the formulation of a realistic and reliable international framework of environmental protection is fundamental.⁴⁴¹

c. The Role of Environmental Impact Assessment

Environmental Impact Assessment (EIA) has turned out to be an efficient way to support the implementation of sustainable development principles that are relevant to the context of Saudi Arabia. EIA has regularly reinforced the dimensions of public participation in environmental decision-making. Thus, Saudi Arabia has considered the importance of presenting viable, long-term strategies for maintaining proper environmental regulations.⁴⁴² A thorough consideration of environmental social and economic aspects is quite important to ensure a high level of environmental protection concerns.

d. Policy Making in Environmental Protection

The process of providing adequate environmental information for policy making is a significant aspect of environmental protection initiatives undertaken by the Saudi Arabian government. In fact, the country's environmental legislation is based on UNEP's mandate and experience in conducting regular environmental assessments.⁴⁴³ UNEP is responsible for maintaining various environmental assessment projects as well as exploring different policy options. By focusing on the provision of ecosystem services,

⁴⁴¹ The Government of Saudi Arabia. Institutional aspects of sustainable development in Saudi Arabia, Sustainable Development. April 1997.

⁴⁴² Faisal al-Turki, *Promoting Sustainable Development Through Environmental Law: Prospects for Saudi Arabia*, unpublished SJD thesis, available at <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1016&context=lawdissertations>.

⁴⁴³ Id.

relevant environmental agencies demonstrate their objective of increasing public awareness of the necessity to protect the health of people and the environment.⁴⁴⁴ Moreover, the respective institutions are concerned with identifying main priorities for action along with providing specific tools for environmental planning and management.

Saudi Arabia has completely understood the principles of international environmental law that are compatible with Islam. This implies that the protection of citizens' health and the environment adheres to important religious and cultural norms valid in Saudi Arabian society. In an attempt to implement essential environmental agreements, Saudi Arabia has focused on the flexible process of establishing strong national capacity.⁴⁴⁵ The latter involves periodical self-assessment for global environmental management done in an efficient way. Undoubtedly, abiding by national and international standards of environmental regulation is complex, but the underlying idea is that Saudi Arabia has demonstrated extensive efforts to achieve sustainable, long-term results.⁴⁴⁶ Proposing relevant strategic objectives is an integral part of this process that requires coordination of action, competence and willingness to advance environmental regulation mechanisms.

As this summary shows, Saudi Arabia has extensively tried to develop a proper framework for ensuring adequate environmental protection.⁴⁴⁷ Two examples may be noted, one for air and another for water. The adoption of Ambient Air Standard 2012

⁴⁴⁴ UNEP, 31.

⁴⁴⁵ Faisal al-Turki, *Promoting Sustainable Development Through Environmental Law: Prospects for Saudi Arabia*, unpublished SJD thesis, available at <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1016&context=lawdissertations>.

⁴⁴⁶ UNEP, 35.

⁴⁴⁷ Faisal al-Turki, *Promoting Sustainable Development Through Environmental Law: Prospects for Saudi Arabia*, unpublished SJD thesis, available at <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1016&context=lawdissertations>.

should be noted.⁴⁴⁸ The standard mostly relates to limiting specific values for ambient air quality dimensions. The basic idea is to prevent or decrease substantially harmful effects on citizens' health and the environment as a whole. In this way, organizations in Saudi Arabia are presented with various limitations pertaining to the process of managing their emissions.⁴⁴⁹ Other important environmental standards related to the context of Saudi Arabia include the Standard on Emissions from Mobile Sources 2012 and the General Environmental Standard for Noise 2012. Such standards clearly reflect the initiatives of the Saudi Arabian government to maintain high quality environmental protection at different levels.

e. Saudi Arabia's Implementation of Environmental Standards

In terms of protecting the country's water resources, Saudi Arabia adopted the National Ambient Water Quality Standard 2012. The mentioned standard serves the main purpose to restore water used for different purposes. Another sign of maintaining qualitative environmental protection is the enforced Wastewater Discharge Standard of 2012 indicating the objective of the Saudi Arabian government to guarantee ambient water quality. Saudi Arabia's constant initiatives to release new environmental laws indicate the country's proactive measures to adhere to the basic concepts of international environmental law.⁴⁵⁰ The country has shown extensive concerns to adhere to international compliance and enforcement requirements.

⁴⁴⁸ EHS Journal, "Saudi Arabia Releases 9 New Environmental Laws", (2013). Available at <http://ehsjournal.org/http://ehsjournal.org/sanaa-chakibi/saudi-arabia-9-new-environmental-laws/2013/>

⁴⁴⁹ Kiss, Alexandre, and Dinah Shelton. *Guide to international environmental law*. Brill, 2007.31 .

⁴⁵⁰ EHS Journal, "Saudi Arabia Releases 9 New Environmental Laws", (2013). Available at <http://ehsjournal.org/http://ehsjournal.org/sanaa-chakibi/saudi-arabia-9-new-environmental-laws/2013/>

f. Progressive Development of Saudi Environmental Law

The Kingdom is a member of most multinational environmental compacts, is a leader in OIC, and is developing its national environmental laws. This is consistent with Islam. One can compare this national development by comparing it to the laws of three other Muslim states and by two case studies of how the Kingdom applies its Islamic principles in the case of *Zamzam* water and wild plants.

Chapter 7: Comparative Analyses of Law Among Pakistan, Jordan and Morocco

The methodology of comparative law offers generates many valuable insights that might not be gleaned through other forms of analysis. By comparing the environmental laws and policies of Pakistan, Jordan and Morocco, this chapter illuminates common challenges and opportunities in three countries practicing some form of *sharia*. Unlike in the Kingdom of Saudi Arabia, these three countries were previously part of European empires, and their legal systems retain significant elements those colonial experiences. Their European based legal systems coexist with the *sharia* in interesting ways. In addition to sharing the Islamic legal system, these three countries share international obligations, most notably under the Rio regime. Despite the commonalities, the environmental policies and practices differ significantly. Of particular note, the way that these states organization their environmental ministries (nationally or provincially) and decisions to establish national parks or create specialized environmental courts affects local environmental conditions significantly. And each could benefit greatly from incorporating *sharia* principles more explicitly and fully into their environmental regulatory schemes.

1. Introduction

Previous chapters examined humanity's failure to apply Islamic principles towards the protection of the environment. This chapter explores examples where religious faith and international law intersect by comparing the faith and legal systems of three Islamic countries, specifically Pakistan, Jordan, and Morocco. The chapter compares how each country has enacted specific laws relating to the environment. The differences in application of environmental law are the result of the needs of each

country. Some insights can be gained about how Islamic principles of environmental trusteeship influence - or do not influence - each country's environmental laws. Pakistan, Jordan, and Morocco are countries rich in history and legal complexity making them appropriate subjects of study. Case studies reveal both positive and negative aspects of the current governance of each country, which will serve as a relevant indicator of how to deal with specific environmental challenges.

Comparative analysis of these three states helps us answer some pressing questions. For example, Pakistan is a democracy with an active court system which has fashioned numerous remedies to deal with environmental issues. Its current enforcement system is resilient, however Pakistan's rule of law system faces many endemic and episodic challenges. For this reason, the implementation of court orders has been generally limited to the large cities. Pakistan, therefore, presents an opportunity to analyze the court's constitutional interpretation of its right to the environment and the court's proposed solutions. Furthermore, it permits a discussion of the effectiveness and limitations of Islamic laws on environmental issues.

On the other hand, Jordan is quite interesting for other reasons. Jordan's political system is a Kingdom. Under the monarchy, Jordan has developed a significant number of environment laws. Moreover, IUCN currently is conducting programs there. Meanwhile large numbers of refugees from Syria and Palestine are given refuge within its borders, increasing the already heavy burden of dealing appropriately with their environmental issues.

Finally, Morocco is a constitutional monarchy and has incorporated many ideas from the European Union on environmental law and protection. For example, Morocco

parallels the administrative system law system of France, which contributes to a more active court system.

These three countries present us with a basis for analyzing environmental issues within Islamic countries. It also provides diversity of governance and how these compare to other authoritarian countries. All three participated in the 1992 Earth Summit in Rio de Janeiro, and accepted Rio Principle 10. All three have protected areas of nature and observe Rio Principle 17 and employ EIA. Seeing this can bring to the table conversations for these three nations to provide their citizens voices on where to address these issues. The examination of environmental law in each case, enables comparison of different legal traditions because Pakistan follows and observes English traditions, while Morocco has influence from civil law in French, and Jordan employs a mixture of traditions some from British protectorate and some from other background. The comparisons in this chapter reveal how public policies and laws encompass the importance of preserving the environment. Moreover, the comparison focuses on the study of Islamic principles as applied to the environmental laws that govern the respective states.

2. Pakistan

a. Pakistan General Background

Pakistan is located in the western part of the South Asian subcontinent, with Afghanistan and Iran located to its west, India to the east, and the Arabian Sea towards the south. Pakistan is practically twice the size of the state of California. The northern and western parts of Pakistan are surrounded by the high Karakoram and Pamir mountain ranges, which contain some of the world's highest mountain peaks such as K2 and Nanga

Parbat.⁴⁵¹ The Baluchistan province is situated to the west, while the Thar Desert and a region of alluvial plains, the Punjab and Sindh province, is situated to the east. The 1,000-mile-long (roughly 1,609 km) Indus River and its branches flow throughout the whole country from the Kashmir area to the Arabian Sea.⁴⁵²

b. Pakistani Legal System

Pakistan is an Islamic Republic: meaning Islam is the state religion. Official figures show that roughly 97 percent of the Pakistani population is Muslim. The Pakistani legal system is derived from the British common law system during the times of the British *raj*. Despite its origin, the Pakistani legal system functions differently, concentrating on its amended 1973 Constitution and the Islamic Sharia law.

The Constitution of Pakistan, amended in 2010, requires federal and state legislation to be structured in conformity with Sharia Law.⁴⁵³ In fact, the Penal Code demonstrates the importance of Islamic law by integrating its various aspects into the legal code.⁴⁵⁴ The Supreme Court, Regional High courts, and other courts have jurisdiction over criminal and civil court issues.⁴⁵⁵ Pakistan's judicial system is represented by several distinct court systems with overlapping jurisdictions that demonstrate the various aspects of civil, criminal, and Islamic legal system.⁴⁵⁶ In addition, Pakistan has established environment courts.

⁴⁵¹ See Selim, M. E, "Environmental security in the Arab world", *Paper prepared for presentation at the Meeting of the International Studies Association*, 2004.

⁴⁵² Id.

⁴⁵³ El-Naggar, Mr Saïd, ed. *Economic development of the Arab countries: selected issues*, International Monetary Fund, (1993). 39.

⁴⁵⁴ Lau, Martin. *The role of Islam in the legal system of Pakistan*. Brill, 2005. p: 5

⁴⁵⁵ Available at <http://www.globalsecurity.org/military/world/pakistan/legal-system.htm>

⁴⁵⁶ Pike, John. "Military." Pakistan Legal System". Available at <http://www.globalsecurity.org/military/world/pakistan/legal-system.htm>

The Federal Sharia Court and the Sharia Committee of the Supreme Court operate as appellate courts for particular cases in criminal court that fall under the Sharia Ordinances. Given this, judges and attorneys practicing before the court must be Muslim.⁴⁵⁷ As part of their judicial review, the Federal Sharia Court may reject any legislation determined to be incompatible with the doctrine of Islam. This was so until March 2005, when the Chief Justice of Supreme Court stated that the Federal Sharia Court had no authority or power to reconsider a decision by a regional high court even in instances where the Federal Sharia Court should have had primary appellate authority.⁴⁵⁸

In accordance with the Constitution, the President chooses the Supreme Court's Chief Justice and officially approves other Supreme Court sub-Justices, as well as the regional high court judges on the recommendation of the Supreme Court Chief Justice. The Supreme Court has original, appellate, and recommended authority, while high courts only have unique and appellate influence. The Federal Sharia Court concludes whether laws are consistent with Islamic values.⁴⁵⁹ Special courts and committees are responsible for managing particular types of court cases such as, drugs, trade, terrorism, and environment cases. Pakistan's strict penal code has limited jurisdiction in tribal regions, where law is mainly controlled by tribal traditions.⁴⁶⁰

c. Pakistan military rule

Pakistan was formed on August 14, 1947 after much loss of life and property. Millions of destitute men, women and children migrated over to Pakistan, enduring much

⁴⁵⁷ Id.

⁴⁵⁸ For more information see <http://www.nyulawglobal.org/globalex/Pakistan.htm>

⁴⁵⁹ Newberg, Paula, *Judging the State, Courts and Constitutional Political in Pakistan*, Cambridge 1995, at p 39.

Cochrane, Hannah. "Dr. Parvez Hassan: Pakistani Environmental Laws." *J. Ct. Innovation* 3 (2010): 349.

suffering to settle in a land where they could worship and practice their own beliefs and develop their own cultures. Additionally, Muslims sought a better standard of living, economic development, prosperity and a life worth living. Despite these aspirations, the early years of independence (between 1947 and 1958) were intense and defeating, leading many to believe that their sacrifices had been for naught. Pakistan struggled from one major crisis to another, fighting to ward off the multiple problems. Much of the discussion to follow will focus primarily on the military rules and their effects, particularly the political effects, on Pakistan. In 1958, President Iskander Mirza, with the support of the army, suspended the 1956 Constitution, cancelled all scheduled elections and imposed martial law throughout the region. Shortly thereafter, the country was renamed the Republic of Pakistan. Subsequently, President Mirza was exiled by the military and Field Marshal Mohammad Ayub Khan assumed control of a military dictatorship only to later resign and leave the governing responsibilities to General Agha Mohammad Yahya Khan in 1969. General Khan became President and chief martial law administrator.

d. Pakistan's Constitution Right to the Environment

The 1973 Pakistan Constitution was the initial constitution outlined and adopted by parliamentarians or elected representatives of Pakistan. The Constitution declared that Pakistan is an Islamic and democratic country, with fundamental rights assured, comprised of the freedoms of thought, speech, religious belief and adoration, assembly, alliance, and the press, as well as, fairness of status. Under 1973 Constitution, the President of Pakistan is the head of State and is elected for five years by an electoral institution comprising of the members of Federal assembly and Senate and of the four

regional electoral assemblies. Until 1997, the President had certain flexible powers, including the mandate to suspend the National Assembly.

In April 2010, Pakistan adopted comprehensive reforms through the passing of the eighteenth amendment that restored many of the provisions of the 1973 Constitution. It limited the powers of the president and restored power to the provinces. It reversed constitutional changes made by former military chief and president Pervez Musharraf by transferring presidential powers to the parliament and the prime minister, including the rights to dissolve an elected parliament and to appoint military chiefs. Even as analysts welcomed the amendment's promise of devolution of powers from the center to the provinces, most believed distribution of revenues from natural resources between the central government and the provinces may be challenging to implement.⁴⁶¹

e. The Role of the Judiciary

The role of the judiciary with regards to environmental issues was solidified in 1994 when the Supreme Court decided the pivotal case of *Shehla Zia v. WAPDA*.⁴⁶² The Court noted that there did not exist specific terms related to the Environmental Protection Act within the 1973 Constitution. Despite this, a civil right to a clean and healthy environment arises out of a fundamental right to life and dignity covered by Articles 9 and 14 of the 1973 Pakistan Constitution. In the *Shehla Zia* case, the Court was presented with a unique appeal when some citizens of a suburban area of Islamabad contacted the Court regarding the installation of a high voltage electric station by the Water and Power

⁴⁶¹ Act No. X of 2010 dated 19 April 2010. The Constitution (Eighteenth Amendment) Bill 2010 was passed by the National Assembly on 8 April 2010 and by the Senate on 15 April 2010. It received the assent of the President on 19 April 2010.

⁴⁶² Ms. Shehla Zia and others (*Petitioners*) v. *WAPDA (Respondents)*, (1994). see at <http://www.elaw.org/node/1342>

Development Authority (WAPDA). The local citizens, headed by Ms. Shehla Zia, argued that the electromagnetic emission of the electric station could be harmful and or dangerous to human health. This appeal was extraordinary on two grounds. First it invoked the higher authority of the Supreme Court of Pakistan under the Article 184(3) of 1973 Constitution. Article 184 (3), rarely invoked except for in exceptional situations, mentions that the Supreme Court can impose the fundamental rights guaranteed to the citizens of Pakistan under the 1973 Constitution if the matter fell under “public importance.”⁴⁶³ The second remarkable aspect of this petition was that it did not pertain, strictly speaking, to any of the basic rights assured by the 1973 Constitution.

The claim was to implement civil rights as they relate to the environment, though the Constitution did not offer any fundamental rights related to environment issues. The *Shehla Zia* case⁴⁶⁴ became a landmark decision as it confirmed that the right to life guaranteed in the 1973 Constitution included the right to a clean environment. The case is also important as it exercised the use of judicial commissions to decide complex environmental matters and to recommend suitable remedies. In a final order, the Court gave considerable support to the petitioners by halting the establishment of the grid station until further research was prepared on the nature and level of the threat posed by the electromagnetic radiation emitted by grid stations. Following the example of the Indian Court, the Supreme Court established a judicial commission to study the technical aspects and to submit a detail report on this environmental matter.

⁴⁶³ Discussion of the case available at <http://www.elaw.org/node/1342>

⁴⁶⁴ Pakistan -- Zia v. WAPDA, P L D 1994 Supreme Court 693 available at <http://www.elaw.org/node/1342>

f. Local Government

Pakistan's four provinces are separated into local divisions, local districts, and local sub districts. These departments are operating by a government hierarchy of commissioners, such as the divisional commissioner or "DC", the deputy commissioner at the district region, and the sub divisional magistrate, sub divisional bureaucrat, at the *sub-district* region. The highest level is that of the district, where the Deputy Commissioner, or DC, although in charge of all departments of government, shares authority with the selected chairmen of the District Council.

It is important to note that Pakistan no longer has a national environmental ministry, having devolved that authority to the provinces. If enforcement by a provincial ministry is weak, then it falls to the courts to do much of the work. Pakistan has had difficulty over the years. Originally, Pakistan housed the environmental ministry in the capital of Islamabad, but then had to remove it, as well as, as change their environmental legal system. In addition, Pakistan decentralized the authority over environmental law in favor of granting more power to the provinces over this area of law. However, although Pakistan gave authority to each respective province, they did not provide the provinces with sufficient funds to implement these legal protections. This decentralized model left Pakistan without a central environmental ministry and without any environmental experts to represent Pakistan at large international conferences. Thus, although seeking to empower the regional provinces in regards to the environment seemed to be a worthy idea, it in fact weakened environmental protections overall and was a costly mistake. This is similar to the model practiced in Indonesia where they passed similar laws ceding

power in regards to environmental issues to the local authorities, however the Indonesian model also proved to weaken overall environmental governance.

g. Courts

(1) Courts & Supreme Court

The Supreme Court, located in Islamabad, is the highest court in Pakistan's legal hierarchy and has the final authority on all legal and constitutional issues. It also has a number of Subdivision Registries where legal cases are managed or heard. Supreme Court has a number of *de jure* authorities, framed within the Pakistan Constitution. Through military rule and constitutional regulation, the Supreme Court serves to review military actions. It has appellate authority over all federal courts and high courts, comprising of regional high courts, district level courts, and special criminal courts, as well as original authority over a few types of legal cases. The Supreme Court consists of a Chief Justice and a number of senior judges designated as sub-justices who are selected by the President on advice of the Prime minister.⁴⁶⁵

(2) Environmental Tribunals

In Pakistan the superior Judiciary, in particular one judge of Supreme Court, took a lead role for the protection of the environment on issues such as water pollution, air pollution and parks and protected areas, even before the promulgation of the Pakistan Environmental Protection Act (PEPA) and the establishment of environmental tribunal. In the 1990s in particular the Supreme Court and the High Courts were actively involved

⁴⁶⁵ Hassan, Parvez. "From Rio 1992 to Johannesburg 2002: A Case Study of Implementing Sustainable Development in Pakistan." *Sing. J. Int'l & Comp. L.* 6 (2002): 683.

in preserving and protecting the environment under the ambit of public interest litigation (PIL). This was primarily at the initiative of one judge at the Supreme Court Level.

Environmental tribunals have been constituted under Section 20 of the 1997 Act with exclusive jurisdiction to try series offences and to hear appeals against the order of EPAs.⁴⁶⁶ However, initially the Tribunals were not functioning until 2000. In mid 1999, on the direction of the Supreme Court of Pakistan the government established two working Tribunals, one in Lahore with the territorial jurisdiction of the Provinces of Punjab and Islamabad Capital Territory and the other in Karachi with the territorial jurisdiction of the Provinces of Sindh and Baluchistan.⁴⁶⁷ In 1999, an environmental lawyer filed the writ petition, *Jawad Hassan v. Ministry of Law, et. al.*⁴⁶⁸ in the Lahore High Court for public interest because the PEPA came in 1997 and the Environmental which are constituted under Section 20 of the PEPA with exclusive jurisdiction to try serious offences and to hear appeals were not functioning until July 2000. Now the Tribunal is entertaining a large number of complaints and appeals.

PEPA introduced a separate, comprehensive judicial institutional framework,⁴⁶⁹ including environmental tribunals⁴⁷⁰ and environmental magistrates⁴⁷¹ in Pakistan. The federal government may establish as many environmental tribunals as it considers necessary, specifying their territorial limits or the class of cases to be heard.⁴⁷²

⁴⁶⁶ Government of Pakistan, Ministry of Law, Notification No. F.22(1)97-A- III(A) dated 2 Jun 1999.

⁴⁶⁷ Hassan, Jawad. "Environmental Law of Pakistan." *Glob. Env'tl. L. Ann.* (1996): 15. p 312.

⁴⁶⁸ *Id.*

⁴⁶⁹ Also adopted by the Punjab Act and the Balochistan Act.

⁴⁷⁰ Sections 20–22 of PEPA and the Punjab Act, and sections 28–31 of the Balochistan Act.

⁴⁷¹ Section 24 of PEPA and the Punjab Act, and sections 32–33 of the Balochistan Act.

⁴⁷² Available at <http://adb.org/sites/default/files/pub/2013/environmental-law-jurisprudence-pakistan.pdf>

Environmental tribunals are administratively managed by the Ministry of Law Affairs and Justice.⁴⁷³

Each environmental tribunal consists of three members: a chair qualified to be a judge of the High Court, and two members of which at least one is a technical member with suitable professional qualifications and experience in the environmental field to be prescribed through rules and regulations.⁴⁷⁴ The third member of the environmental tribunal is a person who is or has been qualified to be a judge of the High Court.⁴⁷⁵ The appointment of the bench is done by the federal government, but for the appointment of the chair consultation with the chief justice of the High Court is required.⁴⁷⁶

It is important to note here that the qualification criteria for the members of the environmental tribunal, including the chair, do not include any specialized practice or training in environmental laws. This appears to be one reason for the stagnation and lack of implementation of environmental protection in Pakistan and in other countries with similar requirements or rather lack of requirements. Therefore, one tangible and very simple way to improve environmental protection in Pakistan is to require that members and the very least the chair of the environmental tribunal receive some form of training in environmental law or be required to undergo some level of environmental training once assuming office.⁴⁷⁷ Perhaps a one year L.L.M. degree at an American or other western law school, paid for by the government would suffice. Such degree program could be on a rotating basis where as soon as one member finishes his or her degree, another member

⁴⁷³ Urooj, Rabail. "Pakistan Environmental Movement Revisited." *Middle East Journal of Business* 10.2 (2015).

⁴⁷⁴ Section 20(2) of PEPA.

⁴⁷⁵ Rule 3 of the Environmental Tribunals (Procedure and Functions) Rules, 2008.

⁴⁷⁶ Section 20 (2) of PEPA.

⁴⁷⁷ CEEJ meeting, 8 February 2013.

is sent abroad. Members receiving such benefits should commit to government service for at least five years and in this way the institutional environmental knowledge will gradually build up in the tribunals over the course of the years.

The term of the members of an environmental tribunal is three years, which may be extended for another two years by the government.⁴⁷⁸ For every session of the tribunal, the presence of the chair and one member is required.⁴⁷⁹ The tribunal has exclusive jurisdiction to try offenses under it and to hear appeals against the orders of environmental protection agencies. Appeals from the tribunal must be forwarded to the Division Bench of the High Court.⁴⁸⁰

Environmental tribunals are exclusively empowered to try offenses under Sections 11,⁴⁸¹ 12,⁴⁸² and 13⁴⁸³ of PEPA, which provide penalties and punishments for violations.⁴⁸⁴ An environmental tribunal⁴⁸⁵ can impose fines of up to 1 million Pakistani Rupees (“PRs” or “Rs”)⁴⁸⁶ for the above contraventions.⁴⁸⁷ In the case of continuing contravention, an additional fine of PRs 100,000 (\$9,600) for each day the contravention continues may be imposed. The Environmental Tribunals (Procedure and Function) Rules of 2008, provide that where the accused is convicted and sentenced to a fine payable within a time fixed by the tribunal the convicted party fails to deposit the fine, then the environmental tribunal may order the party’s arrest and may sentence him or her to jail

⁴⁷⁸ Rule 4 of the Environmental Tribunals (Procedure and Functions) Rules, 2008.

⁴⁷⁹ Section 20(3) of PEPA.

⁴⁸⁰ Section 23 of PEPA.

⁴⁸¹ Prohibition of certain discharges and emissions.

⁴⁸² Requirement to submit IEEs and EIAs.

⁴⁸³ Prohibition of import of hazardous waste

⁴⁸⁴ Section 17 of PEPA.

⁴⁸⁵ Section 17(1) of PEPA.

⁴⁸⁶ Approximately 100 Pakistani Rupees is the equivalent to 1 U.S. dollar, thus a fine of 1 million Rs is approximately U.S. \$10,000.

⁴⁸⁷ Increased to PRs5 million under the Punjab Act.

for a period not exceeding six months or until the payment of the fine, whichever comes first. This rule would make enforcement more effective if used properly. In cases of repeated offense, the environmental tribunal has the power to order the offender with imprisonment for a term which may extend to two years; closure of a factory; and confiscation of machinery, equipment, and vehicles, *etc.* Orders for restoration of the environment can also be given to second-time offenders. Punishments under PEPA are inadequate and ineffective for first-time offenders as they only provide for the imposition of fines, which are at times disproportionate to the violations committed without evaluating the actual damage and without requiring the accused to rectify the environment accordingly.

Since June 2011, the judgments of environmental tribunals have been reported in monthly law journals. Generally, the judgments of the environmental tribunals fail to address the environmental concerns in a comprehensive manner. These judgments rely solely on the provisions of PEPA and its rules, regulations, and guidelines, and there is no use and application of other relevant laws or international principles of environmental law. The judgments lack detailed reasoning, referring only to facts of the matter at hand yet still giving final orders and/or directions. Furthermore, they do not rely on and refer to previous decisions of the superior courts in Pakistan or abroad. Even PEPA is viewed narrowly, without expanding its boundaries and interpreting it in a holistic and vibrant manner for the cause of the environment. A main contributing factor for all this is the previously mentioned lack of proper training of environmental tribunal members.

(3) Federal Sharia Court

The Federal Sharia Court (FSC) of Pakistan is a legal court with the authority to inspect and conclude whether parliament bills and laws satisfy *Sharia*. The Court is presided by a total of eight Muslim Judges who are elected by the President of Pakistan on recommendations from the Chief Justice of the FSC. Most of the judges currently serve or are retired Judges of the Supreme Court or a Regional High Court, while the remaining consists of individuals holding the qualifications of high court judges.

(4) Judicial Remedies

In Pakistan, the courts have to appoint a commission to solve environmental problems. This is an interesting and useful model. Pakistan's approach can be compared to that in South Korea, which created a special commission where the people bring the complaints to the committee, and the committees then hold a mediation to solve any environmental issues.

This approach helps ensure that there is an expert commission addressing these complex issues, rather than simply relying on the courts. Despite this, citizens began questioning the need for this commission and the reason why environmental issues were being address through the commission rather than the courts. Furthermore, environmental problems are not being resolved and there is still air and water pollution. Thus, Pakistan needs a stronger system. Thus, there is significant dispute on how to better enable the environmental courts to protect God's creation; what powers should the environmental courts be given to strengthen them? The nation's leaders will need to address this question in order to make real progress.

h. Pakistan Environmental Law

(1) The Development of environmental law in Pakistan

The Ministry of Environment was established in Pakistan in 1975 as a follow-up to the Stockholm Declaration of 1972. Under the Constitution of the Islamic Republic of Pakistan, 1973, both the federal and provincial legislatures had the power to make laws on the environment until 2010. The ministry proposed and drafted the first consolidated environmental law, the Pakistan Environmental Protection Ordinance, 1983 (PEPO). As federal legislation, the main objective of the PEPO was to establish institutions, i.e., the Pakistan Environmental Protection Council (PEPC), headed by the President of Pakistan, as the supreme environmental policy-making body in the country; the Pakistan Environmental Protection Agency at the federal level; and four environmental protection agencies at the provincial level to administer and implement the provisions of PEPO. The PEPO only provided an institutional structure for enforcement and the protection of the environment, without comprehensive provisions for regulation of land use; air, water, or noise pollution; marine pollution; biodiversity; or hazardous substances or activities.

In 1992, Pakistan participated in the Earth Summit in Rio de Janeiro, Brazil and has continued to participate in various international environmental conventions and protocols.⁴⁸⁸ This accelerated the process of environmental lawmaking in the Pakistan. In the same year, Pakistan prepared the National Conservation Strategy (NCS). The NCS provided a broad framework for addressing environmental concerns in the country. In 1993, the first National Environmental Quality Standards (NEQS) were notified under PEPO, providing standards for industrial and municipal effluent and air emissions,

⁴⁸⁸ For more information see <http://www.mauricestrong.net/index.php/earth-summit-strong>

including 32 liquid and 16 gaseous parameters. The Pakistan Environmental Protection Act, 1997 (PEPA) replaced the earlier legislation, PEPO, in an effort to bridge gaps in the law. After the 18th Amendment, Punjab adopted the Punjab Environmental Protection (Amendment) Act, 2012 (Punjab Act)⁴⁸⁹ with minor changes, while Balochistan passed the Balochistan Environmental Protection Act, 2012.⁴⁹⁰ The Balochistan Act has made some significant additions to PEPA, while Khyber Pakhtunkhwa and Sindh are in the process of drafting new provincial laws for the environment.

(2) International Treaties

Pakistan is party to several international agreements related to the environment and climate. The most prominent among them are: Convention on Biological Diversity, 1992; (2) Cartagena Protocol on Bio Safety, 2001; (3) Ramsar Convention, 1971; (4) Convention on the conservation of migratory species, 1981; (5) UNFCCC, 1997; (6) Kyoto protocol, 1997; (7) Vienna convention for the protection of ozone layer, 1985; (8) Montreal protocol, 1987; (9) United Nations Convention to Combat Desertification, 1994; (10) Rotterdam convention on Prior Informed Content for certain hazardous chemicals and pesticides in international trade, 1998; (11) Basel convention on the control of Trans-boundary movements of hazardous wastes and their disposal, 1989; (12) Stockholm Convention on Persistent Organic Pollutants, 1982; (13) UNCLOS, 1982; and the (14) Convention concerning the protection of the world cultural and natural heritage, 1972.

These international conventions play an important role in the protection of the environment, including the ground, air and sea, all of which are God's creation. Despite

⁴⁸⁹ The Punjab Act came into force on 18 April 2012.

⁴⁹⁰ Assented to by the governor on 9 January 2013.

this, there is a growing concern about its effectiveness and implementation of these international conventions. This is because the commitment to implement international agreements depends initially on the existence of national laws and legislation. Any delay in the establishment of necessary and effective legislation, as well as, implementation of follow-up programs and events to supplement the legislative agenda may prove fatal. Accordingly, it is proposed that both spiritual and religious values should be promoted alongside treaties and international agreements in order that we may achieve the common goal of protecting God's creation.

Pakistan's environmental guidelines are based on an individual participatory approach to achieve key objectives of environmental development through official, administrative, and technical institutions. After the signing of the 1972 Stockholm Declaration, the Federal Environment Ministry (1975) was proclaimed in Pakistan, however, currently it is dissolved. The Ministry was responsible for implementing the environmental protection regulation of Pakistan in 1983. It was the first broad environment legislation organized in the country. The chief objective of the 1983 regulation was to create federal and provincial environmental protection institutions and ultimately form the Pakistan Environmental Protection Convention or PEPC.

(3) Nature and Protected areas in Pakistan

Pakistan has vast areas of wilderness, which constitute habitats for wildlife and livestock. These lands include deserts, plains, and wetlands. The richest habitats for wildlife in Pakistan lie in the provinces of Baluchistan (which is located in the southwestern part of Pakistan and borders Afghanistan, Iran, and the Arabian Sea), the North-West Frontier Province (NWFP), and the Northern Areas. The Punjab wildlife

(protection, preservation, conservation and management) Act 1974 prohibits the taking and exporting of wild animals.

Pakistan has 10 National parks, 82 Wildlife Sanctuaries. The National Council of Conservation of Wildlife (NCCW) shares responsibility with the provincial Forest Department for administration of these areas.⁴⁹¹ The Wildlife protection ordinance empowers the government to take action for the conservation of wildlife. It provides for creation of three class of special protection areas: the national park and wildlife sanctuary. The type of restrictions in these areas include restrictions on hunting, on change in land use, protection of animals and plant life, and limitations on development activities.

The provincial wildlife laws, enacted in the 1970's by all the provinces on the basis of the model draft, were considered to be quite comprehensive. However, implementation of these laws has been weak. Moreover, these laws are over-regulatory and do not cater to modern concepts of community participation in management of protected areas and sustainable use of non-endangered species. On the request of the government, the International Union for Conservation of Nature Pakistan (IUCN Pakistan) is undertaking a full-scale wildlife legislation reform encompassing the preparation of a National Wildlife Policy, as well as model wildlife laws for the provinces. Pakistan's wildlife laws enforced by the provincial Forest and Wildlife Department, National Council for Conservation of wildlife include the following enactments:

⁴⁹¹ What Does NCCW Stand For?, "NCCW - National Council for Conservation of Wildlife (Pakistan) | Acronym Finder". Available at [http://www.acronymfinder.com/National-Council-for-Conservation-of-Wildlife-\(Pakistan\)-\(NCCW\).html](http://www.acronymfinder.com/National-Council-for-Conservation-of-Wildlife-(Pakistan)-(NCCW).html)

- Punjab Wildlife (protection, preservation, conservation and management) Act 1974.
- NWFP Wildlife Protection, Conservation and Management Act, 1975.
- Sindh wildlife Protection Ordinance 1972
- Northern areas wildlife Preservation Act, 1975 and
- Islamabad Wildlife (protection, preservation, conservation and management) ordinance 1979.

All these Acts and Ordinances are similar, which means that each one of them prohibits the hunting of the protected animals without a permit, the use of traps, and other limitations. They can impose penalties of imprisonment for two years and a fine or both.

Pakistan's laws for the protection of natural areas are very similar to the Islamic law principles described in chapter 3.⁴⁹² What Pakistan in doing this aspect is applying some protected areas principles that have already identified from the Holy *Qur'an*.⁴⁹³ They protecting natural areas, because they are God's creation which Islamic law requires His stewards to protect.

(4) Water and Environmental Pollution Aspects

The political obligation and objective is to improve the environmental process in the country. In 1992, Pakistan arranged and introduced the National Conservation Plan (NCS), which offers a extensive framework for tackling environmental issues nationwide. In 1993, Environmental Quality Standards, better known as (NEQS) were established.

⁴⁹² See chapter three, *Environmental Norms Under Islamic Law*.

⁴⁹³ Id.

Meanwhile, on December 6, 1997, the Pakistan Environmental Protection Act (PEPA) took effect, revoking the Pakistan Environmental Protection Law of 1983.⁴⁹⁴

The PEPA of 1997 offers the structure for execution of National Conservation Plan and the creation of provincial sustainable development and financial support, protection and preservation of species, preservation of renewable sustainable resources, and formation of environmental committees. Furthermore, it provides the framework for electing environmental judges, forming Initial Environmental Assessment (IEA), as mandated in Rio Principle 17, and the Environmental Impact Measurement. PEPA is the most vital environmental legislation in Pakistan, requiring industrialized facilities to limit their air emissions and influences the restrictions proposed in the National Environmental Quality Standards (setting penalties for non-cooperation. It also includes the institutional structure for ecological protection, which includes the Environmental Protection Bureau. The Bureau ensures the fulfillment with the standards, principles and regulations designed by relevant authorities and ultimately assessing environmental legislation⁴⁹⁵ It is also responsible for promoting research and development facilities, sustainable education, and supporting the establishment of NGOs to strengthen governmental activities. It may offer financial incentives through tax credits, awards, allowances, or other financial support for the endorsement of sustainable or efficient activities, equipment or methods. The law also dictates that the government should provide financial support to provincial sustainable development and outlines the duties and power of the pertinent authorities requiring Environmental Impact Assessments to be conducted for public and private schemes.

⁴⁹⁴ See <http://projects.wri.org/sd-pams-database/pakistan/environmental-protection-act-pepa>

⁴⁹⁵ Ahmed, K., Shahbaz, M., Qasim, A. and Long, W., “The linkages between deforestation, energy and growth for environmental degradation in Pakistan.” *Ecological Indicators* 49 (2015): 95-103.

I. Evaluation

Pakistan's government is constantly trying to enhance the overall condition of the country's environment. This has led to increased importance of how biodiversity activities are managed regarding. For this objective, various initiatives, linked to legislation, management and expansion of protected areas, have been established throughout Pakistan.⁴⁹⁶ Unfortunately, a number of internal laws relating to security and political issues have resulted in obstacles to enforcing the environmental laws. Not to mention, there is lack of adequate information such as missing facts concerning biodiversity. Pakistan is currently divided among an extensive range of institutions, and current capability to gather, store, examine, and distribute facts is restricted.

Furthermore, information about the components of the environment are incomplete. There is no centralized environment-related gathering of information to assess retain, store, and systematize data or to examine and distribute the data in a functional manner. In addition, there is uncertainty and insecurity regarding legislation, and development plans for these areas. Some administration related issues and recommendations are discussed below in order to analyze the current condition.

The following recommendations are presented: first, the most important problem is with regards for development to proceed only in accordance to global standards under international environmental law. This is essential to enforce existing legislation in an effective manner. To do otherwise, is to admit that current Islamic principles or international principles related to the environment cannot be implemented in Pakistan due

⁴⁹⁶ Azizullah, Azizullah, et al. "Water pollution in Pakistan and its impact on public health—a review." *Environment International* 37.2 (2011): 479-497.

to lack of political commitment to do so. Moreover, laws related to environmental preservation, enacted since the independence of Pakistan are sound, but their enforcement is either partial or rare. Law-enforcing institutions should set strict rules and directives in such a manner as to not allow room for any exemption. The goal of nature preservation is accomplished wholly through implementing policies that limit the use of resources, hunting, and land use or any similar actions within protected regions. Thus, enforcing these legislations through severe penalties for the illegal consumption of natural resources is strongly recommended.

In this way, regions with unique features of biodiversity can be protected more efficiently. Another important tool to increase preservation of the environment is by means of education and awareness. Society's knowledge, expertise, and awareness about the significance of protected areas, ecological conservation, biodiversity, and endangered sustainable system can be increased through media and other channels of information in national and local languages.

Unfortunately much deference is given to social, political and economical notions when considering issues of the environment than on any Islamic notions and or theories. This is because many view Islam as a threat, rather than a peaceful and merciful religion. This in turn, stems from the misguided ideology and practices of extremists who do not actually have any link to Islam and the misconception through lack of diligence and dialogue amongst the different cultures and religions, which add on the too commonly held of Islamophobia. As detailed in previous chapters, Islam is not just such a religion, but rather, a cosmic approach and way of life embodying mercy for all mankind. Islam

provides solutions and ideas for the global protection of the environment, sustainable development and a good life.

In addition to the aforementioned, access to information centers, which discuss the issues of preservation are necessary for effective administration of protective areas. Individuals residing adjacent to protected territories should be informed about the significance of the area. Moreover, individuals visiting the protected territories should be provided with information for the effective conservation of the area. This principle should be observed for all Pakistan's environmental laws in accordance with the Principles of the Rio Declaration of 1992.

3. Jordan

a. Introduction

(1) General Information

The Kingdom of Jordan is situated in the Middle East and positioned to the east of the state of Israel and Palestine, to the south of Syria, to the west of Iraq, and to the north of Saudi Arabia. Arid hills and mountains can be found in most parts of the country. The Jordan River follows from the southern division through the country.⁴⁹⁷ The population is around 6.5 million residents, which has increased swiftly over the past five decades. The population is made up almost wholly of Sunni Muslims and Christian Arabs who comprise 98% of the total population, with 92% Muslims and 6% Christians. Many migrated from Palestine and settled during the 1948 Palestine War and 1967 six-day war and recently there are 300,000 Syrian refugees. The remaining 2% of the population is either Circassian or Armenian. Most of the residents, 80%, live in rural regions. After

⁴⁹⁷Howari, F. M., and H. A. Ghrefat. "Jordan: environmental status of water, soil and air." (2011).

World War I's separation of West Asia by Britain and France, the Council of the League of Nations accepted the Emirate of Transjordan in 1922. In 1946, the country became a sovereign and autonomous state legitimately recognized as the Hashemite Kingdom of Transjordan.

(2) History of Hashemite's Islam

Hashemite's Islam is a royal family of the *Hejaz, Iraq, and Jordan* (Al-Khalailah, Yacoub & Al-Majali, 102). The members of the family can trace their lineage to the Dhawu Awn, a branch of the Hasanid Sharifs of Mecca, who ruled Mecca consistently from the 10th century to 1924. Sharif Huseein Ibn Ali founded the present dynasty after his 1908 appointment as Sharif and Emir of Mecca.⁴⁹⁸ After eight years, he was proclaimed King of the Arab Lands after initiating the Arab Revolt against the Ottoman Empire. In 1921, his sons Abdullah and Faisal assumed the thrones of Jordan and Iraq respectively.

The Hashemites trace their ancestry back from Hashim ibn 'Abd Manaf, the great-grandfather of the Islamic prophet Muhammad.⁴⁹⁹ Their early history is defined by struggles against the successor of Muhammad. Although the Umayyads were of a different clan from the Hashemites, they took over before Addasids became representatives of the Hashemites. After the 10th century, the *Sharif*, a religion leader, and Emir were chosen traditionally. Before the First World War, the *Hussein bin Ali* from the Hashemite Dhawu-'Awn clan became the ruler of the Hejaz on behalf of the Ottoman

⁴⁹⁸ Sharif Huseein ibn Ali was the third son of Ali. See (Al-Khalailah, Yacoub & Al-Majali, 109)

⁴⁹⁹ The Hashemites pride themselves in being in the lineage of kingship and hence the true and valid descendants of the prophet. This is further emphasized by their numerous population. For more information, read Bosworth, Clifford Edmund. *The new Islamic dynasties*. Columbia University Press, 1996.

sultan (King Hussein, 2). It became a practice thereafter that the Emir of Mecca was appointed from a selected group of candidates. During the 1916 Arab Revolt, Sharif Hussein Bin Ali rebelled against the rule of the Ottomans. In 1924, after the collapse of the Ottoman power, Hussein Bin Ali became an independent *Hejaz*, a king, with the support of the British Foreign Office. Hussein's rival later captured Hejaz and established his son as governor in 1925. This region was later incorporated into Saudi Arabia. The five sons of Hussein bin Ali⁵⁰⁰ were Ali, who took over the throne before it was lost to the Saudi family in 1925, Abdullah, the Amir of Transjordan in 1921 and king of Jordan in 1946. His descendants still rule the Kingdom referred to as the Hashemite Kingdom of Jordan.⁵⁰¹

Although Jordan is a constitutional monarchy, the king controls both the executive and parliamentary powers. The current ruler, Abdullah II, is considered the sovereign leader and Commander-in-Chief who appoints the governmental branches comprising of the Prime Minister, Ministerial Cabinet of Jordan, and provincial governors.⁵⁰²

(3) Jordan's Legal System

Jordan is ruled and governed by its monarch, advised by his government. The King has supremacy to propose and endorse laws, command the compliance with regulations, authorize treaties and agreements, announce war, conclude peace, discharge the Prime Minister, assign Senators, suspend and postpone the Chamber of Ministers, and

⁵⁰⁰ Stitt, George. *A Prince of Arabia, the Amir Shereef Ali Haider*. London: George Allen & Unwin. 2008.

⁵⁰¹ For more information regarding the descendants of King Hussein ibn Ali, see Lawrence T E. *Seven Pillars of Wisdom*. NY: Penguin Classics. 2000.

⁵⁰² See World, Chelsea Davis The. "FERC Issues Jordan Cove's Draft Environmental Impact Statement." Coos Bay World. Available at http://theworldlink.com/news/local/ferc-issues-jordan-cove-s-draft-environmental-impact-statement/article_ee340390-668e-11e4-9b6f-eb33a5e3cfd9.html

serve as the commanding officer of the country's armed forces.⁵⁰³ The King, along with the Prime Minister and Cabinet Ministers, implement the administrative functions of the nation's government. In addition, the Senate and Chamber of Parliamentarians, which represent the higher and lower houses of the general Assembly, are responsible for the implementation of the legislative functions.⁵⁰⁴

Jordan has established different civil and religious courts with provisions to ensure judicial supremacy. The new legitimate court, which appointed its members in October of 2013, plans to guarantee execution of the Constitution and to impose a greater separation of powers. This court was established based on specific articles of the Constitution of Jordan, respectively articles 58 and 59, which represent adequate reforms undertaken by the king in order to promote the solid bases of democracy.⁵⁰⁵

Jordan's Organic Law was enforced in 1928 and was the tool through which a counseling parliament was formed under the British Command. Following Jordan's independence in May of 1946, this tool was implemented under the specific clauses of the Constitution. A second version of the Constitution was summarized and approved on November 28, 1947. In 1952, King Talal approved a more moderate and liberal version of the Constitution, which remains in force today.⁵⁰⁶

(4) Jordan's Constitution

The Constitution of 1952 is comprised of nine chapters. Chapter One outlines the country's parliamentary structure, official religion, official language, capital, and national

⁵⁰³ See http://www.kinghussein.gov.jo/constitution_jo.html

⁵⁰⁴ Id.

⁵⁰⁵ See Bianca C. Isaias and Fred Jennings .”Overview of the Hashemite Kingdom of Jordan Legal System and Research”, (2013). Available at <http://www.nyulawglobal.org/globalex/Jordan.htm>

⁵⁰⁶ Constitution of the Hashemite Kingdom of Jordan, (1952). Available at http://www.constitutionnet.org/files/2011_constitution_-_jordan_english_final.pdf

flag. Chapter Two demonstrates specific information about the terms of the civil rights and responsibilities of citizens of Jordan.⁵⁰⁷ Chapter Three is the national division of general terms and general structure Chapter Four summarized the ministerial branch's composition and powers. Chapter Five details the parliamentary branch's composition and authorities. Chapter Six states the judicial branch's structure and authorities. Chapter Seven focuses on financial issues, including taxes and information on legislation issues. Chapter Eight summarizes other governmental and community framework, special courts, crisis and martial law, and the responsibilities of the military forces. Chapter Nine focuses on the implementation of particular laws.

The Constitution provided that: 1) individual freedom shall be assured; and 2) every violation of rights and public freedoms or the inviolability of the individual life of Jordanians is a wrong and punishable by law. A sustainable healthy environment encompasses a fundamental civil and human right in Jordan.⁵⁰⁸ Accordingly, Jordanians consider that the harm to the environment as a criminal offence and liable to be punished by law.⁵⁰⁹

The Jordan's Constitution, adopted in 1952, has undergone numerous amendments.⁵¹⁰ It defines the hereditary monarchic rule that exercises a parliamentary representation system. The constitution defines the powers of the executive, the legislative, and the judiciary, the citizen's rights and duties, financial issues and constitutional regulations. Additionally, in 1928, an organics law was passed under

⁵⁰⁷ Jaber, J. O., and S. D. Probert. "Energy demand, poverty and the urban environment in Jordan." *Applied Energy* 68.2 (2001): 119-134.

⁵⁰⁸ Id.

⁵⁰⁹ Id.

⁵¹⁰ Al-Khalailah, Yacoub & Al-Majali categorically gives the background of the Hashemites with reference to Prophet Mohamed in Ayed, Yacoub Mohammad, and Al-Majali Muna. Kingdom of Jordan Executive Summary of the Study of The extent of the Compatibility of the National Legislations with the International Charters. *The National Centre for Human Rights*. 2010

British authority. Later, in 1946 following the abolition of British authority, King Talal promulgated a new constitution composed of nine chapters and ratified in 1952 (as discussed above). Article two of the constitution designates Islam as the state's religion and Arabic as the nation's official language. Chapter two also enlists the rights and duties of Jordanians. Article Five establishes Jordanian nationality while Article Six affirms the equality of all Jordanians before the law firmly forbidding discrimination between them "on the grounds of race, language or religion."⁵¹¹ Moreover the second clause of article six requires the government ensure opportunities for work and education for all Jordanians.⁵¹² Article 7 on the other hand, guarantees personal freedom for all.⁵¹³

Since the establishment of the contemporary Hashemite Kingdom of Jordan, the Government has been dedicated to protect the rights and freedoms of citizens as required by Article 7 of Chapter 2 of the 1952 Constitution within its amended version of 2011; 1) Individual freedom is guaranteed; 2) Every violation of public rights, freedom or individual life of Jordanians is a wrong and punishable by law." Since a sustainable healthy environment is a fundamental civil and human right, the Jordanians consider harm to the environment as a criminal offence punishable by law. In addition, sustaining and preserving the environment from contamination is a secular duty for current and future generation.

b. Jordanian Environmental Legislation

Since the establishment of the contemporary state of Jordan, the Government of Jordan has been dedicated to protecting the rights and freedoms of citizens, as

⁵¹¹ Constitution of The Hashemite Kingdom of Jordan 1952, Chapter Two Rights and Duties of Jordanians and Article 6 available at http://www.kinghussein.gov.jo/const_ch1-3.html

⁵¹² Id.

⁵¹³ Id.

commanded by Article 7 of Chapter 2 of the 1952 Constitution and its amended version of 2011.⁵¹⁴ In addition, according to the Science and Environmental Health Network sustaining and preserving the environment from contamination is a secular duty for current and future generations.⁵¹⁵⁵¹⁶

c. Court System of Jordan

The Jordanian constitution recognizes the courts as one body emerging out of three separate and sovereign divisions of government. Jordan's current legal system is established pursuant to the Constitution followed by the Court Formation Law of 1951, which presents aspects of both civil and criminal codes, as well as, Sharia and religious laws in certain matters. Jordan's legal system has been extensively influenced by the French; this is evident in the way it functions. The Court system was established with the assistance of codes of law formed by the Ottoman Empire and, thus, indicate a solid French Civil law influence. Finally, specific aspects of strict Islamic law have also been altered in many ways by European models.

(1) Religious Courts

The religious legal system has authority over issues of personal status, covering areas of marriage, divorce, birthright, and alimony. Individuals of the same religion are handled to the appropriate religious courts. For example, the Islamic Sharia Courts are for

⁵¹⁴ Constitution of The Hashemite Kingdom of Jordan 1952 Available at

<http://www.loc.gov/law/help/national-religious-identity/constitutional-provisions.php/?loclr=bloglaw>

⁵¹⁵ For further information on how to protect future generations, see Science and Environmental Health Network and The International Human Rights Clinic at Harvard Law School, Models for protecting the environment for future generations (Oct. 2008), available at http://www.law.harvard.edu/programs/hrp/documents/Models_Future_Generations.pdf.

⁵¹⁶ Ali Agha. "Green Buildings: A study of adoption challenges in the public sector of Pakistan" Available at https://www.academia.edu/8109442/Green_Buildings_A_study_of_adoption_challenges_in_the_public_sector_of_Pakistan

Muslims, while Ecclesiastical Courts handle Christian matters. Individuals from different religions, who are not specifically authorized to bring their cases to religious courts, may bring their issues to the civil court having suitable jurisdiction.

(2) Civil Court

The civil courts are the third component of Jordanian government. The lowest courts are the fourteen Magistrates' Civil Courts and there are seven bodies identified as Courts First Instance. The main responsibility of the magistrates is to manage civil and criminal cases and other matters involving imposition of fines, penalties within the period of two years. Although the Courts of First Instance are authorized to manage all criminal and civil matters, they are not, however, specifically granted the same authority as Magistrate Courts. These courts are based in court of appeal buildings in Magistrates courts. The next court level is the Court of Appeals, which is chaired by a committee of judges. The Court of Appeals' jurisdiction is divided by specific geographic location and their cases are from appeals from the Magistrates' Courts. They also review appeals arising out of judgments from the religious courts, as well as, Courts of First Instance. Finally, the Court of Cassation, is considered to be the highest level courts presiding over cases of utmost importance by a full board of Judges while common appeals from the Court of Appeals are heard by a total of five judges.

d. District and Local Government

Jordan is divided into twelve provincial governates, commonly known as "muhafathat", each of which are separated into smaller governmental sub-districts. Each governate is chaired by a governor, who is selected by the king through the Ministry of the Interior. The regional government is responsible for administrative duties and for

executing decisions of the cabinet on the regional and local level.⁵¹⁷ These district administrators, therefore, make up the central government, while the ministry of interior is responsible for managing and controlling district administration.

e. Jordan's Environmental Laws

International treaties were created to obtain global consensus and agreement, on mandatory legal standards, cooperation between the different states for the elimination and prevention of pollution, easing and minimizing pollution risks, and imposing environment preservation policy. Jordan adopted these international laws to protect their own domestic environment situation. This led to the signing of international environment treaties, supporting and strengthening non-governmental Organizations in promoting sustainability in Jordan and prevention of pollution. Jordan passed the First Environmental Preservation Law in 1995, declaring the Department of Environment, both financially and governmentally independent. This legislation was later reformed and endorsed by the Government as a Temporary Legislation and recognized as the Temporary Environmental Preservation Law No.1, 2003, whereby the Ministry of Environment was established (2003) and replacing the department of environment. Later in 2006, legislation was passed and approved by both the parliament and the King, enforceable as early as late 2006.

(1) Issues

The international, provincial and local environments experienced numerous threats, obstacles and challenges, as a result of industrial activities, and in some

⁵¹⁷Alnsour, Jamal, and Julia Meaton. "Housing conditions in Palestinian refugee camps, Jordan." *Cities* 36 (2014): 65-73.

circumstances due to natural disasters. This chapter discusses the most aggressive sources of environmental obstacles and the legal structure for the preservation of the environment. Article 2 of the 2006 Jordanian Environmental Preservation Law No. 52 defines environmental preservation as the protection of the elements (water, atmosphere, soil, natural resources, and people) and components of the environment and development of same, and reduction of the deterioration or contamination thereof, or the reduction thereof, while within safe contamination thresholds.⁵¹⁸

The Government of Jordan has been keen on promoting moderate use of its natural resources, prolonging the use of non-renewable resources by considering different alternatives, and achieving economic development whilst sustaining a healthy natural balance and ensuring prevention of pollution.

(2) International Treaties

Since the 1970s, Jordanian representatives have attended more than 155 international conferences and has been a signatory to many agreements relating to environmental issues. As a result, the Jordanian Government has adhered too many of these agreements, and referred to them as a framework for the Jordanian Domestic Environmental laws. Article 5 of the Jordan Environmental Preservation Law No. 52 of 2006⁵¹⁹ clearly highlighted the execution of these agreements. It states in the Article that the environment ministry, in assistance and synchronization with institutions involved in environmental issues on a domestic, regional and international level, shall be accountable

⁵¹⁸ Gazzola, Paola. "Reflecting on mainstreaming through environmental appraisal in times of financial crisis—From 'greening' to 'pricing'?" *Environmental Impact Assessment Review* 41 (2013): 21-28.

⁵¹⁹ Available at

<http://www.nchr.org.jo/english/LegalPointOfReferance/NationalLegislations/JordanianConstitution/ConstitutionoftheHashemiteKingdomofJordan.aspx>

for preserving the elements and features of the environment from pollution and shall take responsibilities to implement agreements concerning environmental issues.⁵²⁰

The Hashemite Kingdom of Jordan sought to ratify most of the international treaties and conventions on the environment. The most important treaties are as follows:

- 1) Climate Change and Kyoto protocol (1997).⁵²¹
- 2) Convention on Biological Diversity.⁵²²
- 3) Convention on Fishing and Conservation of Living Resources of the High Seas.
- 4) Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971).
- 5) Convention on the Conservation of Migratory Species of Wild Animals (1979).⁵²³
- 6) Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES).
- 7) Stockholm Convention on Persistent Organic Pollutants(2001).⁵²⁴
- 8) Convention on the conservation of migratory species, 1981 (6); UNFCC (1997).
- 9) Regional Convention for the Conservation of the Red Sea and Gulf of Aden (1982.)⁵²⁵
- 10) United Nations Convention to Combat Desertification (UNCCD).⁵²⁶
- 11) The Vienna Convention for the Protection of the Ozone Layer.⁵²⁷

⁵²⁰ Caplan, Arthur J., Charles Sims, and Elliot Jordan Anderson. "Measuring the environmental cost of hypocrisy." *Ecological Economics* 108 (2014): 124-135.

⁵²¹ Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 Dec. 1997. Available at <https://www.britannica.com/event/Kyoto-Protocol>

⁵²² United Nations Convention on Biological Diversity (1992) Available at <https://www.cbd.int/convention/>

⁵²³ See Convention on the Conservation of Migratory Species of Wild Animals (CMS). Available at <http://www.cms.int/>

⁵²⁴ See Stockholm Convention, at <http://chm.pops.int/TheConvention/Overview/tabid/3351/> and https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-15&chapter=27&lang=en

⁵²⁵ Available at <http://www.unep.ch/regionalseas/main/persga/convtext.html>

⁵²⁶ For more information about (UNCCD) see at <http://www.unngls.org/index.php/engage-with-the-un/un-civil-society-contact-points/124-the-united-nations-convention-to-combat-desertification-unccd>

⁵²⁷ The United Nations art. 27 The United Nations. "Vienna Convention on the Law of Treaties." *Treaty Series* 1155 (1969): 331

12) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London Convention (1972).⁵²⁸

(3) Jordanian Environmental Legislation

The Constitution provides the legislative power and the civil right to issue laws to preserve the environment of the country. Environmental preservation was not a main concern of the Jordanian Government until the late 90's. As such, the parliamentarians only moderately tackled environmental issues by integrating environment related articles in a number of Jordanian Environment Laws.⁵²⁹

(4) Jordan's law for Environmental Impact Assessment EIA

In 1992, UNEP met in Rio reaffirming the Declaration of the United Nations Conference on the Environment. Moreover, Jordan approved international charters on climate changes and the protection of the ozone layer. The Rio Declaration for the development of the environment comprises of 27 principles. According to the first principle, human beings are within the interests of sustainable development and have the right to a healthy and productive life. It also discusses the declaration of principles regarding forests and wildlife protection transfer of modern technology and the allotment of the financial resources in the preservation of the forests.

According to Al-Khalailah, Yacoub and Al-Majali, there is a close relationship between the human environment, human satisfaction and human rights. Thus, the balance must exist between the rights of a human being and those of the environment. According to the first principle that was adopted, human beings have the right to freedom, equality,

⁵²⁸ For more information see <http://www.imo.org/en/OurWork/Environment/LCLP/Pages/default.aspx>

⁵²⁹ Ali, Hikmat H., and Saba F. Al Nsairat. "Developing a green building assessment tool for developing countries—Case of Jordan." *Building and Environment* 44.5 (2009): 1053-1064.

and suitable living conditions. Moreover, there is a responsibility of protecting the environment for the sake of the present and future generations. This global provision has enlightened the world of the need to include air as a natural resource and thus, has required critical attention from human beings. Human beings are called to take care of the environment, avoid misuse of natural resources and avoid taking action within their territories which threaten other states.

One of the major obstacles that hinders the effective execution and enforcement of the Environmental Preservation Law is the overlap in judicial jurisdiction and replication of texts with other Jordanian Legislations dealing with the environment and incompatible and inappropriate punishments for offenders. Another obstacle that is encountered in the execution of the laws is the incapability of the court system to manage environment related legal cases appropriately and within a reasonable time structure. The judges do not have the proficiency and capability to handle environmental issues and are not quite familiar with all environment laws, binding domestic, regional and international conferences and agreements. As such, it takes the judges a prolonged period of time to reach a determination and holding. Further, although the employees in the Ministry of Environment are given Judicial Police Powers, they experience difficulties in employing actions that effectively implement environmental laws due to the nonexistence of clear directives.

Although the Jordan Environment Legislation delegate, the responsibility of environment preservation to the Ministry of Environment, it is clear that there still exists uncertainty among various government and non-governmental institutions with regards to

the operations and relevant duties. This is primarily due to the duality, overlapping and conflicting nature of the Jordanian legislations.

(5) Environmental Police

With the support of King Abdullah II, the Environmental Police Institution was formed on June 15, 2006 to take action three months later. In 2008, it was renamed the Royal Department for Environment Preservation (RDEP). As a unique organization in the country – and possibly in the region - the Rangers are the administrative division of the Ministry of Environment. The objective of the Rangers is to enhance the quality of Jordan's environment through appropriate and efficient implementation of environmental legislations, improve collaboration with and between relevant institutions, and advance national support and support for environmental matters.⁵³⁰ To accomplish the objective and reduce threats to the Jordanian environment, the Rangers usually establish partnerships with governmental and civil society institutions to implement domestic environmental laws.

f. Challenges in Enforcing the Environmental Protection Law in Jordan

One of the major challenges with enforcing laws that protect the environment is the duplicity of legislative texts and the overlapping jurisdiction with other Jordanian laws. For example, paragraph 2, Article 54 of the 2000 Aqaba Special Economic Zone Law No. 32, discusses sea pollution and potential damage to the zone. This provision also holds that any violation would subject the perpetrator to a fine of no less than fifty thousand dinars but not to exceed 10 million dinars. Moreover, the perpetrator is obliged

⁵³⁰ Araslı, Huseyin, and Sarvnaz Baradarani. "European tourist perspective on destination satisfaction in Jordan's industries." *Procedia-Social and Behavioral Sciences* 109 (2014): 1416-1425.

to pay compensation and remove the violation. Meanwhile, the Environment Protection Law established a maximum fine for damaging the maritime at twenty-five thousands, and while it mandates the removal of the violation, it does not oblige the violator to compensate for said violation. Although Article 20 of the Environmental Protection Law states that nothing within the law shall preclude the applicability of more severe punishment, it is up to courts to decide on the adequate punishment, which can be a challenge in and of itself. This is because due to their lack of expertise, the judicial system is unable to properly handle environment related cases, particularly, within a reasonable time frame.

g. Evaluation

Jordanian government needs to establish special environmental courts to guarantee that the judges have the right ability, proficiency and resources to measure environmental legal cases. They need to develop sentencing procedures and information to assist judges make fast and appropriate decisions in relation to environmental cases. The procedures should overcome the existing obstacle of conflicting sanctions mentioned in the different Jordanian laws, and takes into deliberation the harshness of the violation. They should provide special advanced training programs for judges to specialize in adequately environmental cases.⁵³¹ They should hold out national studies to examine compliance with domestic, regional and international conferences and agreements that were endorsed and approved by Jordan. The study should also include a legal structure to

⁵³¹ Giving Force to Environmental Laws: "Court Innovations Around the World", March 12, 2011. Available at <http://www.law.pace.edu/sites/default/files/IJIEA/IJIEABriefingPaper.pdf>

interprets any ambiguous provisions within domestic laws. Based on the conclusion of the study, it is suggested to ensure compulsory compliance with the laws.⁵³²

h. Islam in relation to Jordan's environmental system

Jordanian environmental law articles are unspecified. They lack judicial enforcement of the terms and conditions. Therefore, Jordanian's environmental law totally depends on Jordanian civil law. Jordanian Civil Law clearly states in Article 2.1 that Islamic Law is the main source of legislation and its articles are interpreted based on the framework of *sharia*. In the absence of text from Islamic jurisprudence sources, civil law applies in reproduction to the incident. Most of the Jordanian Civil Code derived from judicial judgments in Ottoman magazine is entirely based on Islamic principles and other articles derived directly from the sources of Islamic jurisprudence. Therefore, environmental law is directly affected by the source, interpretation and judicial application of the civil code.

4. Morocco

a. In General

Morocco is a country located in the topmost part of North Africa nearby France and Spain and covered by interior mountains and large dessert areas. Given the location of Morocco, it is surrounded by coastlines, the Atlantic Ocean, Mediterranean Sea and the Sahara. Additionally, given its close proximity to France and Spain, it coordinates with these countries to enact laws that affect the Mediterranean under the 1974 Barcelona Convention for the Protection of the Mediterranean Sea. The country stretches for a total

⁵³² Özerol, Gül, Hans Bressers, and Frans Coenen. "Irrigated agriculture and environmental sustainability: an alignment perspective." *Environmental science & policy* 23 (2012): 57-67. Also see *NY Times* Jan. 16, 2015 available at <http://www.nytimes.com/2015/01/16/science/earth/study-raises-alarm-for-health-of-ocean-life.html?>

area of 446,559 km² and 172, 410 square miles, home to a population of approximately 33 million people all representing a blend of native Berber, Arab, European influence and Sub-Saharan African. The predominant religion is Islam and given its variant population, the official languages are both Arabic and Berber.⁵³³

The Moroccan terrain is quite diverse, with large desert landscapes of the Sahara and forests comparable to what can be found in the southernmost parts of Europe. Although Morocco has quite diverse features, the quality and integrity of its environment everywhere is threatened by the extent of pollution and degradation at the hands of both human and natural causes such as “deforestation, overgrazing, erosion, desertification, silting, loss of crops, unplanned urban growth, demographic overcrowding in some areas, degradation of its cultural heritage, industrial, agricultural and domestic pollution.”⁵³⁴ This diverse country poses faces many challenges.

With regards to its governance, Morocco is a constitutional monarchy and democratic sovereign governed by the Constitution, the first promulgated in 1962. Assembly members are elected in accordance with Article 1 of the Constitution, which is the supreme law of the land, and the King is given wide latitude over administrative and governmental powers over military, foreign policy, ratifying treaties (Art. 55 of the Constitution) and all other religious affairs. In addition, Morocco has existing environmental laws enacted with the objective of addressing environmental issues and fostering a sustainable environment. Below is a discussion of Morocco’s legal sources and environment-specific legal instruments, including their institutional aspects. Finally, how these factors relate to the enforcement of environmental law.

⁵³³ “Morocco”. 2000–2013 Pearson Education, publishing as Fact Monster. 13 Jan. 2015 *available at* <http://www.factmonster.com/encyclopedia/world/morocco-country-africa.html>

⁵³⁴ Available at http://www.maroc.ma/ar/system/files/documents_page/BO_5964Bis_Ar.pdf

(1) Brief Overview

Morocco's location as a center between Africa and Europe has long drawn the attention many peoples with different interests. This led to a concentration in population, calling for the strengthening of the regulations that protect the environment. The 1920's saw the establishment of the France Protectorate that played a pivotal role in the development of modern environmental laws and regulations geared towards the protection of natural resources, pollution control and regulation of dangerous facilities.⁵³⁵

Despite their influence, the French Protectorate provided Morocco with comprehensive set of laws and regulations that were incompatible with Morocco's physical, social and cultural aspects.⁵³⁶ Morocco's laws follow the civil law tradition.

(2) The Constitution

The Constitution of Morocco governs the monarchy and government, legislature and courts. However, King Mohammed VI called for a constitutional reformation as a result of protests that took place in 2008.⁵³⁷ A referendum was subsequently adopted approving the new constitution on July of 2011 by 97% of voters.⁵³⁸ Among the many provisions, there was a reduction of the King's powers in favor of expansion of the Prime Minister's discretion, such as the right to amnesty. According to the amended constitution, the Prime Minister is to appointed by the King from the largest party in Parliament. In addition to this, new constitutional rights were established reinforcing the

⁵³⁵ A summary of Moroccan history is available on the U.S Department of State. Available at <http://www.state.gov/j/drl/rls/hrrpt/2004/41728.htm#hisory>

⁵³⁶ *Compilation of laws and regulations relating to the environment* (in Arabic), Rabat, Ministry of Planning Policy 1982.

⁵³⁷ Bel-Laoualli, Smail and Paul Schemm. "Morocco outlines ambitious judicial reform plan." *Associated Press*. Sept. 13, 2013. Available at <http://news.yahoo.com/morocco-outlines-ambitious-judicial-reform-plan-090943283.html>.

⁵³⁸ Agency, C., Fund, W., *Morocco*. Retrieved from <http://www.eoearth.org/view/article/154688>

constitutional review process.⁵³⁹ Finally, the amended constitution included a segment on fundamental rights and freedom.⁵⁴⁰ In particular, Article 31 sets forth the right to a safe environment and to sustainable development for the first time in history, originally included within the fundamental rights and freedom umbrella. Shortly after the constitution was amended, parliamentary elections were held, marking a historic moment.

b. Morocco's Environmental Law

Morocco is a Muslim state. Article three of the Moroccan constitution establishes Islam as the religion of the state, while nonetheless guaranteeing to all the free exercise of their beliefs. In addition, over 50 years ago, Morocco enacted laws for the protection of the environment. Recently, international agreements have been incorporated into national law which assist in enforcing environmental laws. There are the Dahir 1 - 03-59 (law 11-02), 1 - 03-60 (law 12-03), and the Dahir 1 -03- 61 (law 13-03). These rules affirm universal principals of the national environmental policy, rules and procedures of the EIA to combat air pollution.⁵⁴¹ Current reenactments embody laws on agricultural water and the Environmental Protection Act. Another law, 28 – 00, was enacted in December 2006 and covers waste management and the disposal of waste.⁵⁴²

c. International Law

Morocco works closely with Spain, France and Italy and other European countries to develop the law affecting the Mediterranean. They have two items, which have influence the development of their environmental law they were functioning actively

⁵³⁹ Available at <http://www.maroc.ma/en/content/constitution>

⁵⁴⁰ Title II of the constitution named “Fundamental freedoms and rights” available at <http://www.maroc.ma/en/content/constitution>

⁵⁴¹ Wolfrum has reviewed environmental constitutions and compares these constitutions continentally. Wolfrum Grote, eds. *Constitutions of the Countries of the World*. New York: Capricorn Books. 2010.

⁵⁴² Morocco's Constitution of 2011. Available at https://www.constituteproject.org/constitution/Morocco_2011.pdf?lang=en

from 1970 because of the 1974 Barcelona convention on the protection of The Mediterranean Sea Against Pollution. They were very active so as environmental law developed in French and the European union through this relationship to Europe they will get strong involvement in environmental law.⁵⁴³ Thus, the Moroccan environmental law connects its history of interesting location before 1912, by its strategic location in conjunction its non-engagement policy and its capacity as a developing country.

Article 55 of the constitution reads as following: “[The King] signs and ratifies treaties. However, the treaties of peace or of union, or those relative to the delimitation of the frontiers, the commercial treaties or those which engage the finances of the State or the application of which necessitate legislative measures, as well as those treaties relative to the individual or collective rights and freedoms of the citizens [feminine] and citizens [masculine], may only be ratified after having been previously approved by the law.”

Pursuant to Article 55 of the Constitution, Morocco has been signatory to 119 international environmental treaties, including: Convention for the Protection of Mediterranean Sea against Pollution (1980)⁵⁴⁴; Convention on Biological Diversity Earth Summit, Rio 1992⁵⁴⁵; The Montreal Protocol Amendment of 1998 against substances that deplete the ozone layer⁵⁴⁶; Kyoto Convention on reduction of greenhouses gas emissions of 1997⁵⁴⁷; and the Basel Convention against dumping of hazardous wastes of 1989.⁵⁴⁸

⁵⁴³ Available at http://www.unep.ch/regionalseas/regions/med/t_barcel.htm

⁵⁴⁴ Anita. “1980 Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities”. Available at <http://cil.nus.edu.sg/1980/1980-protocol-for-the-protection-of-the-mediterranean-sea-against-pollution-from-land-based-sources-and-activities/>

⁵⁴⁵ Available at <http://www.un.org/geninfo/bp/enviro.html> and in my discussion in Chapter 3.

⁵⁴⁶ Available at http://ozone.unep.org/new_site/en/montreal_protocol.php

⁵⁴⁷ Available at http://unfccc.int/kyoto_protocol/items/2830.php

⁵⁴⁸ Available at <http://legal.un.org/avl/ha/bcctmhwd/bcctmhwd.html> and in my discussion in Chapter 3.

(1) Role of Barcelona Convention and its Implementation in Morocco.

The Barcelona Convention System represents the first instance in which a convention-protocol approach was adopted with the aim of cleaning up a region's marine pollution. Since its adoption in 1978, the Barcelona Convention has served as an institutional framework to address regional marine pollution in the Mediterranean Sea. The Convention provides not only the rules, regulations, and norms that impose legal obligations on its member states but also the legal grounds underlying relevant institutional arrangements, such as the Program for the Assessment and Control of Pollution in the Mediterranean Region, the Blue Plan, and the Priority Plan. As a result, the Barcelona Convention System has been applied to many other regional seas programs, mainly through UNEP, which played key roles in the original development of the Barcelona Convention System.⁵⁴⁹

The Barcelona Convention System was a part of UNEP's efforts to create the Mediterranean Action Plan. Since its establishment in 1972, UNEP has attempted to address serious regional marine pollution problems by including various states under the concept of the "ecological" region. The general plan of the Barcelona Convention is expressed through Protocols. Each specific Protocol details the duties of states to reduce pollution. Together, they create a thoughtful system.⁵⁵⁰

Morocco has incorporated a lot of the ideas from the Europe Union in its environmental law and policy. In fact, the country works closely with Spain, France and Italy, as well as, with other European countries to develop law that affects the

⁵⁴⁹ See Olav Schram Stokke & Oystein B. Thommessen ed., *The Fridtjof Nansen Institute Yearbook of International Co-operation on Environment and Development* 146-155 (Earthscan Publications 1996) (1992).

⁵⁵⁰ See U.N. Environmental Programme, *Survey of Pollutants from Land-Based Sources in the Mediterranean Sea: MAP Technical Rep. Series No. 109, 103* (1996).

Mediterranean. For this reason, many of its laws compare to those enacted under the Barcelona Convention. In fact, Morocco was very active in their development of environmental laws as a result of the 1974 Barcelona Convention, during a time when environmental law was being developed in French and European regions.

d. Morocco's Legal System

Morocco's legal system consists of District and Communal Courts which include Appellate Courts, Courts for First Instance and the Supreme Court, which is divided into 5 chambers that include civil appeals, criminal, administrative, constitutional and social. The judiciary system operates as an independent branch of the Moroccan government.⁵⁵¹ Judges for the highest court, the Supreme Court, are appointed by the King, while all other judges are appointed by the advice of Council while the Council is under the command of the King. Officials, on the other hand, may be tried by Special Court if charges are raised by the two-third majority of Majlis.⁵⁵²

e. Morocco's Environmental Law

On November 15th 1958, the National Advisory was formed. In 1992, the Rio Earth Summit marked an important turning point for Morocco's development in the environmental law arena. What the Summit was able to accomplish was increased awareness regarding the importance of integrating environmental issues within existing and future policies. In fact, in 1993, a new Under Secretariat of State was name and the focus on the protection of the environment for the first time. Later, in 1995 the National Environmental Council held its first meeting establishing a "National Strategy for the

⁵⁵¹ Background of Moroccan Legal System available at: <http://www.nyulawglobal.org/globalex/Morocco.htm>

⁵⁵² Id.

Protection of the Environment and Sustainable Development Laws. The Council focused initially on reforming major areas, including water management.⁵⁵³

Since these groundbreaking developments, Morocco has elaborated laws for the protection of waste, air, and regulation of dangerous facilities. New legislation was enacted, such as Law NO.11-03 relating to the enforcement and promotion of the environment.⁵⁵⁴

(1) Morocco's law on Environmental Impact Assessment

Morocco's law on EIA was mandated by RIO principle 17. The law seeks to preserve the coastal biological and ecological stability, and natural tradition, prevent and reduce pollution and degradation along the coast, and improve planning through national plan of the coast and compatible regional spatial planning records.⁵⁵⁵ The law further seeks to guarantee free and unpaid access to the seashore, advance research, and innovation promoting the coast and its resources and enable involvement of the organizations in decisions relating to coastal zone management.

From 2003, Morocco has been implementing foundations for enhanced environmental policy, which focused on water management crises. After the approval of three major environmental laws, progress is being made on the environmental legal framework that remains underdeveloped and inconsistent. The government aims at managing solid waste and wastewater treatment as an approach of preventing pollution

⁵⁵³ Law No.10-95 on Water, promulgated August 16,1995.

⁵⁵⁴ This law was promulgated by the Dahir No.1-3-59 dated available <http://www.auo.org.ma/tj/DAH-1-0359htm>.

⁵⁵⁵ Wolfrum goes further to reveal the differences between the Moroccan environmental laws and others within Africa. See Wolfrum Grote, eds. *Constitutions of the Countries of the World*. New York: Capricorn Books. 2010.

and restoring environmental conditions.⁵⁵⁶ To improve on air quality, the authorities seek to improve by promotion of a voluntary approach to applying emission limit values.

Morocco has limited water resources and hence faces substantial challenges in this sector. The available water volume that is technically and economically exploited is 80% of the present resources. This aspect highlights the present constraints on water issues. Even though Morocco has 68 main biodiversity regions as part of the broader Mediterranean Basin biodiversity hotspot, there is, still an underlying knowledge gap related to the specific species, genetic resources and sites.

It is essential for Morocco to adhere to the new trends in the field of human rights and protection of the environment. The country is strongly invited to improve its constitution by addition the provision endorsed for healthy environment. It is necessary for these countries to adopt environmental law principles in the environmental legislations, improve the role of non-governmental organizations in the protection process. This improvement can be attained through establishment of formalities like financial support, and rising of the environmental awareness. The legislators can unify the judicial jurisdiction in environmental violations to deliver better environmental justice. Huge financial capacities can be utilized within the nations to support environment friendly projects.

⁵⁵⁶ Bullard states the nation upholds equally environmental laws and human rights laws. Although, this can minimally be experienced in the past, the government is presently working on the challenges to restore its glory and separate the upheld laws from politics. Bullard, R. Derrick. ed. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. San Francisco: Sierra Club Books. 2002.

(2) Regulations

Article 72 of the Constitution reads: “Matters that are in the area of the Law are part of the regulatory area” and are, therefore, enacted by either the Head of Government Ministry under delegation of the former. For example, the 10-95 on Water requires that regulations be enacted in the boundaries of the water basins. Therefore, a subsection was enacted by the minister of land use, water and the environment, under delegation of the Head of Government.⁵⁵⁷

(3) Enforcement of Environmental Law and the Judiciary’s Role

Environmental enforcement is accomplished by use of both administrative and criminal actions. The first environmental law, No. 1-74-388, was passed in 1974 and included provisions granting general jurisdiction to the various courts in the area of environmental protection.⁵⁵⁸

The role of the judiciary in relation to environmental cases stems from its own interpretation and creation of the environmental law which come under both civil and criminal courts.⁵⁵⁹ In matters of environmental hazards that may occasion harm to the environment, directly affecting human life, are heard by the Courts of Appeal with judges specializing in every aspect of the case. Administrative courts were created in 1994 and preside over different cases, such as, claims for cancellation of acts filed against administrative authorities; resolving disputes related to administrative contracts; and

⁵⁵⁷ Article 15 of the Constitution.

⁵⁵⁸ Abdelsalam, Omneya, et al. “Do ethics imply persistence? The case of Islamic and socially responsible funds.” *Journal of Banking & Finance* 40 (2014): 182-194.

⁵⁵⁹ Read forth more at <http://www.legisnet.com>; <http://www.mfie.gov.ma>

compensating for damages. If necessary, cases can be appeal to the Supreme Court on grounds of *ultra vires*.⁵⁶⁰

(4) Morocco's protected area laws

Morocco designated several major protected areas between 1942 and 1991. These comprised of four national parks, the Toubkal, Tazekka, the Souss Massa and the Iriki national parks. A national plan was put in place to identify important natural areas, which was later followed by creation of four new national parks: the Al Hoceima, Talassemtane, Ifranen and the High Oriental Atlas. Khnifiss was later created to make it the first Saharan national park. In total, Morocco has nine national parks covering a total area of 606,000 hectares. There are four sites protected as wetlands and two biosphere reserves set apart to promote sustainable solutions to put to rights protection of biodiversity and continued use. These reserves include the Southern Moroccan oasis, the Mediterranean intercontinental biosphere, and the Cedar biosphere.

(5) Morocco's Water Laws and Islamic principle

Morocco has limited water resources requiring strict regulation relating to usage that do not pair up with the increase in demand. Moreover, existing water resources are further limited by pollutants present in the water sources as a result of domestic industrial wastewater, among other causes. To address the existing scarce water issues, Morocco enacted and implemented statutes regulating water usage in 1995. The water law, similar to the water framework directive, provides a comprehensive framework for integrated water management which sets out an efficient manner for water usage and assist the judiciary meet the aspirations of a socio-economic development. For example, the law

⁵⁶⁰ Id.

establishes agencies that evaluate, plan, and manage water resources within respective river basin in order to strengthen their distribution and management as dictated by law. Other principles reflected within the statute are: water as a public domain; regulation on the development, distribution and sale of potable water; improvements of agricultural water's development and use; and security against acts that may result in water pollution.⁵⁶¹

According to Sharia principles, water is the main component to the sustainability of life. As such its regulation is vital to life's security and protection of water source is demanded by the *Qur'an* which regards it as common property (54:28).⁵⁶² In fact, the *Qur'an* provides two principles that guide the management of water. The first states that the supply of water is fixed (40:18), and the second states that water should not be wasted. (7:31) This warns that water usage must be regulated since increasing of water supplies cannot be accomplished. The importance of water to Islam is evident in the many instances where the *Qur'an* mentions Allah sends His blessings to His servants whereby water is sent as needed.⁵⁶³

f. Evaluation

Muslim articles have been useful in giving information concerning developments,⁵⁶⁴ innovations, projects, and trends related to their environment.⁵⁶⁵

⁵⁶¹ Jefri J. Ruchti, trans., Draft text of the Constitution adopted at the Referendum of 1 July 2011 (HeinOnline World Constitutions Illustrated library 2011).

⁵⁶² 245 Richard C. Foltz, 'Ecology and Religion: Ecology and Islam', in Lindsay Jones (ed.) *Encyclopedia of Religion*, Second Edition (Detroit: Thomson Gale, 2005), pp. 2651-2654.

⁵⁶³ Amery, Hussein A. "Islamic water management." *Water International* 26.4 (2001): 481-489. Available at <http://www.tandfonline.com/doi/pdf/10.1080/02508060108686949#.VJdTL1IAEs>

⁵⁶⁴ Muslim articles emphasize on environmental laws as a command from Mohammed. The articles additionally alert the readers on the developments in the religion Islamic environmental declarations.

⁵⁶⁵ Demirbaş, Ayhan. "Energy and environmental issues relating to greenhouse gas emissions in Turkey." *Energy Conversion and Management* 44.1 (2003): 203-213.

Environmental projects like preservation of nature, water purification, and green business have been established in the Muslim world.⁵⁶⁶ At least three quarters of the national constitutions globally include explicit references to environmental roles.⁵⁶⁷ This global distribution of constitutional environmental provisions convincing rebuts the claims that this concern is mere cultural imperialism or that environmental concerns are all based in western conceptions.

g. Applying Islamic Principles in three National Case Studies about the Environment

Analysis of these three case studies involving the development of the environment in Pakistan, Jordan and Morocco, shows that officials in these countries have not yet incorporated major Islamic principles as part of their overall philosophy for preserving the environment. Under their constitutional framework, these countries recognize a right to the environment but do not incorporate the stronghold principles of Islam effectively. This is a shame because the constitutional order of each country requires adherence to *Sharia* and also because doing so would greatly assist in implementation. It has been argued that those States would be more successful in their socio-economic development by re-conceptualizing their perspectives with regards to a sustainable environment through respect for Islamic environmental principles.⁵⁶⁸ A proper definition of sustainable environmental development in these countries should be provided from the perspective of Islamic-derived environmental principles.

⁵⁶⁶ Id

⁵⁶⁷ Id

⁵⁶⁸ Kamla, Rania, Sonja Gallhofer, and Jim Haslam. "Islam, nature and accounting: Islamic principles and the notion of accounting for the environment." Accounting Forum. Vol. 30. No. 3. Elsevier, 2006.

There is need for more realignment of the national regulatory requirements for large installations, and environmental liability regimes. This can be made possible by conducting a detailed evaluation of the remaining secondary legislation, which ought to be developed and closing on the identified gaps. There is need to align procedural requirements of environmental laws with the good international practice, adoption of better regulations principles like simplicity, enforceability and participatory development. Strong concentration ought to be placed on EIA and permitting the translation of the general legal requirements for specific projects and installations.

Properly considered, Islam promotes peace and harmony as essential dimensions to life and sustainability. Thus, to develop and maintain a sustainable environment, it is necessary to balance the dimensions of social welfare, economic efficiency and ecological balance. The perception of sustaining our environment through the teachings of Islam should be embraced in order to ensure a more robust application of Islamic principles to the development of the environment in these countries.⁵⁶⁹ From the perspective of Islam, the role of the environment is dual by nature by worshipping the Creator and being of service to humans. One of the main Islamic principles as applied to environment is that of the relationship between humans and certain environmental dimensions.⁵⁷⁰ This implies that the treatment of environment by human beings is a direct reflection of their faith. Stronger belief and faith in basic Islamic principles would result in a healthier relationship between humans and environment. Moreover, Islam can serve

⁵⁶⁹ Al-Ghandoor, A. "An approach to energy savings and improved environmental impact through restructuring Jordan's transport sector." *Renewable and Sustainable Energy Reviews* 18 (2013): 31-42.

⁵⁷⁰ Ismail, Mohd Sobre, Aliza Ramli, and Faizah Darus. "Environmental management accounting practices and Islamic corporate social responsibility compliance: evidence from ISO14001 companies." *Procedia-Social and Behavioral Sciences* 145 (2014): 343-351.

an important role in city planning and development by influencing different communities to approaching the environment with this concept of dual nature.

(1) Moving from Concept to Implementation

According to the Islamic teachings, God created everything, including plants and the environment.⁵⁷¹ Through God's ability, rivers and streams can flow within Moroccan lands. This is the basis for preservation of natural resources such as Toubkal, Tazekka, the Souss Massa and the Iriki national parks. According to Muslim scholars, the universe belongs to God who has entrusted us the creations to preserve and protect.⁵⁷² Therefore, as vicegerents and trustees, trust ought to be shown when using and consuming them.⁵⁷³ The creation in reverse teaches humans that they are the creations of God and in the last judgment; everyone will be called to account how they protected and treated all that was entrusted to humans.

In order to develop a more robust and comprehensive set of environmental rules, the case studies show that these three countries should first move away from the current system of shallow environmental stewardship. Countries desperately hold onto "business as usual" practices; they are reluctant to replace what is, with what could be better. Second, effective sustainable development requires proper enforcement of existing laws. Third, these countries must prepare their judicial system with the proper training and subsequently enable their court system to have final say on how environmental matters will be handled. This will grant the courts autonomy and hopefully bring clarity to the

⁵⁷¹ Bullard in Bullard, R. Derrick. ed. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. San Francisco: Sierra Club Books.(2002).

⁵⁷² Refer to Al-Banna for protection of environment.

⁵⁷³ Refer to the *Qur'anic* laws in *The Eco-Muslim*, 1 for more of the Islamic laws on environment preservation.

area of environmental rights and the law. Regrettably, these countries depend far too much on the monarchy-type of rule, creating a kind of dependence that all too frequently deprives the court system of finality and authority. Modern technology and environmental problems are very complex and society needs courts delve into the issues and provide solutions.

Morocco will be more active because the country follows the administrative law system of France, in the civil law pattern. Pakistan, which has a form of common law system lacks a strong administrative law framework for environmental decision-making. Pakistan needs an administrative court. The Kingdom of Jordan is unique and unlike other countries, the cabinet and the government around the king are very important. They have to understand and learn that it would be good to have environmental cases in courts.

These case studies show courts can be effective to protect the environment. Others see this as well. For instance, no one believes that the People's Republic of China has an independent judiciary.⁵⁷⁴ China does not. In all the socialist countries the courts take instruction from the Communist Party. But in China the pollution is so bad that the party has authorized its courts to enforce the environmental law completely, and to do so, some people are trying to make the courts independent.

That pattern will be very different in the Kingdom of Saudi Arabia. Some people in the Kingdom will say that they not like some the environmental conditions and wish to have a better method in place, whether this alternative includes a court or not. How the lessons of these three case studies may guide other countries and strengthen protection of the environment will vary on the decision made by its governance.

⁵⁷⁴ For more information see https://www.nytimes.com/2017/01/18/world/asia/china-chief-justice-courts-zhou-qiang.html?_r=0

Regardless, it is evident that courts need to learn to apply fundamental principles of justice and deference to the right of the environment, perhaps adopting Islamic principles of environmental protection. Furthermore, they may design decisions and remedies to resolve environmental law violations that restore the environment. Courts also order administrative ministries to do their duty and protect the environment.

(2) How Courts can apply the fundamental Principals

Morocco lacks substantial laws that can protect their environment, a case that is resulting to in failure to enforce the requirements of Islam.⁵⁷⁵ For instance, courts ought to promulgate laws on air and water. It is necessary to adopt suitable legislation for the introduction of environmental assessments. The government should also more strictly apply existing law on the development, protection, and preservation of the coastline. This law will fill up the gaps and enable the court to ensure compliance. More research ought to be conducted to give the missing information regarding the procedural and substantives results of existing laws.

⁵⁷⁵Al-Banna further states that the Islamic perspective on environment protection reflects a positive image about Islam and how it embraces every single matter the humans face on earth. The Islamic attitude towards environment and natural resource conservation is not only based on prohibition of over-exploitation but also on sustainable development

Chapter 8: Applying Islamic Principles: A Case Study About Mineral Water

*This we know; earth does not belong to man; man belongs to the earth.
This we know; all things are connected, blood which unites our family. All
things are connected*

Vandana Shiva

Among God's most precious gifts is fresh water. This chapter examines various ways of protecting the safety of fresh water, including mineral water. This chapter focuses on mineral water, particularly Zamzam water which emerges from aquifers in and around the holy city of *Makkah*. Like other mineral waters, *Zamzam* has ascribed to it various health benefits, but this water merits particular attention because of its spiritual properties and their commercial implications. This chapter examines regimes for protecting the various attributes of water. It then scrutinizes the legal regime protecting *Zamzam* and proposes adding the protections of intellectual property law in order to better preserve the integrity and its reputation of *Zamzam* and the health of people who intend to drink it. By better understanding the ways to protect *Zamzam*, one gains clear insights into the environmental precepts of Islam and how they bolster mankind's capacity to overcome today's extraordinary environmental challenges.

1. Introduction

Zamzam water is an ancient form of mineral water found in Saudi Arabia and associated with the Islamic pilgrimage to Mecca. Despite being located in the desert, the water is pure in form and is considered uncontaminated by any harmful chemicals or salt concentrations. For this reason, people, especially believers in Islam place great value on

this water. During pilgrimage, Muslims reach Mecca and part of the relief they receive is a drink from *Zamzam* wells. Such value makes the water worthy in religious terms.

Mineral water is any water found in natural springs and gains the name from the presence of mineral content in it. The water has traditionally been consumed at the source, with people travelling to it in order to either bathe or drink the water.⁵⁷⁶ The importance of mineral water is recognized from ancient times among tribes who used natural springs as religious places with the water respected and at times worshipped. Natural mineral water arises from an underground water table and contains no harmful micro-organisms.⁵⁷⁷ Mineral water should not contain any sugar or calories or chemicals and minerals other than those that arise from nature.

In modern times, mineral water has retained its status of importance due to health benefits attributed to it, and possible therapeutic effects it may possess. Some people take mineral water with the hope that it will have some effect on their physiological state, but this is only believed possible when an ideal chemical content has formed naturally in the water.⁵⁷⁸ Countries and areas with natural sources of mineral water maximize these effects by especially protecting the source and then bottling the water and making it available to people through sale to people around the nation and abroad. This commercial importance is equally attached to *Zamzam* water. In addition to its spiritual values, *Zamzam* water has potentially great economic value.⁵⁷⁹ For this reason, the Kingdom could require that the water be trademarked to protect the integrity and value of it as an

⁵⁷⁶ EFBW *Natural Mineral Water*. 2012. 26 April 2013 <<http://efbw.eu/bwf.php?classement=03>>

⁵⁷⁷ *Id.* p 32

⁵⁷⁸ *Id.*

⁵⁷⁹ Aab-e-Zamzam retrieved from http://www.irfi.org/articles4/articles_5001_6000/abe%20zamzam.htm

asset. In this way, the benefits derived from the water could go to the Saudi Arabian government to benefit the people of Saudi Arabia. *Zamzam* water is very specific, yet Islamic principles apply in both specific and broad manners. If we generalize from the laws protecting *Zamzam*, we will better understand the requirements of Islam to protect fresh water more generally.

This chapter reviews the nature of *Zamzam* water compared to other mineral water that has been granted property rights within other countries. It will highlight the potential benefits that arise from the trademarking of the water, based on study of other mineral waters in the world. Furthermore, this chapter will examine how the country can sustain pure water consistent with its religious values.

a. *Zamzam* Water and Other Cases of Uniqueness

There is much history where *Zamzam* water has been traded and deemed unfit for human drinking. For example, the most significant of these stories is the 1975 story of King Faizal. An Egyptian physician declared the *Zamzam* water to be unfit for drinking and the news reached King Faizal. This enraged the king who had the water tested by a group of trusted engineers. The findings indicated that the water had higher levels of calcium and fluorides, which makes it able to refresh the pilgrims.⁵⁸⁰ The engineers, therefore, were able to show that the water was potable. *Zamzam* water has been proven by the government to be ideal for drinking through various tests performed by professionals.

⁵⁸⁰ *Id.* P. 44

b. The History of Mineral Water

Human enjoyment of mineral water traces back into early historic times, at least as far back as 3000 BC. Religious groups throughout held steadfast values for pure water. Ancient chronicles including the *Bible* speak of practices by people which included bathing and drinking from special wells.⁵⁸¹ In ancient Greece, particular springs were associated with gods and regarded as their dwelling places, conferring upon them special status. These beliefs were passed on to the Romans who maintained the practice even as they conquered new territories.⁵⁸²

Later discoveries of springs and other natural water sources were made, especially when mining became widespread in Europe. In North America mineral baths were likewise discovered and established. The baths became important in social life, with bathing spots being created for society patrons.⁵⁸³ Health treatment centers were established by business opportunists who took advantage of the spreading wave of popularity of natural water to make money. By the beginning of the 19th century, the use of mineral water for therapeutic purposes and physiological development had become a popular practice in most areas of the world.

c. Uses of Mineral Spring Water

Mineral water has a number of uses, both for drinking and for bathing. The concept of using water to heal the sick was especially popularized in the eastern world among the Egyptians and the Moslems. The notion of healing waters was also held by the

⁵⁸¹ Aleck, H. W. *Water Rights Laws in Nineteen Western States* (Vol. 3). National Resource Economics Division, Economic Research Service, United States Department of Agriculture (1977).

⁵⁸² Europa. *Natural Mineral Waters*. 2007. 26 April 2013. Available at <http://europa.eu/legislation_summaries/other/121129_en.htm>

⁵⁸³ Zink, Sheryl. *Historic Preservation*. New York: New York Office of Parks, (1993).

ancient. Mineral water has also been believed to be useful for therapeutic purposes, healing the mind and revitalizing the body.⁵⁸⁴ There is mention of Hannibal stopping to refresh himself at the baths before proceeding with his attack against Rome. This was followed by later adaptation of the concept of relaxation spots in baths, which were basically springs of either hot or cold water. The affluent in society gathered here to relax and enjoy the purported therapeutic effects of the springs, creating famous resorts especially in Europe.⁵⁸⁵

While some bottled water in the USA was produced in the 19th century, the French are credited with having popularized the spread of mineral water in bottles. There are claims that mineral water heals digestive problems, but none of these claims have been properly certified. Researchers in recent times, though, have shown that mineral water may have an equal effect with the use of vitamin supplements in the body.⁵⁸⁶ Further claims have supported healing qualities for the elimination of joint pain. This is associated with the ease of absorption of minerals by the body from water more easily than from food. The claims are mostly unfounded; the only thing that can be established from scientific research is that it is relaxing to sit in a warm bath of natural spring water.⁵⁸⁷ Still, many believe in the medicinal qualities of mineral springs and the commercial opportunities flow from that belief. Consequently, the laws in the Kingdom of Saudi Arabia seek to protect the quality of the water through local and nationwide

⁵⁸⁴ *Id.*

⁵⁸⁶ *Healing with Mineral Water*. 2007. 26 April 2013. Available at <http://www.fostercottage.org/Menu/healing_with_mineral_water.htm>.

⁵⁸⁷ *Id.* 9

statutes and by ensuring stringent enforcement of the rules, lest contamination of water become rampant.

Take the *Zamzam* water as an illustrative case study. One of the miracles attributed to this water is its capacity to satisfy both hunger, as well as, thirst. Prior to Islam, the water was called “Shabbaa’ah,” which means “satisfying” as it helped many satisfy and nourish their families. After Islam, this powerful ability to quench thirst and fill stomachs remained. Prophet Muhammad said: “The best water on the face of the earth is the water of *Zamzam*; it is a kind of food and a healing from sickness.” Additionally, *Zamzam* water’s health benefits have been commended in religious texts. Prophet Muhammad (peace and blessings be upon him and his family) proclaimed the water’s ability to heal sickness, leading many pilgrims who visit Makkah to collect portions in bottles and bring them to ill relatives and friends back home, even to this day. The Prophet Muhammad (PBUH) himself used to carry *Zamzam* water in pitchers and water skins back to Madinah and use them to sprinkle or feed the sick. Wahab Ibn Munabbah, who was from the second generation of Muslims, said ‘I swear by Him in whose possession my life is, Allah Ta’ala will relieve the person of all illnesses who drinks *Zamzam* to his fill and will also grant him good health.’ In the last few decades, scientists have collected samples of *Zamzam* water and they have found certain characteristics that make the water healthier, such as higher levels of calcium.

So the recommendation would be that if we follow the Islamic principles, we would give high priority to protecting the source of water. Also we could still market it but then it would be even more valuable if we will sell it abroad because people will know it comes from the particular source.

2. Mineral Water in the USA

In the USA, mineral water arises from natural springs located all over the country. Mineral water has been popular in the United States since the 18th century when people started bottling water at Jackson's Spa in Boston due to its popularity.⁵⁸⁸ With the discovery of more natural springs the popularity of this product grew and by the late 19th century, several water sources were being used commercially such as the Saratoga Springs and springs around the City of New York. With more than 400 of a possible 9,000 natural sources of mineral water, New York is the among most popular in the commercial exploitation of these springs with the leader, Saratoga Springs, located here. Unlike Zamzam, however, in the USA there is rarely any spiritual dimension attached to mineral water.

a. Laws Protecting Mineral Water in the USA

The protection of mineral water both as a food and a natural resource has always been considered ever since the first bottled water was officially sold. Since 1911, New York State has had a codified environmental law, reflecting its strong nature conservation values. The main source of protection for mineral water rights is contained in Article 8 of the Mineral Springs Act. This article declares unlawful any attempts to accelerate the flow of mineral water by actions such as pumping, drilling, and boring into wells. It also declares unlawful any actions that may reduce the quality of mineral water belonging to another person or corporation, or impeding the flow of water used by them.⁵⁸⁹ The law

⁵⁸⁸ Loam, Jason. "Hot Springs and Hot Pools of the Lower and Eastern States." *Aqua Thermal Access* (1992).

⁵⁸⁹ *New York Pub. Lands L.* (2012). "Article 8 - (90-92-C) MINERAL SPRINGS 90-Accelerating or Impeding the Flow of Mineral Waters." n.d. (90: Pumping, or by any artificial contrivance whatsoever in any manner accelerating the natural flow, or producing an unnatural flow, of that class of mineral waters

also discusses the use of mineral water for purposes other than the sale of mineral water. These may be such as liquefying the carbon content in the water and selling it in forms other than what is recognized by the law as being legal.⁵⁹⁰ It also declares that it is illegal to do any act that impedes the concentration of minerals or carbon content in the water when it is still in its natural spring.

There are specific laws that apply to the Saratoga Springs water having come from the early value that the water gained as possessing healing and nutritional qualities.⁵⁹¹ The anti-pumping law was established in 1908 and later followed by the establishment of the Saratoga Springs Reservation. According to Chapter 296 of the Laws of 1916, the Saratoga Springs Reservation is under the jurisdiction of the Conservation Commission.⁵⁹² These laws also governed the process for acquisition of property in the Saratoga Springs area in a bid to conserve the natural setting and also maintain public health standards in the area. The creation of the Saratoga Springs Authority was reinforced by the Saratoga Springs Authority Act, intended to ensure that the public health of people in the area was catered to and to operate under lease to control the operation of the Saratoga Springs as a natural water resource.

holding in solution natural mineral salts and an excess of carbonic acid gas from any well made by boring or drilling into the rock, or pumping, or by any artificial contrivance whatsoever in any manner accelerating the natural flow, or producing an unnatural flow of, natural carbonic acid gas issuing from or contained in any well made by boring or drilling into the rock, by reason whereof the natural flow from any mineral spring or any mineral well belonging to any other person or corporation, is impeded, retarded, diminished, diverted or endangered, or the quality of its waters is impaired, or the quantity of its carbonic acid gas or mineral ingredients diminished, is hereby declared to be unlawful.)

⁵⁹⁰ *Id.* 19

⁵⁹¹ Maguire, Grace. *Saratoga- Queen of Spas*. New York: Country Books, (1988).

⁵⁹² Martin, Roscoe Coleman. *Water for New York: A Study in State Administration of Water Resources*. Vol. 26. Syracuse University Press, (1960).

The State Reservation manages several aspects of the Saratoga Springs, ranging from a bottling plant, spas and even a research institute.⁵⁹³ The reservation insists on the fact that it not only aims to maintain the area as a profitable source of income for the city, but it is also as a way to preserve natural resources. These laws have not been without protest, as some of the residents in Saratoga feel they have the right to extract carbon content from the ground rather than purchasing it when it is freely provided by nature.⁵⁹⁴ This is a conflict of the law of citizens to mine whatever they have within their lands against the prohibition of the law against extracting mineral content in the water in a manner that would impede its concentration in the natural setting. The citizens understand that under property rights they do not have any right to mine the carbon content contained in the Saratoga area from the line of the fault, but at the same time, their ancient rights grant them permission to exploit natural resources at their disposal.⁵⁹⁵ Such has been the conflict between the state and the people when it comes to protecting sources of natural water, leading to passing of legislation that attempts to resolve the situation.

3. Mineral Water in the European Union

Even more so than New York, Europeans protect mineral waters, which are sold globally. The European Union can be credited with having done a great deal to preserve the value of mineral water, both as bottled water for commercial purposes and for other purposes such as bathing and relaxation spots. As in the USA, protection of the sources of mineral water are rarely done to reflect spiritual values. The EU is very specific

⁵⁹³ Lund, John. *Saratoga Springs, New York*. New York: Geo-Heat Center, (2000).

⁵⁹⁴ C, Heath Ralph. *Ground-water regions of the United States*. Washington: United States Government Printing Office, (1984).

⁵⁹⁵ *Id.* 21, pp. 312

regarding what is considered to be natural water, stating clear laws against any alterations to it before it is produced and marketed.⁵⁹⁶ The European Union, however, allows for certain processes such as the elimination of unstable components within the water and separation of parts of it that are not desirable to the consumer. The EU recognizes spring water as underground water, but has laws against treating it, thereby allowing for it to preserve different mineral compositions. In the EU, mineral water is classified according to four main groupings; artesian water, drinking water, sparkling water and well water. All these have different characteristics. For instance drinking water is allowed to be flavored. It is expected that if these types of water meet the minimum mineral contents specified, then they can be marketed as mineral water.

Zamzam water is different from European water. It is distinguished not just by its natural origins but also by the spirited and health benefits ascribed to it. The water does not change color, taste or smell. For decades, many who have sought to drink and use *Zamzam* water have been able to do so without any kind of change. The results of the comparison were a finding that *Zamzam* water is of greater purity and clean water.

The EU has specific laws regarding the collecting of mineral water, its labeling and marketing. It requires that the water be bottled at source if it is to be classified as natural water, with only slight modifications allowed.⁵⁹⁷ These alterations are specified in the Directive 2009/54/EC of the European Union on the exploitation and marketing of natural water. The directives, however, do not apply when the water is used at its source for a purpose, which may be considered traditionally curative or therapeutic.

⁵⁹⁶ WHO. *Protecting Groundwater for Health: Managing the quality of Drinking-water Sources*. Ed. Guy Howard, John Cilton and Ingrid Chorus, Oliver Scholl. London: International Water Association, (2006).

⁵⁹⁷ Zetlands, David. "Water Markets in Europe." *Water Resources Impacts* 13.5 (2011): 15-17.

Countries that are members of the European Union have been known to establish or retain their own individual laws pertaining to the nature of natural mineral water and procedures for its exploitation and marketing.⁵⁹⁸ For instance, in Ireland natural mineral water is defined as the water considered microbiologically wholesome and coming from an underground source. The law also stipulates that the water should be pure when it is bottled, free from any parasitic content and with its original purity. The water should also be appropriately labeled and packaged in bottles that have been manufactured in such a way that they do not contaminate the water or otherwise erode its purity.⁵⁹⁹

4. Zamzam Water

Protections for the purity of mineral water in Saudi Arabia are not as extensive or strong as in the WU. Our understanding of the value of this water derives greatly from the religious stories from Islam, with relation to the well at which Hagar and her son Ishmael drank and gained refreshment.⁶⁰⁰ While it is not possible to pinpoint with accuracy the details of this story, the region has long been associated with the ancient figures of the religion, such as the prophet Mohammed. The well is about 35 meters deep, which has contributed to its ability to produce water throughout the year for several centuries. The well is credited with some unique characteristics, such as significantly lower levels of salts of magnesium and calcium and higher levels of fluorides than the surrounding area water sources.⁶⁰¹ Throughout history, the well has been regarded as

⁵⁹⁸ Chave, Peter. *The EU Water Framework Directive*. London: International Water Association Publishing, 2001.

⁵⁹⁹ *Id.* 26

⁶⁰⁰ Robert C. Gregg. "Hagar and Ishmael, Abraham's Family in Mecca" and *Zamzam*. n.d. Available at <<http://www.food.gov.uk/news-updates/news/2011/aug/zamzam#.UXso70rhcqM>>.

⁶⁰¹ *Id.* 29

having power to revitalize the body, and it is for these reasons that Hajj pilgrims seek it when they get to Mecca.

Some people believe that it has extraordinary powers not only to quench thirst but also to satisfy hunger, thus granting nourishment to those who take it. The waters of *Zamzam* have remained consistent for some time, though the means through which they are obtained have changed with the development of technology. Early pilgrims fetched the water using ropes and buckets, but in the past pumps were installed to enable more convenient access. The original well has since been sealed off from the public, only being viewed through glass windows. There have been several activities to deepen the well over the years, and these efforts have maintained the constant supply.

The distinct taste of the water is attributed to its alkaline content which is similar to the levels found in sea water.⁶⁰² Rainwater has also been known to replenish the ground waters connected to the well, though recently it has been in lower composition due to the increase in settlement. Recent studies in the UK have shown that ground water from the Kingdom can have high levels of arsenic which is carcinogenic, thereby putting consumers at higher risk of getting cancer.⁶⁰³ However, these claims have been refuted by the UK Council of Imams stating that the water tested was not genuine *Zamzam*.

5. Saudi Arabia and *Zamzam* Water

The government of Saudi Arabia is closely involved with the production and distribution of *Zamzam* water. The Saudi Geological Survey Research Institute was established at the *Zamzam* area and is responsible for monitoring the status (quality) and

⁶⁰² *Id.* 30

⁶⁰³ Alfadul, Sulaiman M., and Mujahid A. Khan. "Water quality of bottled water in the kingdom of Saudi Arabia: a comparative study with Riyadh municipal and *Zamzam* water." *Journal of Environmental Science and Health, Part A* 46.13 (2011): 1519-1528.

the level of the water in the well.⁶⁰⁴ The Institute also measures the PH levels of the water and any other minerals that may be contained in it. So far, *Zamzam* has not been subject to commercial exploitation, and its commercial export is, in fact, forbidden by Saudi law. The government supplies the water from the King Abdullah *Zamzam* complex to the pilgrims during the Hajj period with the assurance that the water is safe for drinking.⁶⁰⁵ However, vendors also break Saudi law by selling *Zamzam* water both inside and outside the KSA, often without bottling the water. For example, vendors have sold the water at airports. So the regulations are not fully complied with.

a. Saudi Arabia Law Regulating Water

Saudi Arabia recognizes four main sources of water to maintain the water supply in the Kingdom. These sources are grouped into underground sources, surface water sources, desalinated water and reclaimed wastewater.⁶⁰⁶ With the Kingdom being in a desert region, it is vital that the existing resources be conserved for use of future generations, this especially being so in the case for fresh water. Saudi Arabia has been keen to monitor the problems resulting from current and future demands for water, including the depletion of groundwater, pollution, a rather high demand and the loss of quality in the available water.⁶⁰⁷

With the recognition of the importance of water as a natural resource, the government of Saudi Arabia has been vigilant to employ measures to govern the usage and preservation of water. This process has been in the form of laws regulating water and

⁶⁰⁴ Chowdhury, Shakhawat. "Implications of Climate Change on Water Resources in Saudi Arabia." *Arabian Journal for Science and Engineering* (2013).

⁶⁰⁵ *Id.* 34

⁶⁰⁶ *PME Regulations and Standards*. n.d. <<http://www.sawea.org/pdf/PME-RegulationsAndStandardsWaterResourceManagementInSaudiArabia.pdf>>

⁶⁰⁷ *Id.* 37

ministries acting as stakeholders in the preservation of this resource. These include the Ministry of Water and Electricity, which is responsible for the desalination of water, the supply of water and the setting up of laws and policies to govern water resources and supply. Other stakeholders in the management of water include the Ministry of Meteorology, the Ministry of Agriculture and various research institutes.⁶⁰⁸

In January of 2013, the Kingdom of Saudi Arabia implemented a ban on moving of *Zamzam* water in special containers, banning its exploitation by sale both at home and abroad, while seeking to prevent all potential exports. However, following an increase of interest, in March of 2015, King Abdullah implemented a project that permitted certified carriers to provide bottled water at airports and ports of travel. This project is a very important step, aimed at protecting *Zamzam* water from pollution it helps to deter anonymous vendors who are stationed on the side of highways in several Saudi cities.

The laws for the preservation of water are contained in the General Environmental Regulations of 2011. Their objection is to conserve natural resources along with spiritual aspects and at the same time maintain public health in relation to the resources used by the public. Article 8 of the GER 2011 requires public servants to rationalize the use of natural resources by harmonizing usage and the ability of the natural resources to support consumption.⁶⁰⁹ In Article 10 requires that when developmental plans are proposed, the planner put into consideration an assessment of the environmental aspects before the plan can be put into effect.

Saudi Arabia also has laws that control access to underground water resources such as drilling of wells or boreholes. This is contained in the Executive Order No. 14-62

⁶⁰⁸ *Id.* 37, pp. 215

⁶⁰⁹ *Id.* 37

of 1989, which expresses the by-laws of the Water Regulations Act.⁶¹⁰ According to this order, one must gain a permit from the Ministry of Water before being allowed to drill for underground water or any other activity that involves collecting water from the Kingdom's water table. This policy is especially meant to control access to ground water which, according to recent research, is gradually being depleted as population in the Kingdom increases. The individuals who seek to do the drilling must prove beyond doubt that they have the necessary equipment and manpower to do the work and that their intentions will be beneficial to the public and the government of Saudi Arabia.⁶¹¹

The Kingdom has recently proposed a water development plan which is to be implemented in 2020. The plan revolves around the collection of ground water, surface water and the use of waste water in effective irrigation. The plan also includes an ambitious desalination program, which is the country's largest project when it comes to water preservation and is handled by the Saline Water Conversion Corporation.⁶¹² This corporation deals mainly with the desalination of water but not the subsequent activities of water export or local sales. Although the government has taken control of the water drilling and desalination activity, Saudi Arabia also allows individuals to participate in the commercial production of water and bottling. There are no laws in the Kingdom that prohibit participation by foreign investors in the business or demand the presence of a local agent acting on behalf of the foreigners.⁶¹³ The laws of Saudi Arabia are not only limited to inland water sources but also focus on conservation of seawater. It is from this interest that the International Convention for the Prevention of Pollution of the seas was

⁶¹⁰ Caponerra, Dante. *National and International Water Law and Administration*. Hague: Kluwer, (2007).

⁶¹¹ LaMoreaux, Philip E. *Springs and Bottled Waters of the World*. New York: Springer Verlag, (1995).

⁶¹² *Id.* 41, pp. 78

⁶¹³ *Id.* 37

taken up by the Kingdom. The contents of Article 331 prohibit the discharge of oil into the sea by oil tankers belonging to Saudi Arabia.⁶¹⁴ Such laws regulate the activities of those interested not only in drilling or desalination of water, but also in commercial exploitation of the resource. So the Kingdom does have good laws intended to preserve and protect water – both fresh and sea.

b. Saudi Law on Intellectual Property: Protecting the name *Zamzam*.

In the Kingdom of Saudi Arabia, intellectual property law may be divided into three topics. These are the Law of Patents and Industrial Designs, the implementing regulations on copyright, and finally the law of trademark. While the first law is implemented by the King Abdulaziz City for Science and Technology, trademarks are registered by the Ministry of Commerce, and copyrights are regulated under the Ministry of Culture in Saudi Arabia.⁶¹⁵ Trademarks are important, not only for their protection against free distribution of *Zamzam* water but also to demonstrate control over it. These laws help to promote honesty and embedded in this, are both ethical and religious foundations.

The Law of Trademarks is outlined in various sections of Saudi law, each listing prohibitions for trademark use and the allowed forms of trademarks. According to Royal Decree No. M/21, trademarks are defined as names of distinct shapes, signatures, words, letters, numbers, drawings, symbols, stamps and protruding inscriptions or any other sign or combination thereof which can be recognized by sight and is suitable to distinguish industrial, commercial, vocational or agricultural products or a project to exploit forests

⁶¹⁴ Sayeed, H El. *Maritime Regulations in the Kingdom of Saudi Arabia*. London: Graham & Taylor, 1987.

⁶¹⁵ H. Khoury Amir. "Measuring the Immeasurable-The Effects of Trademark Regimes: A Case Study of Arab Regimes." *Journal of Law & Commerce* 26 (2006): 11.

or natural resources or to indicate that the object upon which the trademark is put belongs to the owner of the trademark on grounds of manufacture, selection, invention thereof or trading therewith or to indicate the rendering of a certain service.⁶¹⁶

The process for applying for trademarks is clearly outlined in the trademark law, with various signs having been prohibited for use as trademarks due to their relation to national activity. In particular, these marks comprise numbers and signatures, or trademarks which have already been used by other producers, whether in the same industry or a different one.⁶¹⁷ When filing for a trademark, local business people are expected to represent themselves in the Ministry of Commerce or send an agent who must be a resident of Saudi Arabia. Application for several trademarks may be made at the same time as long as the marks are related and differ only slightly in form such as color and simple lines.⁶¹⁸ Further, trademarks may be used for many products as long as they are consistent with the Implementing Act. Notably though, international trademarks are only permitted to be registered in Saudi Arabia if the country of original application operates on friendly terms with the kingdom. The Ministry of Commerce has the right to reject or accept applications for trademarks, and if a trademark is rejected, it notifies the applicant in writing, highlighting the reasons for the rejection.⁶¹⁹ Unfortunately, until the present date, *Zamzam* water lacks protections under intellectual property laws.

⁶¹⁶ Palmer, Bruce B. "Saudi Arabia's trademark Law." *Arab Law Quarterly* 1 (1986): 323-326.

⁶¹⁷ H. Khoury Amir. "Measuring the Immeasurable-The Effects of Trademark Regimes: A Case Study of Arab Regimes." *Journal of Law & Commerce* 26 (2006): 11.

⁶¹⁸ WIPO. *Saudi Arabia*. 2010 World Intellectual Property Organization. Available at <<http://www.wipo.int/wipolex/en/profile.jsp?code=SA>>.

⁶¹⁹ H. Khoury Amir. "Measuring the Immeasurable-The Effects of Trademark Regimes: A Case Study of Arab Regimes." *Journal of Law & Commerce* 26 (2006): 12.

c. Protection of Drinking Water

There are several agencies in Saudi Arabia that are responsible for setting standards for drinking water and any other water that may be used by the public. These agencies include the Presidency in Meteorology and Environment (PME), which is in charge of presenting and protecting the guidelines for pretreatment and the direction of water to the treatment areas.⁶²⁰ It is the duty of the PME to ensure that the activities of discharge and treatment fall within the requirements of the General Environmental Law. The other agency charged with responsibility for water protection is the Ministry of Water, which oversees the reuse of treated water in purposes best-suited to these expensive resources. The next agency is SASO, which is responsible for the maintenance of standards in bottled and non-bottled water sold or given to the public for consumption.⁶²¹ Finally, the Royal Commission for Jubail and Yanbu is in charge of the ambient water quality standards at the coast as they receive discharge from maritime sources and those located inland. The two main regulations governing the quality of drinking water in the Kingdom of Saudi Arabia are the General Environmental Law and the Municipal Waste Water and its Re-use Regulation; each overseen by the appropriate ministries.

⁶²⁰ Chowdhury, Shakhawat. "Implications of Climate Change on Water Resources in Saudi Arabia." *Arabian Journal for Science and Engineering* (2013).

⁶²¹ *PME Regulations and Standards*. N.d. Available at <<http://www.sawea.org/pdf/PME-RegulationsAndStandardsWaterResourceManagementInSaudiArabia.pdf>>.

6. *Zamzam*- Proposal to Trademark the Product

Zamzam has been involved in government activity since the need to establish the means to maintain the water supply from the well was recognized.⁶²² The government has been detailed in its attempt to preserve the well, setting up a protective glass wall around it and making repeated efforts to deepen the well in recent years. Trademarking *Zamzam* also would protect health as well as its spiritual value. Creating the *Zamzam* Wells Research Institute has also been a major contribution by the government to ensure that the well is not only protected but also that its cherished resources are optimally utilized without posing a risk to the public.⁶²³

a. Reasons for Trademarking

Several factors militate for providing *Zamzam* with protection under the Kingdom's intellectual property laws. There have been several cases of *Zamzam* water being sold to Muslims on pilgrimage while this water is supposed to be distributed to them for free. This behavior is observed on airlines and by roadside vendors, who take advantage of the great numbers of pilgrims and therefore demand to obtain money for the water. The water they sell, however, is usually not the real *Zamzam* water: this being the sale of a product under false identity. Trademarking *Zamzam* would prevent the sale of this water by the unauthorized vendors, as only the real *Zamzam* would be sold.⁶²⁴

Secondly, while the *Zamzam* water is adequately tested by the research institutes, in order to give an assurance of quality and safety for use, the water sold by vendors and other

⁶²² Al Zuhair, Nour, and Rita Khounganian. "A comparative study between the chemical composition of potable water and *Zamzam* water in Saudi Arabia." *Saudi Dental Journal* 18 (2006): 1-9. Also see <<http://www.food.gov.uk/news-updates/news/2011/aug/zamzam#.UXso70rhqM>>.

⁶²³ Saudi Geological Survey. *Zamzam Studies and Research Center*. Available at <<http://www.sgs.org.sa/english/earth/pages/zamzam.aspx>>.

⁶²⁴ *Saudi Arabia*. 1999. See <<http://www.infoprod.co.il/country/saudia2d.htm>>.

distributors is not equally assured of safety. This is because often, vendors mix *Zamzam* water with ordinary tap water in order to increase their products which in turn leads to the water's contamination. This means that people who purchase this water are at a health risk from it, as was observed in recent samples in the UK that had a high carcinogenic content. Trademarking *Zamzam* would assure consumers of safe drinking water and prevent them from getting infections or disease associated with unsafe water.⁶²⁵

Trademarking *Zamzam* water would enable the government of Saudi Arabia to plow profit from the sale of legitimate *Zamzam* water back into efforts to protect the purity of *Zamzam*'s spiritual value. This would also ensure accountability should the water be found to contain unsafe content, as the contents of the mineral water would be the responsibility of the producer.⁶²⁶ If the water were marketed legally, there would be more income to finance the maintenance of the well. Trademarking would place the new brand in a position to defend its characteristics to consumers and use its qualities to benefit the public and the government of Saudi Arabia.

b. Problems in Trademarking

There are certain issues that will arise in the process of trademarking and after *Zamzam* has been made a trademark. These problems include the selection of an appropriate design in which to make the trademark so as to represent the product being marketed. These symbols are limited by government regulations regarding symbols to be excluded and thus there may be a narrow range.⁶²⁷ After the trademarking process is

⁶²⁵ Elias, Stephen. *Trademark: Legal Care for Your Business & Product Name*. USA: Nolo, 2010.

⁶²⁶ Royal Embassy of Saudi Arabia, *Zamzam Water Fit for Consumption*. (2009).

<<http://embassies.mofa.gov.sa/sites/Niger/EN/AboutDiplomaticMission/MissionNews/Pages/NewsArticleID122188.aspx>>.

⁶²⁷ *Problems with Trade Marks*. Available at <<http://www-cs-faculty.stanford.edu/~eroberts/cs181/projects/domain-names/problems/trademark.html>>.

complete, there may be issues regarding people who rebottle the water and sell it under the same trademark. If fake *Zamzam* is sold to the consumer, then the producer may have to face legal battles. This will prove to be an extra expense to the producer as the time used in handling civil suits and the associated expenses could have been allocated to other parts of the business. Finally, if the legal framework of trademarking the water is not well understood and followed, there may be issues to be contended with either in the near or far future.

c. Legal framework in Trademarking *Zamzam*

The registration of trademarks in Saudi Arabia is controlled by the Trademarks Regulation, set up in 1984. In order to trademark *Zamzam*, the producer aiming to take up the product would have to follow the International Classification of goods and services and at the same time comply with some of the internal requirements of Saudi Arabia.⁶²⁸ The trademarking process is done through application and registration to ensure that a given trademark is actually valid and not in violation of any laws. It is important to note that not everyone has the legal right to seek to trademark *Zamzam* water; that right is specifically to the Ministry of Water or possibly another governmental organization dedicated to preserving the environment. When a trademark is filed for registration, it is published in the *Official Gazette* so as to be viewed by other trademark owners. This means that in order to trademark *Zamzam*, the registered producer would have to wait three months after filing for registration in compliance with the legal requirements of Saudi Arabia. This will give any potential opposition the opportunity to file to contest the

⁶²⁸ H. Khoury Amir. "Measuring the Immeasurable-The Effects of Trademark Regimes: A Case Study of Arab Regimes." *Journal of Law & Commerce* 26 (2006): 11

application. If no potential opposition arises, the registration will proceed.⁶²⁹ The Agency that would have registered the trademark will have the right to use it for ten Hijri years, which may be renewed for every five years under the Saudi Intellectual Property Law on trademarks. According to the laws in Saudi Arabia, it is not compulsory for an individual to have a trademark in order to operate. Notably, if the *Zamzam* trademark were to be registered it would have to be used or else it is discarded if it is not functional for five years or more.

7. Protection of *Zamzam* Water by the Government

Article 9 of Regulation (EC) No. 178/2002 adopted by the European Parliament focuses on the regulation of food substances and the consideration of public food safety.⁶³⁰ This law also emphasizes the need to be transparent in forming regulations governing the exploitation of natural resources and the use of food substances for the benefit and safety of the public. In 2007, Northern Ireland amended the Natural Mineral Water, Spring Water and Bottled Drinking Water regulation, which made several changes.⁶³¹ The Northern Ireland definition of Natural Mineral Water could well be applied to *Zamzam* as it means water that is microbiologically wholesome, originating from an underground water table and tapped at one or more springs above the ground.⁶³² The law dictates that the water should be original in its content and protected from pollution at the source and through distribution. If applied in the Kingdom, this would call for the government of Saudi Arabia to shield the source of *Zamzam* from public entry so as to prevent it from being contaminated.

⁶²⁹ Palmer, Bruce B. "Saudi Arabia's trademark Law." *Arab Law Quarterly* 1 (1986): 323-326.

⁶³⁰ Chave, Peter. *The EU Water Framework Directive*. London: International Water Association Publishing, 2001.

⁶³¹ O'Rourke, Raymond. *European Food Law*. London: Sweet and Maxwell, (2005).

⁶³² HG Experts. *Global Legal Resources*. 2013. 27 April 2013 <<http://www.hg.org/natres.html>>.

The laws would also affect the form of trademark that the government would use on *Zamzam*. While one is free to use any trademark wished for, section 1(c) prohibits the use of any symbols that suggest qualities of the water which it does not possess.⁶³³ These qualities are with regard to the source, the date it was processed, the contents and the date it was authorized. The European Food Safety Association authorizes only three treatments of water: the separation of unstable elements from the water, removal of undesirable elements and the removal of such elements as iron, magnesium and arsenic.⁶³⁴ Having chosen to protect and distribute *Zamzam*, the government would have to cooperate with these regulations in accordance with EU Law. *Zamzam* water would also need to be checked at the source and after bottling to ensure that the amount of bacteria contained was the normal count.⁶³⁵ In case of increase, the increase should reflect the normal amounts attributed to a change of environment and not to a level that is likely to be harmful. This law is strict on the possible content of bacteria both at the source and after transportation and bottling.⁶³⁶

Zamzam wells, just like the Saratoga wells in America, would need complete protection from the public and laws prohibiting unlawful drilling or any other activity that interferes with the natural flow of these waters, other than by the authorized party.⁶³⁷ Unfortunately, in the case of *Zamzam* water, there is a natural tension similar to all other issues we come across with every kind of use of nature. Should the water continue to be free to the pilgrims and local people or trademarked and sold to the world as a product?

⁶³³ McBride, Michael. *Statutory Rules of Northern England*. London: Department of Social Health, 2009.

⁶³⁴ Royal Embassy of Saudi. *Zamzam Water Fit for Consumption*. (20090).

<<http://embassies.mofa.gov.sa/sites/Niger/EN/AboutDiplomaticMission/MissionNews/Pages/NewsArticleID122188.aspx>>.

⁶³⁵ McBride, Michael. *Statutory Rules of Northern England*. London: Department of Social Health, (2009).

⁶³⁶ *Idd* 77, pp. 340

⁶³⁷ Zink, Sheryl. *Historic Preservation*. New York: New York Office of Parks, 1993.

There is value to water, and people engaged in the daily use of water need to respect it. This does not mean, of course, that we should make some of the water available to people in other places in the world.

However, like the laws in New York which public access to only some wells, the government could make adjustments to allow for access to free water by the public albeit in smaller amounts than before.⁶³⁸ For instance, the well could have different outlets, one which would be used by the people for religious purposes and the other exclusive to the government for its exploitation and marketing. This would ensure access to the water by the pilgrims; yet prevent contamination that could be brought about by the mass use of the well. All these would not be necessary upon the acquisition of the trademark but the government may choose to adopt these measures as a way to avert conflict.⁶³⁹

The wells are currently protected by the law of Saudi Arabia regarding pollution and preservation.⁶⁴⁰ These laws would continue to apply and thus ensure that reliable clean water is obtained by those who purchase it. Section 35 of the Natural Mineral Water, Spring Water and Bottled Water Regulation states that spring water should be bottled at source. This would have to be another requirement that the government would have to fulfill in order to successfully retain protection and exploitation of *Zamzam* water.⁶⁴¹ The bottling is also governed by the EU law, which states in the same directive

⁶³⁸ International Trademark Association. "SAUDI ARABIA: Amendments to Trademark Law Announced." *INTA Bulletin* 1 January 2013: 1.

⁶³⁹ Ministry of Culture. *Towards the Green Business Trademark*. 2009. Available at <<http://www.monre.gov.vn/v35/default.aspx?tabid=675&CateID=58&ID=126540&Code=HQR4126540>>.

⁶⁴⁰ Gray, N F. *Drinking Water Quality: Problems and Solution*. 2nd. Cambridge University Press, (2008).

⁶⁴¹ C, Heath Ralph. *Ground-water regions of the United States*. Washington: United States Government Printing Office, (1984).

from 1980 that bottling should be done in hygienic conditions and using materials that cannot add harmful content to the water or alter its composition in any way.⁶⁴²

a. Ensuring the Quality of Drinking Water

The Saudi Arabian government has research institutes that are responsible for studying the concentration of water components. These institutes would be expected to be responsible for measuring the quality of *Zamzam* water distributed to the public.⁶⁴³

Council Directive 80/777/EEC provides that an authority which will be responsible for ensuring the purity and composition of the water must be established. This is the same as has been established in the United States of America where Saratoga Springs is protected by the Saratoga Springs Authority.⁶⁴⁴ These will be the legal requirements that the government of Saudi Arabia will have to adhere to should it decide to trademark *Zamzam* water and therefore have it under its protection.

8. Water in Islam

It is important to examine how the laws and property aspects of Zamazam water relate to Islamic principles. The Holy *Qur'an* and the *Sunnah* both emphasize the purity and cleanliness of water. Both scriptures urge Muslims not to pollute water.

a. Water in the Holy *Qur'an*

Through the readings in the *Qur'an* it is evident that water is a major theme in Islamic cosmogony, as well as in daily life. Many verses within the *Qur'an* pertain to

⁶⁴² Cech, Thomas V. *Principles of Water Resources: History, Development, Management and Policy*. 3rd. John Wiley & Sons Inc., (2010).

⁶⁴³ Glennon, Robert Jerome. *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters*. Island Press, (2002).

⁶⁴⁴ Howe, Charles W. *Natural Resource Economics: Issues, Analysis Policy*. New York: John Wiley & Sons, (1979).

water usage and draw attention to the need of humans to protect the water and use it responsibly. For example: “We made every living thing out of water.”⁶⁴⁵ The *Qur’an*’s accounts of the formatting of the Cosmos place great emphasis on water, as demonstrated in other verses in the preceding *Surah*. The discussion, on the one hand, lists heaven, earth, the moon, the sun, night, day, *etc.* as natural factors in the creation of the universe while on the other hand, speaks of a single element that infuses life into the universe: Water. The *Qur’an* immediately proclaims that water fills the entire inanimate universe with life. God said “He sends water down from the sky so He may revive the earth.”⁶⁴⁶ And says, “ He is the One who created humanity out of water; and He has granted them blood ties as well as in laws.”⁶⁴⁷ In fact, waters come up often and in many illuminating ways. More telling examples follow.

God is the One who created Heaven and Earth, and sends down water from the sky. He brings forth produce as sustenance for you. He has subjected ships to you so they may sail at sea by His command and subjected rivers to you.”

“Thanks to water, God gives man plants”⁶⁴⁸

He is the one who has laid out the earth as a carpet for you and has traced highways on it for you and sent down water from the sky. We have brought forth every sort of plant with it, of various types.

“God sends water down from the sky and revives the earth with it following its death.”⁶⁴⁹

“You see the barren earth when we send water down upon it, stirring sprouting and producing every sort of lovely species.”⁶⁵⁰

“Have you considered who, if your water should sink into the ground, will bring you any water from spring.”⁶⁵¹

⁶⁴⁵ Qur’an: Surat al-Anbya (21), ayah 30.

⁶⁴⁶ Qur’an: Surat ar-Rum (30), ayah 46.

⁶⁴⁷ Qur’an: Surat Furqan (25), ayah 54.

⁶⁴⁸ Qur’an: Surat Taha (20), ayah 53.

⁶⁴⁹ Qur’an: Surat an-Nazi’at (79), ayah 31.

⁶⁵⁰ Qur’an: Surat al-Haj (22), ayah 5.

⁶⁵¹ Qur’an: Surat al-Kahf (18), ayah 40-41.

“He is the one who has spread the earth out and placed two pairs for every kind of fruit on it...He sends down water from the sky so that river valleys flow according to how much there is. The torrent carries along swelling foam.”⁶⁵²

“We send down water from the sky in due measure, and let it trickle into the Earth. We are even able to make it disappear. We have produced date groves and vineyards on it for you; from which you have much fruit to eat...”⁶⁵³

“Announce to them how water must be shared among them; each will have his own special time to drink.”⁶⁵⁴

These references make clear the saved character of water. But this is not the only place where the word *Ma'* (Water) appears within the text of the *Qur'an*; rather it appears at least more than sixty times. Several other words related to the semantics of water and hydrology, such as rivers, fountains, sea, springs, rain, hail, clouds and winds, are also frequent. In sum, water is described as a gift from God in order that humanity may benefit from it while at the same time become responsible for its protection for the benefit of the next generations. How should *Zamzam* water be treated?

b. Water in the *Sunnah*:

It should be stated first that statements or practices undertaken or approved by the Prophet (PBUH) are considered legally binding precedents. *Hadith* says “Men are co-owners of the following three things: water, fire and pastures.”⁶⁵⁵ The questions remain, however: who has the priority over water, and should water be sold or should it be considered a public good?

⁶⁵² Qur'an: Surat ar-Ra'd (3), ayah 3 and 17.

⁶⁵³ Qur'an: Surat al- Mu'minun (23), ayah 18.

⁶⁵⁴ Qur'an: Surat an-Nur (24), ayah 28.

⁶⁵⁵ Ahmed, ibn Maja.

The quantity of water any individual is allowed to take is for needed for drinking or irrigation. The Prophet (PBUH) prohibits excess of use of water sources even when in the presence of an abundant flow. All this has an effect on the Muslim community, particularly when one considers that verses from the *Qur'an* and the *hadiths* shaped cultural values, which inevitably have an impact on traditions and habits throughout the Muslim world.” The above section and earlier discussions of this thesis have shown that Islam, through the Holy *Qur'an* and *Sunnah*, calls for the preservation of water sources and forbidden water waste and pollution in any form. This is also raised when discussing SDG15, which addresses the restoration on the natural environment, and SDG 6, which seeks to protect and restore water.

9. Conclusion

a. Reconciling commerce in water with religious duties

The supply of natural mineral water in the world has always been revered, with most people regarding the underground water sources as possessing healing and therapeutic qualities. These claims have never been scientifically proven, though this has in no way served to lower the desire for this water. Many countries have been actively engaged in the preservation of these water sources as they are part of their natural resources. They have gone ahead, to granting trading rights to individuals, companies and even government departments to bottle and sell this water. The privilege to economically exploit natural mineral water has resulted in the need for governments to create laws and regulations which will oversee the exploitation and marketing of these waters. Saudi Arabia has had *Zamzam* water in its capacity for many ages and it should seek to trademark the waters and thus enable the government to impose laws protecting them.

The legal framework for Saudi Arabia only requires the filing and acceptance of registration for a trademark, which will be valid for ten years if no objections are posed. The changes in the state of *Zamzam* wells will call for the use of regulations governing what is termed as natural mineral water, its sources, bottling and marketing. These regulations should adhere to the EU Laws as Saudi Arabia currently has no direct laws to this effect. The laws would call for Saudi Arabia to bottle the water at the source while keeping a close check on its mineral and bacterial content. The laws also demand the establishment of particular authorities which will govern the production and monitor the state of the water, thus ensuring it is safe for human consumption.

In taking this step, the government should be ready for various kinds of objections to the trademarking. These may arise from the public or from other trademarked products, both of which will be handled by the Grievances Office. The idea to trademark the waters seems to be a positive one. It would not only benefit the government through increased income, but it would also control access to the waters thereby ensuring they were safe for human consumption. Trademarking the product would also help to eliminate the illegitimate vendors who sell counterfeit water under the same name, as it would now be protected by intellectual property law. The problems presented by the legal framework are minimal and when compared to the benefits to be achieved, it would be a positive idea for *Zamzam* water to be taken under government protection. Commercial use of water needs to reflect religious values, and not only business interests.

b. Recommendations

Zamzam water is water gifted from God and which has an advantage over all other types of water that originate from the land. The properties and advantages, as well

as the mysteries, wonders and virtues of the water have been proclaimed by Prophet Muhammad (PBUH). All Muslims have been interested since the days of the Holy Prophet (PBUH) and remain interested in the *Zamzam* water, to this day and they are keen on drinking it following the *Sunnah* of the Prophet (PBUH). Therefore, scholars also agree that it is recommended for pilgrims on Hajj and ‘Umrah in particular, and for all Muslims in general, to drink *Zamzam* water, since the Prophet (PBUH) is reported to have drunk the water of *Zamzam*.

Zamzam water is considered the best water on earth especially in the Muslim community. Prophet (PBUH) says “The best water on the surface of this world is zam-zam. It is a blessing, and it is food that satisfies and a cure for the sick.”^{656 657} A person drinking *Zamzam* water should hope for healing, blessings and whatever is best for him in this life and in the hereafter. He also says “Zam-zam is for what it is drunk” (i.e. whatever intention is made when drinking Zam-zam it will be fulfilled.)⁶⁵⁸ Thus, this water is significant, not only because it is healthy and rare but also due to its spiritual values. This alone should be sufficient reason why the government should take special care of *Zamzam* water.

There are possible ways, by which the government would handle the trademarking of the water. This can be through a focus on the healthy nature of the water, allocating it to the Ministry of Health. However, doing this might reduce the supply of water made available to the public and thus the water may lose its value. There would also be the option of having it fully under the Ministry of Environment, so as to be managed by the water department. It would be difficult to have to supply water to all the

⁶⁵⁶ Reported by Muslim, 4/1922). Al-Tayaalisi (61)

⁶⁵⁷ (Tabarāni) Reported by Muslim, 4/1922). Al-Tayaalisi (61)

⁶⁵⁸ Ibn Majah.

houses as part of their water scheme because of the need for new piping and the cost of digging the well. The best idea would be for the government to place it under the Ministry of Environment and the Ministry of Commerce. This would enable a good positioning of the water under the protection of the water ministry and its constant scrutiny to make sure it is safe. The safety of the water having been ensured, the Ministry of Commerce would protect the trademarked nature. The water would therefore exist, not just as a good commodity for use but also as a trademarked commodity of high worth; enabling the benefits to be made available to the public and income attained from it. Clearly, then, the case study of Zamzam shows nicely how the demands and insights of Sharia illuminate the path to better environmental stewardship to meet mankind's needs for safety and material prosperity while preserving God's gifts for future generations.

Chapter 9: Applying Islamic Principles: A Case Study About “Wild” Nature

This chapter offers a second case study to further explore how *sharia* can better promote sustainable development. This second case studies “wild law” in recognition of the rights of flora. It examines the ways that legislation in the United States, the United Kingdom and the European Union seeks to preserve and protect wild lands. Conservation is necessary for many reasons. Wild lands sustain us and may offer us solutions to new problems in the future. So we must not only conserve their quantities but also their diversity, as we do not currently know what kinds of wild resources could prove useful in the future. It then discusses various efforts of the International Union for the Conservation of Nature (IUCN) to promulgate conservation. Finally, it examines what works and what needs improvement in the Saudi system. The Kingdom’s initiatives to conserve *in situ* and *ex situ* all offer exciting possibilities. The previous chapter examined water conservation issues by focusing on a key water asset, Zamzam, which offers rich insights into the need for effective water regulation as well as the obstacles to it and the incentives for it. This chapter likewise focuses on another key asset, the wild, in order to illuminate the need for effective regulation of terrestrial environments. It similarly shows the obstacles to good stewardship and the upside to be achieved if successful. Read in conjunction with the previous chapter’s analysis of water, this case study further shows the interconnectedness of ecosystems, and thus the importance of following broad-ranging, coordinated environmental programs based in national and international law – as well as in *sharia* where appropriate – in order to meet effectively meet the challenges of the Anthropocene Era.

1. Introduction

Plant rights are a broad topic meriting the in-depth exploration of this chapter. This is because plants exist everywhere in the world. This case study will look at the question of the second dimension of plants. It will examine trees because trees involve the aspects of wild law and then go beyond that to include all kinds of habitat and plants. This chapter about plants or flora will show that the same thing applies to animals and other parts of nature. Just as water can have a spiritual dimension, so can plants. Much is written about animals, but since all life is sacred, we need to start thinking about plants too. By considering flora we can think more clearly about fauna, the animal kingdom. The kingdoms of animals and of plants are interrelated; both depend on water and often on each other.

As Chapter 5 explained, the Earth is now in critical condition due to the unchecked development and voracious growth of the world's nations. The prosperity and development of recent centuries have come to fruition in large part because of the use of non-renewable natural resources, particularly those having a catastrophic effect on the world's wild flora and fauna. Many species are at risk of extinction due to the lack of adequate laws and global policies aimed at restoring rather than destroying our planet's ecosystem.⁶⁵⁹

For example, the lack of policies that provide for effective and sustainable use of our lands have contributed to global warming and the loss of biodiversity, both of which have a detrimental effect upon the planet's life support systems. This is because land utilization, when used in excess, increases many harmful effects including most notably,

⁶⁵⁹ *Strategic Plan for Biodiversity 2011-2020* Decision X/2, Target 6, (2010). Available at http://jncc.defra.gov.uk/pdf/ot_AICHIREPORT17-07-2013-14-04-submitted.pdf

Greenhouse Gas (GHG) emissions which directly affect our ozone and, in turn, our environment. Large amounts of GHS emissions increase the chances of depletion of our existing ozone, which leaves the Earth vulnerable to direct exposure of harmful rays from the sun. Most specifically, the high number of cases of deforestation and machine-intensive labor decrease the amount of green land available to defuse the carbon emissions that affect our planet. In all, the human impact on Earth of methods such as are outlined above, cause sharp increases in the output of carbon and a significant decrease of forest to defuse the carbon and increase the oxygen necessary to livelihood.

These consequences are undesirable and unacceptable to a civilized society insofar as they reduce our lifespan and overall access to undeveloped lands. For this reason, representatives of the world's communities raised their voices in Stockholm in 1972 advocating in favor of ensuring an environment that permits living with dignity and overall wellbeing. During that conference, delegates stated "natural and manmade ecosystems are essential to the wellbeing and enjoyment of basic human rights – even the right to life itself." The "right to life" should always include the right to enjoyment of both nature and wild life. God (the Glorified and Exalted) has declared in the *Qur'an*: "Verily, all things have we created by measure."⁶⁶⁰ He also said, "He Who has spread out the earth for you and threaded roads for you therein and has sent down water from the sky: With it have we brought forth diverse kind of vegetation. Eat and pasture your cattle; verily, in this are signs for men endued with understanding"⁶⁶¹ The Prophet (PBUH) declared, "The world is beautiful and verdant, and verily God, be He exalted, has made

⁶⁶⁰ Qur'an: Surat al-Qamar(54), ayah 49.

⁶⁶¹ Qur'an: Surat Taha (20), ayah 53-54.

you His stewards in it, and He sees how you acquit yourselves.”⁶⁶² All of the resources upon which life depends have been created by God as a trust in our care. He has ordained sustenance for all people and for all living beings.

Thus, in Islam the utilization of these resources is the right and privilege of all people and all species. Everything that exists, exists through persistence in a delicate balance. The inability to maintain this delicate balance and to abide by basic natural laws, is detrimental, primarily, to the affected wild life and secondly to human life. For better or for worse, we are tied as intimately to all that exists on Earth and as such, any adverse effect on the ecosystem results in a loss within the human community.

To safeguard against these harms, all societies need to recognize the role of wild law. Wild law is the area of law designed to regulate human participation within Earth’s nature.⁶⁶³ It seeks to balance the rights and responsibilities of humans against those of other members of the community within nature’s environment (*e.g.*, plants, animals, rivers, and ecosystems) in order to safeguard the rights of all the members of Earth’s community. Through this research we will look at how wild law has been interpreted and, therefore, implemented in both the Western and Islamic world.

Our objective ought to be a new legal theory that puts nature at the center. In particular, we will examine the religious and philosophical values that influence laws against deforestation, desertification, or overgrazing, and the use of pesticides and harmful chemicals. Islam provides a good lens from which to focus on the aforementioned, given that Islam takes great care to pay attention to the protection of trees and other plants through legislative enactments. Islam’s rules regarding

⁶⁶² *Saheeh Muslim*

⁶⁶³ Reid, Colin T. “Towards a Biodiversity Law: The Changing Nature of Wildlife Law in Scotland.” *Journal of International Wildlife Law & Policy* 15.3-4 (2012): 202-227.

conservation of the environment are contained within the religion's primary scriptural document, the Holy *Qur'an*, while other concepts are drawn from interviews with the Prophet Mohammed (PBUH) himself. Through its dictate, this particular religion seeks to ensure that men enjoy the benefits of nature and the beautiful landscapes provided by living things. Scholars such as Cormac Cullinan⁶⁶⁴ and Christopher Stone⁶⁶⁵ have written much on the topic of wild law. Islamic rules related to the protection of nature mirror the writing of many environmental writers, but their origins go back much further. Islamic rules provide a useful tonic for Western countries, whose laws of forestry are typically non-utilitarian and who have usually neglected the wild rights of trees and other plants. This paper carries out a comparative analysis of Wild Law and Islamic Environmental Law and looks into recognizing the rights of trees. Moreover, it further examines legislation prescribed for the conservation and respect of the wild.⁶⁶⁶

As it is with the rest of our planet, the future of our wild life is up to us, to the choices we make. We should protect *Zamzam* water to ensure its natural integrity is sustained, not depleted. We should also respect the natural integrity of flora and fauna and their habitats. "The environment we will be living in depends very much on how we will protect plants and forests and how we will prevent deforestation."⁶⁶⁷ It is imperative then that we focus on protection and restoration of our damaged environment.

Borbála Gálos, of the Max Planck Institute for Meteorology stated that there is a great role played by wild plants (including especially trees) in sustaining water systems.

⁶⁶⁴ See Cullinan, Cormac. *Wild law*. SiberInk, (2002). S. Africa.

⁶⁶⁵ See Stone, Christopher. "Should trees have standing." *Toward Legal Rights for Natural Ob* (2015).

⁶⁶⁶ Burdon, Peter, ed. Exploring wild law: The philosophy of earth jurisprudence. Wakefield Press, 2011. 259-268.

⁶⁶⁷ Sahavat Huseynov "Young Green Patrols in action: "By protecting trees we protect our future" Available at <https://www.iucn.org/content/young-green-patrols-action-protecting-trees-we-protect-our-future>

Plants help to maintain aquatic ecosystems in a healthy state and provide a reliable supply of clean fresh water. Because of the benefits of managing the various resources in an integrated manner, it is vitally important to plan management to address issues of protection and sustainable use of all resources such water and wild nature at the same time instead of focusing on one of these resources. There is an inverse relationship between water and wild nature. Water keeps wild nature alive, and wild plants help maintain water supplies. If humans plant and protect trees, they will do much to increase water supply on Earth. These two realms rely on each other, and therefore planning for their preservation must be considered on an integrated basis.

a. Wild Plants

Plants have substantial social, environmental and economic value, and they need our protection. These invaluable members of our environment are better described as a living organism exemplified by trees, shrubs, herbs, grasses, ferns, and mosses and other vegetation. This chapter focuses on trees. Plants survive primarily by absorbing water, sunlight and other inorganic substances through their roots. Plants are vital to our ecosystem insofar as the process of growth creates the element oxygen, which is crucial for human survival. Moreover, their ability to produce oxygen is only part of the equation; in doing so, plants take in carbon dioxide, which helps lower the amount of this greenhouse gas accumulating into the atmosphere, mitigating the human impact. In all, we are truly interconnected, as humans give off carbon dioxide while breathing. Their inclusion in our environment benefits biodiversity by providing food and shelter for wildlife. Some of the natural plants also provide great health benefits, which have assisted humans in curing many ailments, again proving their utility. Moreover, plant life

contributes greatly to local amenities and the quality of the natural and historic environment, not to mention that they can be significant local landmarks.

Some trees and plants grow wild while others have been planted by humans. They are planted for more than one principal purpose. We can use trees as an example of wild law's uses. The management of trees should therefore embrace a number of objectives that, for example, may relate to timber production, amenity, wildlife conservation and the control of hazards. In the case of hazard management, for example, it is necessary to take reasonable steps to identify trees which may present a significant risk to people or property and to take the appropriate precautions consistent with the least harm or loss of value for people and wildlife.

In addition to the overall benefits of trees, forests present unique and crucial roles in our society. This is because forests, for example, are a main supply source of fresh water. Furthermore, today two billion humans still use wood as their fuel for all energy needs. Anything that reduces overall access to these sources would leave many in a desperate position, threatening their way of life. Moreover, forests have a colossal importance in maintaining a fragile ecosystem and creating a balance between the supplies of oxygen and carbon dioxide. As if this were not enough, climate conditions and stability are maintained by the wild, particularly forests. Forests help to maintain rainfall in their immediate vicinity by recycling water vapor at a steady rate back into the atmosphere and through the canopy effect in promoting atmospheric circulation.⁶⁶⁸ This continues a cycle that is crucial to human survival.

In addition to the invaluable benefits aforementioned, a sizeable number of the world's populations depend mainly on forest produce. Pollination services in the wild are

⁶⁶⁸ Benny Joseph, *Environmental Studies*, Tata McGraw Hill Publishing Company Ltd. New Delhi, (2005).

an important factor to raise social and economic values in nations. For example, in Malaysia, a million dollar durian fruit industry was paralyzed because of the lack of pollination; bats had migrated to some other areas due to habitat destruction.”⁶⁶⁹ Commercial use of plants needs to be sustainable and to reflect religious values and not merely business interests.

b. History of the Wild

Two groups of writers have explored how the law includes, or should include, concepts of “the wild” as part of defining what is “nature.” The first group consists of those who came to North America for the first time and found an uninhabited land of wild. John Muir, one of the most influential nature writers, came from Scotland to California and established the Sierra Club Conservation organization. He wrote many books related to wild nature. John Muir was one of the first people who described how glaciers work, and advocated protection of redwood trees. He spoke to persuade the U.S. Congress to promulgate legislation that protects national parks, the national forest and many wild areas. The Sierra Club provided the push that helped create many parks and wilderness acts that would later protect the environment. During the 1800s, while Muir wrote about the wild in the U.S., in England William Wordsworth was writing about wild nature and plants in England at the same time. Both saw spiritual dimensions in nature, in God’s creations.

Despite this history, the term “wilderness” is difficult to define and has continued to be the seeds of disagreement. Nonetheless, both Muir and Wordsworth had propelled the goal towards a pollution-free world long before the modern approach to protect our

⁶⁶⁹ Dr Rajib K Sinha, *Forest and Wild Life Diversity: An Ecological Link Between Man And Nature*, Man Environment And Wildlife (Edited), Anmol Publications Pvt. Ltd. New Delhi.

wild. The efforts of Muir and Wordsworth resulted in promulgation of much legislation. For example, New York State adopted the first law in the world seeking to save an imperiled mountain range; this resulted in the creation of the Adirondack Forest Preserve which was concerned with the preservation of all elements of nature in this precious and imperiled region. Moreover, New York placed in its Constitution the requirement that the forest “shall be kept forever wild.”⁶⁷⁰

Despite its immense importance for “spiritual, healthy and productive life,” loss of wild is continuing at unsustainable rates around the world. According to the report of the Food and Agricultural Organization ‘Deforestation, which relates to the conversion of tropical forests to agricultural land- shows signs of decreasing in several countries but overall continues at a high rate. Around 30 million hectares of forests were converted to other use in the last decade.’⁶⁷¹ Both Brazil and Indonesia, which had the highest net loss of forest during the 1990s, have significantly reduced their rate of loss, while in Australia severe drought and forest fires exacerbated the loss of forests since 2000. The Forest Report further shows that South America suffered the largest net loss of forests between 2000-2010 with 4 million hectares loss per year, followed by Africa, which has lost 3.4 million hectares annually. Asia, which had a forest net loss of 600,000 hectares annually in the 1990’s reported a net gain of forest of more than 2.2 million hectares per year in the period 2000-2010 primarily due to the large scale of reforestation reported by the People’s Republic of China and despite continued high rates of losses in many countries in South and South East Asia.

⁶⁷⁰ See Article XIV of the New York State Constitution. Available at <http://www.dec.ny.gov/lands/55849.html>

⁶⁷¹ FAO, *Forest Assessment Report*, (2011).

c. Defining Wild Lands

The Wilderness is deeply valued for cultural, spiritual, moral, and aesthetic reasons. Some nature writers believe wilderness areas are vital for the human spirit and creativity.⁶⁷² They point to these areas as indicative of developing creativity and spiritual development. Wild lands may also preserve historic genetic traits and provide habitat for wild flora and fauna that may be difficult to recreate in zoos, arboretums, or laboratories.

The term “wild lands” is defined as those natural terrestrial environments that have not been significantly altered or modified by civilized human activity.⁶⁷³ They also defined as: “The most intact, undisturbed wild natural areas left on our planet the truly last wild places that humans do not control and have not developed with roads, pipelines or other industrial infrastructure.”⁶⁷⁴ Some governments designate such areas by law or administrative acts, usually in land tracts that have not been modified by human action in great measure.⁶⁷⁵ The main feature of these laws is that they greatly restrict human activity within these delineated spaces. These laws seek not only to preserve what already exists but also to promote and advance a natural expression and development. Wild land areas can be found in the form of preserves, estates, farms, conservation preserves and easements, ranches, national forests or parks, and even in urban areas along rivers, gulches or otherwise undeveloped areas. These areas are considered important for the survival of certain species, biodiversity, ecological studies, conservation, and recreation.⁶⁷⁶ And they offer a place to be alone and enjoy solitude.

⁶⁷² *Id.*

⁶⁷³ Available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3804405.pdf

⁶⁷⁴ Spellman, Frank R., and Joni Price-Bayer. “The Handbook of Nature”. Government Institutes, (2012).

⁶⁷⁵ *Id.*

⁶⁷⁶ Lambert M. Surhone, Miriam T. Timpledon, Susan F. Marseken, *Wilderness: Wilderness, Natural Environment, Biodiversity, Flora, Fauna, Species, Arboretum, Biomass, Forest, Global Warming.*

Unfortunately, human activity has removed vast chunks of the “wild” nature to make room for cities and farms. These individuals made their living off the land and sought to promote their well-being at the expense of nature. At the time, during the Industrial Revolution, in some developed countries, individuals sought after a movement that would bring them riches. The second half of the 19th century and particularly the 20th Century brought movements to develop laws and regulations that protect the environment and enhance the openness of wild lands.⁶⁷⁷

The Kingdom of Saudi Arabia lies within a region that ranges from arid to semi-arid, characterized by unique biological diversity and species that could acclimate to life under adverse ecological circumstances including weather and dry conditions. Man had coexisted in Arabia in harmony with his limited renewable natural resources for centuries; and could safeguard it by applying conservative traditional practices including the protected area system, which was derived from Islam. In light of that, the Saudi Wildlife Authority, in collaboration with the International Union for Conservation of Nature has prepared a national plan for a system of protected areas.⁶⁷⁸ The aim is to protect bio-diversity by establishing a national network of protected areas (up to 103) representing all terrestrial and marine ecosystems in the KSA.⁶⁷⁹

Over many centuries, Bedouins have watered and grazed their camels, goats, and sheep, from oasis to oasis. They spend the winter in search of pasture for their animals, and in the summer return to the oases, areas scattered in low-lying areas of sand dunes.

⁶⁷⁷ Natural Park Service. US Dept. of the Interior. Available at http://www.nps.gov/nr/travel/massachusetts_conservation/Nineteenth_Century_Trends_in_%20American_Conservation.html

⁶⁷⁸ Primack, Richard B. *Essentials of Conservation Biology*. Vol. 23. Sunderland, Massachusetts: Sinauer Associates, (1993).

⁶⁷⁹ *Id.*

On the other hand, some Arabs were desert herders. They adapted to the dry desert life without sophisticated technology and without the use of the chemical fertilizers and pesticides often used for the purpose of increasing the unit area, regrettably led to the extinction of some wild species.

d. Description of Earth Jurisprudence and Wild Law

(1) Earth Jurisprudence:

Earth jurisprudence is an emerging theory of Earth-centered law and governance. Its starting point is denouncing what is described as our ecological crisis which is caused by anthropocentrism, “a belief by people in the modern industrialized world that we are somehow separated from, and more important than, the rest of the natural world.”⁶⁸⁰

Thomas Berry argued that this anthropocentric worldview underpins all of the governance structures of modern industrial society - economic, education, religious, legal and has fostered the belief that the natural world is merely a collection of objects for human use.⁶⁸¹

In contrast, a more enlightened jurisprudence of the Earth – based on the precepts of Islam – would induce a radical rethinking of humanity’s place in the world, to acknowledge the history and origins of God’s creation as a guide and inspiration to humanity and to see human beings as one of many interconnected members of the Earth Community.⁶⁸² Thus, a jurisprudence of the Earth would offer a legal theory that provides

⁶⁸⁰ See chapter four of this thesis.

⁶⁸¹ Maloney, Michelle, and Peter Burdon. *Wild Law-In Practice*. Routledge, (2014). p.195

⁶⁸² Berry, Thomas, and Brian Swimme. “The universe story: From the primordial flaring forth to the Ecozoic era—A celebration of the unfolding of the cosmos.” *I-larpe l'Collil'IS Publishers* (1992).

fundamental support to the formation of additional Wild Law.⁶⁸³ It provides the philosophical and theoretical basis for a governance system designed to foster wild law.⁶⁸⁴ By incorporation, the Earth's entire community is defined beyond what has been thought of as a human-centered planet and embraces Berry's definition, referring to all human and non-human life forms and components of the planet as Earth's community.⁶⁸⁵ Berry suggests that our great work is to remake the human system of governance in order to create a harmonious and nurturing civilization that will not destroy our common home.⁶⁸⁶

Picking up on this thesis, Cormac Cullinan's *Wild Law: A Manifest for Earth Justice* (2003) called for people to remake our legal system to support the planet.⁶⁸⁷ The basis for this is to globalize and then enforce laws that promote our environment, while retarding unsustainable growth at the expense of wild life. These concepts of Earth Jurisprudence and Wild Law are increasingly becoming practical and constructive tools to guide human practice. This is reflected in the growing international movement of people and organizations advocating for earth-centered laws and governance.

The ecologist Aldo Leopold describes in his famous book, *A Sand County Almanac* an explanation of "the land ethic". He notes the extension of ethical criteria to more and more fields of conduct through human history. The Ethical Sequence views ethics in ecological as well as philosophical terms, arguing that in spite of accretions to the ethics from individuals to society, there is no land ethic yet, since there are no obligations formulated towards it – land is still viewed as mere property. The Community Concept

⁶⁸³ Cullinan, Cormac. "Wild law: A manifesto for earth justice." (2011). P.10

⁶⁸⁴ Cullinan, Cormac. *Wild law*. SiberInk, (2002). P.118

⁶⁸⁵ Maloney, Michelle, and Peter Burdon. *Wild Law-In Practice*. Routledge, (2014). p 105

⁶⁸⁶ *Id.*

⁶⁸⁷ See generally Michelle Maloney & Peter Burdon eds, *Wild Law - In Practice*.(21014).

proposes the enlargement of the boundaries of community to include the land, changing the role of the human from conqueror to an ordinary member of this community. The Ecological Conscience advocates for a qualitative change in the content of conservation education and its philosophy of values, including obligations to the land above those dictated by self-interest.⁶⁸⁸ Then comes the thundering edict, the two most powerful sentences in *A Sand County Almanac* “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”⁶⁸⁹ Leopold explains that all religions respect life, as a basis for his land ethic. In this way, Leopold presages this thesis, arguing than man live in harmony with the environment and according to the righteous path.

2. Law and the Wild

On the other hand, wild law is a groundbreaking approach to laws that stress human interconnectedness and dependence on nature. On the other hand, wild law returns humans today to the relationship that they had with nature when the Prophet (PBUH) lived, when the Earth held many less than one billion people, not the eight billion of people of today. It critiques existing laws for promoting environmental harm and seeks to establish a mutually enhancing Human-to-Earth relationship.

Wild law expresses Earth jurisprudence. It recognizes and embodies the qualities of the Earth system within which it exists. As an approach, it seeks both to foster intimate connections between people and nature, as well as, to deepen our connection with the wild aspect of our own natures. It protects wilderness and the freedom of the

⁶⁸⁸ Aldo Leopold, *Sand County Almanac* (1949) p 11

⁶⁸⁹ Id.

communities of life to self regulate. Wild law opens spaces within which different and unconventional approaches can emerge, perhaps to flourish.

Wild laws are those that regulate what humans can do in and to the wild, in ways that creates freedom for all the members of Earth's community to play a role in the continuing evolution of the Planet.⁶⁹⁰ In fact, where issues or concerns related to the environment are pursued,⁶⁹¹ Earth Jurisprudence provides one set of answers to these questions. Earth jurisprudence helps identify problems with the current legal system and society as a whole and seeks ways to revolutionize to see the situation through a different and powerful lens. This approach relies greatly on the axiom that many of society's problems stem from the almost universally held anthropocentric view, which assumes human beings reside at the center and are the entire purpose of existence, without any recognition of the rights of nature.⁶⁹² Earth jurisprudence turns this notion on its head and relies heavily on the idea that humans are only one part of a wider community on this planet Earth, rather than its center.⁶⁹³ Through this view, the concept of wild laws can be captured, incorporated and promoted. Since wild law seeks to capture the importance of preserving the natural environment for the benefit of all Earth's ecosystems and natural entities, these two theories meld nicely.⁶⁹⁴ In fact, wild laws recognize the right of all beings to exist and to fulfill their respective roles.⁶⁹⁵

⁶⁹⁰ Cullinan, Cormac, and Thomas Berry. " *Wild Law*": A Manifesto for Earth Justice. Vermont: Chelsea Green, (2011).

⁶⁹¹ Id p 231

⁶⁹² Koons, Judith E. "At the tipping point: Defining an Earth jurisprudence for social and ecological justice." (2012).

⁶⁹³ *Id.*

⁶⁹⁴ Cullinan, Cormac, and Thomas Berry. " *Wild Law*": A Manifesto for Earth Justice. Vermont: Chelsea Green, (2011).p10

⁶⁹⁵ Id p 291

a. Wild Law Related to Wilderness Areas

Wilderness creates a reason for life. This is because wilderness derives from the same source as our creation: our existence is fortified and justified through its connection to nature. Many learned proponents of the wild pushed for its protection citing its healing and restoring powers. These include spiritual values. Wilderness can even be defined as another name for the creative life force inherent in the universe. As such, it is at the heart of existence and expressing it is fundamental to our role.

b. U.S. Wilderness Act

The Wilderness Act was signed into law in 1964. It established the National Wilderness Preservation System and defined wilderness as “an area of undeveloped Federal land which retains its primeval character and influence without permanent improvements or human habitation which is protected and managed so as to preserve its natural conditions.”⁶⁹⁶ In 1964,⁶⁹⁷ United States leaders formally acknowledged the immediate and lasting benefits of wild places by the enactment of landmark legislation through a nearly unanimous congressional vote that permanently protected some of the most natural and undisturbed places in America. That law, the Wilderness Act of 1964, is one of the most successful U.S. environmental laws, standing for almost 50 years without a substantial amendment, and, as such, continues to be the guiding piece of legislation for all wilderness areas. The Act describes wilderness as follows: “...lands designated for preservation and protection in their natural condition...” Section 2(a) “...an area where the earth and its community of life are untrammelled by man...” Section 2(c) “...an area

⁶⁹⁶ Wilderness Act, Section 2(c). Available at <http://wilderness.nps.gov/document/wildernessAct.pdf>

⁶⁹⁷ WILDERNESS ACT Public Law 88-577 (16 U.S. C. 1131-1136) 88th Congress, Second Session September 3, (1964). Also available online at: http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_programs/wilderness/wilderness_act_of.html

of undeveloped Federal land retaining its primeval character and influence, without permanent improvement or human habitation...” Section 2(c) “...generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable...” Section 2(c) “...has outstanding opportunities for solitude or a primitive and unconfined type of recreation...” Section 2(c) “...shall be devoted to the public purposes of recreation, scenic, scientific, educational, conservation and historic use.” Section 4(b)⁶⁹⁸

Since its enactment, Congress has dedicated over 106 million acres of federal public lands as wild land or wilderness. In accordance with the statute, what distinguishes these lands from other federal public land is their designation, which is set by Congressional act and may not be altered except by Congress. Also, federal agencies such as the Bureau of Land Management, the U.S. Fish and Wildlife Service, the National Park Service, and the U.S. Forest Service have authority to maintain and protect these lands and if necessary take steps to restore their “wilderness character.” Most notable is the fact that these locations designated by the government are free of technological advances that plague the rest of unprotected land; this is done to ensure their “wild” character remains and continues to flourish.⁶⁹⁹ United States was the first country in the world to define and designate wilderness areas through law.⁷⁰⁰ Subsequently, countries around the world have protected areas modeled after the Wilderness Act.

All of these values having to do with the wilderness are also found in religion. In Islam for instance, through the Holy *Qur’an* and *Sunnah* there is a strong eagerness to

⁶⁹⁸ The “Wilderness Act”, (1469). Available at <http://wilderness.nps.gov/document/wildernessAct.pdf>

⁶⁹⁹ Wilderness: Gateway to National Park Service Wilderness at <http://wilderness.nps.gov/faqnew.cfm>

⁷⁰⁰ Forest Preserve “Forest wild; forest land.” 1984 NYS.

protect wildlife on the ground, not just the animals and plants, but also with regard to gardening the lands and fix it. Also, the scriptures approve the principle of natural reserves and encouraged establishment of a number of protected areas such as those in Mecca, Medina and Taif. Towards the end of this chapter, there will be much detail about wildlife values to be found in Islam.

The protection and preservation of the wild may be a topic of much discussion and agreement. Many would agree that protection is necessary for the benefit of our prosperity. What becomes of the issue then is what methods to employ to carry out this goal. To say that one wishes to protect the environment is wholly inadequate. The real issue lies in creating a fail-proof plan that can be implemented widely and that is effective. Unfortunately, cities, states and nations all struggle to arrive at this juncture in implementing regulations and guidance that would promote our environment; what's worse, many cannot agree what the best source of this guidance should be. Ideally, should this be a religious approach, or what about statutory language? Would promulgation of the rules through an elected body guarantee that society would adhere to the same? Or can it be said that tying the issue to religious doctrines will push the envelope further? This section of the paper will now focus on some of the impediments faced by forward-looking societies who seek to protect our environment.

Twelve percent of the world forests are designated for the conservation of biological diversity. Most of them are located inside the protected areas. Legally established protected areas cover an estimated 30% of world forest. National Park Game Reserves, wilderness areas and other legally established protected areas cover more than 10% of the total forest area in most countries and regions. The primary functions of these forests may be the conservation of biological diversity, the protection of soil and water resources or the non-conservation of cultural heritage. The area of forest within a protected area system has increased by 94 million hectares since 1990. Two thirds of the increase has been since 2000. Brazil has

designated more than one fifth of its forest area for the protection of the culture and way of life of forest dependent people.⁷⁰¹

Traditional approaches to the protection of wild land cause a serious hardship to traditional forest dwellers and indigenous people, and may even result in displacement of these individuals from their traditional home. These processes are in tension with the goals of the Rio, Stockholm, and U.N. declarations, and result from a conflict between the goals of conserving wild lands and allowing the traditional lifestyles of people residing in wild land.

3. Wild In the United States of America

The U.S. had has its own share of difficulty when it comes to implementing effective methods that will push the environmental agenda. John Muir’s values are now found in national laws and rules. Nonetheless, various legislative acts and government-sponsored committees, agencies and regulating bodies have been created to push this notion. Many plants and animals are becoming extinct today. What is our duty to save flora from being lost forever? Some countries enact laws to prevent this. Various measures have been taken by the U.S. government to address this issue.

a. Habitats of endangered species – US Endangered Species Act

The U.S. Endangered Species Act (“ESA”) is a piece of legislation promulgated in 1973 with the intent to protect and recover imperiled species and the ecosystem upon which they depend.⁷⁰² The act seeks to protect the habitat of endangered or threatened species throughout American soil. The ESA is administered by the U.S. Fish and Wildlife

⁷⁰¹ See www.mdpi.com/2071-1050/2/11/3520/xml

⁷⁰² Endangered Species Act – Overview. (1973). Available at <http://www.fws.gov/endangered/laws-policies/>

Service and the Commerce Department's National Marine Fisheries Service. The statute defines and enlists both "endangered" and "threatened" species. The ESA defines "endangered" species as in danger of extinction throughout all or a significant portion of its range. "Threatened" on the other hand, refers to species likely to become endangered within the foreseeable future.⁷⁰³ With regard to inclusion, all species, with the exception of pest insects, are eligible for listing as an endangered or threatened species.

For present purposes, what is most important about this piece of legislation is the fact that it prohibits the destruction of habitats where endangered species reside. It also provides financial assistance and incentives to U.S. states to develop and implement programs aimed towards the conservation of these endangered species. This is important insofar as individual States are incentivized to take proactive approaches and thus, it prevents the argument that this program results in a financial burden for states that would otherwise fail to participate and play a more active role.

4. Wild Laws of the United Kingdom

a. Protecting trees in the United Kingdom

The United Kingdom has also taken committed steps to address important ecological issue. In fact, the U.K. has enacted several critical pieces of legislation that help promote the environment and protect trees from numerous harms such as dangers from lightning, and damage by humans and wild animals.⁷⁰⁴ These laws reflect Wordsworth's valuation of nature, and more recent ecological scientific knowledge.

⁷⁰³ *Id.*

⁷⁰⁴ See Roger Trout and Andy Brunt. "Protection of trees from Mammal Damage". Available at [http://www.forestry.gov.uk/pdf/LRU_BPG12.pdf/\\$FILE/LRU_BPG12.pdf](http://www.forestry.gov.uk/pdf/LRU_BPG12.pdf/$FILE/LRU_BPG12.pdf)

Additionally, the U.K. has developed practice guides that dictate the responsibilities of landowners and land managers to assess the risk of hazards to trees as well as to delineate appropriate inspection procedures. Within these guides, preventive care of young trees and methods for protecting trees from wildlife damage are detailed. Illustrations of tree hazards, warning signs, and options for remedial work are presented.⁷⁰⁵

In fact, the U.K. produces tree preservation orders, in conservation areas, and issues licenses or restrictive covenants that legally plan conditions for the protection of trees within its jurisdiction. Individuals wishing to undertake work that involves changes to tree life are required to make suitable inquiries prior to engaging in any work regarding the legal status of said tree and any protection afforded to the tree. Failure to do so may result in possible prosecution or other enforcement actions.

(1) Tree Preservation Orders

Tree preservation orders are written orders making it a criminal offense to cut down, top, uproot, willfully damage or willfully destroy or permit the destruction of a tree protected by the issued order. The preservation orders are issued by the Local Planning Authorities (LPA) (e.g., a borough, district, unitary council, or a national park authority) as a means to protect trees that benefit the local areas, particularly where said tree is under threat. The LPA has wide discretion to issue protection orders for a wide variety of trees, excluding hedges, shrubs and bushes. Protection can range from the protection of a single tree to all trees within a well-defined area or woodland so long as their protected status is clearly defined. What is important about this protection is the

⁷⁰⁵ *Id.*

procedure in place for individuals interested in conducting tree work. Applications must be submitted through LPA and often times, applicants are encouraged to speak with a tree surgeon prior to even submitting an application. This well-delineated process helps ensure optimal protection for all trees, whether or not they are under a preservation order.⁷⁰⁶

(2) Conservation Areas

Conservation areas play a vital role in tree protection. This is because individuals interested in doing tree work on a tree not covered under a TPO must provide 6-weeks written notice of their intended work to the LPA allotting the authority organization an opportunity to issue a preservation order for that tree.

(3) Trees and the Planning System

The U.K. has also created a planning system that authorizes LPAs to convene with the intention to strategize and plan methods for the protection of trees, particularly when deciding on proposed development of land.⁷⁰⁷ The LPAs therefore, give considerable weight to the needs of the environment and the protection of trees in each instance in which they consider a planning application.

(4) Felling Licenses

Felling licenses, better understood as a permit to cut down, clear off, or chop trees, are administered by the Forestry Commission. Although a license is not needed on all occasions (e.g., where the tree resides within a garden), in most instances a citizen

⁷⁰⁶ McFadden, Jean. "Tree preservation orders and trees in conservation areas." *Scottish Planning and Environmental Law* 88 (2001): 125-126. Available at

<https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

⁷⁰⁷ Arboricultural Association, "A Brief Guide to Legislation for Trees". (2015). Available at <http://www.trees.org.uk/Help-Advice/Public/A-brief-guide-to-legislation-for-trees>

would need to apply for a license whether or not the tree(s) is covered by a TPO. Failure to observe laws related to this area may amount to civil or criminal liability, including the imposition of hefty fines.⁷⁰⁸

(5) Restrictive Covenants

A restrictive covenant is a promise by one person to another person (e.g., buyer or seller of land) not to do certain things with the land or the property. Generally, these covenants are used to ensure that the activity on the parcel in question does not intrude on the exercise of someone else's property interest or lessen the value of the land that may become available to another through a future interest. For this reason, restrictive covenants bind the land and not the individual.⁷⁰⁹ Generally, these restrictive promises bind future generations who gain interest in the land, since they are said to "run with the land." Interested individuals should always ensure that their proprietary interest is free from such encumbrance. Given these promises, individuals seeking to work on trees must ensure that the property on which the trees grow are not subject to restrictive covenants.⁷¹⁰ It should be noted that the U.K.'s interest in protecting trees extends beyond contemporary trees to aged trees. The same provisions noted above apply to aged trees and a breach of any of the enacted regulations results in hefty fines and even criminal charges. These UK laws show how wild law values are being applied in practical ways, to ensure they guide sustainable economic and social development.

⁷⁰⁸ "Felling Licenses Exemptions." Felling Licenses Exemptions (England). Available at <http://www.forestry.gov.uk/forestry/infd-6dfkw6>

⁷⁰⁹ Forestry Commission. "Felling Licenses." (2003). Available at <http://www.mylawyer.co.uk/how-restrictive-covenants-affect-land-use-a-A76052D76388/>

⁷¹⁰ Arboricultural Association, "A Brief Guide to Legislation for Trees". (2015). Available at <http://www.trees.org.uk/Help-Advice/Public/A-brief-guide-to-legislation-for-trees>

5. Wild in Laws of the European Union

The European Union has some of the world's highest environmental standards and seeks to provide regulations that protect and nurture our environment. Overall, their provisions ensure a rich natural environment that nurtures the well being of residents, but most importantly, without significant economic loss. This is crucial because many jurisdictions that have caused much harm to the environment often do so in the name of economic expansion and growth. To note other jurisdictions that are able to flourish economically, while preserving their natural areas, speaks volumes and is our biggest testament on revisiting the current system of natural law and jurisprudence.

Europe's rich and diverse wild plant and animal life is not only alive and well, but in certain instances, the continent is said to serve as home to unique wildlife. In 2011 EU member States convened to pass the EU Biodiversity Strategy of 2020, discussing targeted goals to halt the loss of biodiversity and ecosystem in the EU by the year 2020.⁷¹¹ Despite their resolution, biodiversity loss continues at unprecedented levels. According to the IUCN European List, this is caused in part by climate change, invasive species, and by general habitat destruction.⁷¹² It is important to note that changes of this unprecedented level must be applied throughout the bloc. If only one country commits, though it lessens the overall harm to our environment, and countries fail to exercise responsibility to reduce their own environmental impact, then the system will collapse. Therefore, the EU approach offers examples of how wild law can be enacted in all other regions.

⁷¹¹ EC-European Commission. "EU biodiversity strategy to 2020." *COM (2011) 244* (2011).

⁷¹² See IUCN, Europe. Available at https://www.iucn.org/about/union/secretariat/offices/europe/european_union/

a. Europe and Tree Protection

The EU member states have created their own legal systems, rules, and principles within treaties in order to protect trees within their jurisdiction. Protection of nature is touched on by nine EU directives and regulations in total aimed at protecting habitats, wild flora and fauna. Wild areas within the European Union are also protected through this national legislation and or statutory measures, though for cultural, historical or ecological reasons, each Member-State set its own gradation of protection. For example, while some member states may permit highly restricted access for scientific research or educational growth, other member states designate areas to be exclusive of human presence.⁷¹³

b. Habitats Directive

The continuing deterioration of natural habitats and the threats posed to certain species is of major concern to the environmental policy of the EU. The EU has taken this threat seriously and, by virtue of several uniform directives, are able to bring together a design to eradicate this threat. Of these, the Habitat Directive is the most influential instrument promoting biodiversity of the EU.⁷¹⁴ In reality the Habitat Directive was born in the 1979 Berne Convention on the Conservation of European Wildlife and Natural Habitat and the 1979 Birds Directive.⁷¹⁵ This Directive is intended to maintain biodiversity in the Member States by defining a common framework for the conservation

⁷¹³ Dudley, Nigel. *Guidelines for applying protected area management categories*. IUCN, 2008. Available at <http://data.iucn.org/dbtw- wpd/edocs/PAPS-016.pdf>

⁷¹⁴ Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, [1992] OJ L 206, full text available at the European Commission's nature conservation homepage, <http://europa.eu.int/comm/environment/nature/home.htm>.

⁷¹⁵ Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds, [1979] OJ L103. Full text available at http://europa.eu.int/eur-lex/en/consleg/main/1979/en_1979L0409_index.html and through the European Commission's nature conservation homepage, <http://europa.eu.int/comm/environment/nature/home.htm>.

of wild plants and animals and habitats for the common interest. Overall, the directive protects some 1,000 animal and plant species and over 200 so called “habitat types” which are deemed to be of high importance. The directive specifically aims to protect biodiversity by conserving natural habitats.⁷¹⁶ Annexes 1 and II list the type of habitats and species whose conservation is deemed “special” and lists some endangered areas and species as “priority.” Annex IV lists animals and plant species in need of particularly strict protection.

The Directive also created the largest unified European ecological network of special conservation areas called Natura 2000. Natura 2000 is important for the way it ensures the protection of endangered species and certain areas designated as protected areas. Although the ownership of these protected places may remain in private hands, their management is monitored to ensure sustainability. Moreover, Natura 2000 assists with the reintroduction of native and non-native species, research and education.⁷¹⁷ The Member States creates a structure by which special areas of conservation are designated. Each Member State creates a list of sites hosting natural habitats and wild fauna and flora based on the criteria set out in the adopted Directive. The Member States then agree and the European Commission will adopt a list of the sites designated as of community interest. These areas all fall within the given nine EU bio-geographical regions.⁷¹⁸ Within a six-year period, any site selected as of community importance, must be designated as a special area of conservation. Designation as a special area of conservation is not enough; Member States are tasked with the burden of employing any

⁷¹⁶ The Habitats Directive. (1992). Available at http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

⁷¹⁷ “Wild birds” Directive 2009/147/EC

⁷¹⁸ Alpine region; the Atlantic region; the Black Sea region; the Boreal region; the Continental region; the Macronesian region; the Mediterranean region; the Pannonian region and the Steppic region.

and all necessary measures to prevent the deterioration or significant disturbance of these designated areas. Other affirmative duties arise out of Annex IV for Member States. As for compliance, every six year, Member States are required to report on measures taken pursuant to the Directive⁷¹⁹ and reports are created summarizing the reasons behind the measures taken.⁷²⁰

c. Protected areas in EU

Protection of certain areas is based on the objective to conserve biodiversity to provide an indicator for that conservation's progress. Furthermore, areas or species in danger of extinction are designated as "priority" habitats or species. Various factors are considered for conservation, including bird areas; plant diversity; and endangered species. Examples of protected areas are rainforests, national parks, and mountains. Many of these protected sites, house our rich history and their conservation helps not only our environment, but our human identity and who we are, and most importantly, how far men have come.

The EU also integrates its regional legal system across borders. The Forest Law Enforcement, Governance and Trade established in 2003 sets forth the legal basis for importing timber, defining and criminalizing the illegal import of timber to Europe.⁷²¹ The plan has been adopted by six European countries, and requires that said countries build and maintain their own control system. Although this is an overall extensive plan, the involvement of several countries precludes swift action. With regard to Wild Law,

⁷¹⁹ For information on all of the sites either proposed under the Habitat Directive or designated under the Birds Directive, see the European Commission's "Natura 2000 barometer" at <http://europa.eu.int/comm/environment/nature/barometer/barometer.htm>

⁷²⁰ See http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/128076_en.htm

⁷²¹ FLEGT stands for Forest Law Enforcement, Governance and Trade. The EU's FLEGT Action Plan was established in 2003. It aims to reduce illegal logging by strengthening sustainable and legal forest management, improving governance and promoting trade in legally produced timber.

there are two kinds of international law on plants, specifically Biodiversity and Convention in biodiversity.⁷²²

6. International Applications of Wild Law.

a. Biodiversity & Convention in biodiversity

(1) Wild Law Related to Biodiversity

Biodiversity can be defined as the variety of life on Earth. Biodiversity includes rare, threatened, or endangered species, as well as every living thing.⁷²³ Biodiversity creates ways to survive using what already exists.⁷²⁴ It plays an important part of the maintenance of a healthy environment and is used for direct human benefits such as improving medicines and generating energy. Biodiversity is also used for recycling many different elements, for the mitigation of pollution, the protection of watersheds, to mitigate soil erosion, and to control excessive variations in climate and to prevent catastrophic events. More importantly, biodiversity generates crucial ecosystem services such as providing clean water and air, soil formation and protection, pollination, pest control, food, fuel, fibers, medicine, and raw materials for construction and industry.

Today, evidence points to a global decline in biodiversity on account of many different destructive forces. Much of the surface of the Earth has been inhabited and altered by humans. As a result, biodiversity is on a sharp decline, leading many species to extinction. The issues brought about by this sharp decline are both serious and imminent; loss of biodiversity affects fresh water supply and food production, and deprives

⁷²² Id

⁷²³ American Museum of Natural History. <http://www.amnh.org/our-research/center-for-biodiversity-conservation/about/what-is-biodiversity>

⁷²⁴ Hooper, David U., et al. "Effects of biodiversity on ecosystem functioning: a consensus of current knowledge." *Ecological monographs* 75.1 (2005): 3-35.

communities of much needed resources. This is particularly acute because some rural households in developing countries rely on domestic animals and wild plants to meet so many of their economic needs.⁷²⁵

The conservation of biodiversity has economic, social, and cultural values, embedded in the biological and cultural inheritance of humanity. In 2015, the UN adopted sustainable development goals. The goals for terrestrial environment implicitly support “wild law” values. It reads as follows: “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”⁷²⁶ Thus, the UN adopted the concept of wild law as a goal for the world which now must implement it. The fact that it is within the goals for sustainable development is a big step forward noting that the idea is becoming more central to the politics of the world. It is the critical components of healthy ecosystems that are used to support economic and social developments. Moreover, it is used to maintain the earth’s genetic library from which society has derived the basis of its agriculture and medicine.

(2) Convention on Biodiversity

The protection of nature and its components is vital. Inclusion of all living organisms is one of the most important humanitarian duties, which should be respected and achieved. They are imperative for continuity and evolution of life and the lives of all forms of life on Earth. Although the modern world has accepted principles that embrace

⁷²⁵ Available at: <http://iipdigital.usembassy.gov/st/arabic/pamphlet/2012/11/20121107138373.html>

⁷²⁶ Goal 15 of Sustainable Development Goals, September 25, 2015 Available at <https://sustainabledevelopment.un.org/?menu=1300>

the protection of the wild, much is to be done. To date, many have introduced national parks, delineated protected areas and have established conservation areas.

The United Nations as the global lead on biodiversity, has taken an active role in helping promote a healthier environment. On the recommendations of IUCN, in 1982, the U.N. General Assembly adopted the World Charter for Nature.⁷²⁷ Some ten years later, the U.N. Earth Summit reaffirmed this and signed the Convention on Biological Diversity which was also based on a draft prepared by IUCN. Similarly, the 2002 Johannesburg Declaration on Sustainable Development reaffirmed a commitment to sustainable development and observed that the “global environment continues to suffer. Loss of biodiversity continues . . .” (Principle13).⁷²⁸ The 2012 Rio+20 conference endorsed these prior decisions.

These conventions and agreements all encompass the notion that the international community has finally awoken to a problem that has been hundreds, if not thousands, of years in the making. Nevertheless, at its 83rd plenary meeting in 2007, the General Assembly of the United Nation declared 2010 would be the international year of biodiversity. A year later, in 2008, they declared that this would be the international year of the plant. Many nations pledged to reduce their impact on biodiversity, and though their commitment was commendable, they failed. As a result, they responded by setting a new 2020 deadline in the hope of meeting their target.⁷²⁹

The U.N. General Assembly, at the request of Andean nations, recognized the importance of “Mother Earth” through UNGA resolutions. The U.N. seeks to protect

⁷²⁷ UNGA Res. A/Res/37/7, <http://www.un.org/documents/ga/res/37/a37r007.htm>.

⁷²⁸ Biodiversity GEO5, UNEP Available at http://www.unep.org/geo/pdfs/geo5/GEO5_report_C5.pdf

⁷²⁹ Steiner, Achim. “Focusing on the good or the bad: what can international environmental law do to accelerate the transition towards a green economy.” *Am. U. Int'l L. Rev.* 25 (2010): 843.

Mother Nature and the wild nature through several key conditions summarized below: 1) maintain an existing environmental system which affects human survival and the evolution of life and the lives of generations; 2) conserve biodiversity given its importance to human, animal and vegetable reproduction genetics; 3) cease human exploitation of ecosystems and plant or animal species; 4) reduce the damage with regard to the environment with the increased use of scientific treatment; and 5) allow for periodic and continuous monitoring of all ecosystems to assess potential vulnerability to climate change and human activity.⁷³⁰

To achieve the above conditions, which protect biodiversity and maintain our ecosystems, “natural reserves protected by the Secretary” were promulgated.⁷³¹ What lawmakers realized is that in order to maintain biodiversity, it is necessary and favorable to allow a designated amount of wild land to be reserved and preserved. This ensures that species that survive and rely on these ecosystems for their existence have a place to flourish, and in turn, to help us humans. Biodiversity conventions were created with this notion in mind to help establish international agreements on biodiversity.⁷³² Thus, many species of trees are listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, with species listed in each *Appendix* based on their conservation status.

In fact, the United Nations Convention on Biological Diversity pointed out that every contracting party shall be subject to its national legislation, respecting and preserving the practices of indigenous and local communities which embody traditional

⁷³⁰ *Id*

⁷³¹ See Balick, Michael J., and Paul Alan Cox. *Plants, people, and culture: the science of ethnobotany*. Scientific American Library, (1996).

⁷³² *Id*

lifestyles and promote sharing of natural benefits. Further, in order to protect the wild, each country shall seek to protect and improve the environment and safeguard the forest and wildlife of the country. This duty imposes on each individual citizen, the requirements of protecting and improving forests, lakes, and wild life within their respective jurisdictions.⁷³³

In addition to the above cited, there are other international conventions and agreements which form an important backdrop to these pressing issues. These conventions are the driving force to the development of a strong stand for biodiversity conservation. Several of the international biodiversity treaties are:

- The International Plant Protection Convention 1951⁷³⁴
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975 (CITES).⁷³⁵ “One of the earliest global environmental instruments was the Convention on International Trade in Endangered Species of Wild Flora and Fauna, which was conceptualized in the 1960s by IUCN and signed in 1973. Essentially, it views international “wildlife trade as a major underlying cause of biodiversity loss and contains provisions restricting it.”

The U.N. Millennium Ecosystem Assessment Report notes that the global intensification of agriculture has had three major environmental impacts: loss of habitat, loss of biodiversity, and degradation of nature through oversupply of synthetic

⁷³³ *Id*

⁷³⁴ This is a multilateral treaty overseen by the Food and Agriculture Organization that formulates effective action plans to prevent and to control the introduction and spread of pests of plants and plant products. This protection extends to the protection of natural flora, weeds, and plant products.

Available at: https://www.wto.org/english/thewto_e/coher_e/wto_ippc_e.htm

⁷³⁵ Department of the Environment and Energy. “Internationally Endangered Plants and Animals (CITES), (2011). Available at: <http://www.environment.gov.au/biodiversity/wildlife-trade/cites>

nutrients”.⁷³⁶ First, in considering the loss of habitat, most terrestrial ecosystems have been affected over the past two decades by the conversion of land to agricultural uses.⁷³⁷ Of the fourteen different terrestrial ecosystem types, nine of them have been affected by a twenty to fifty percent conversion to human (mostly cultivated) use.⁷³⁸ One-quarter of Earth is now covered by cultivated systems.⁷³⁹ In seventy percent of the countries, land committed to agriculture is expanding.⁷⁴⁰ The chief consequences of the expansion of agriculture are the destruction and fragmentation of habitat, both of which cause serious reductions in species and populations.⁷⁴¹ Because of these trends, the UN adapted the sustainable development goals in 2015.⁷⁴²

7. Remedial Steps Taken

a. IUCN World Commission on Protected areas

Protected areas are widely regarded as one of the most successful measures implemented for the conservation of biodiversity, drawing upon traditional and community-based approaches, governance regimes, scientific and traditional knowledge

⁷³⁶ United Nations Millennium Ecosystem Assessment Board, *The Millennium Ecosystem Assessment Report Series, Ecosystems and Human Well-being: Current State and Trends* 831 (2005). Available at <http://www.millenniumassessment.org>.

⁷³⁷ *Id.* at 14; see also United Nations Millennium Ecosystem Assessment Board, *The Millennium Ecosystem Assessment, Ecosystems and Human Well-being: Biodiversity Synthesis* 8 (2005), <http://www.millenniumassessment.org>.

⁷³⁸ *Millennium Assessment*, *supra* note 475, at 14; *Biodiversity Synthesis*, *supra* note 476, at 2, 8 (describing cultivated systems as “areas where at least 30% of the landscape is in croplands, shifting cultivation, confined livestock production, or fresh- water aquaculture”).

⁷³⁹ *Biodiversity Synthesis*, *supra* note 476, at 28. One-fifth of the world’s cultivated area is irrigated, which has increased pressure on inland water ecosystems, which are in the poorest condition of any broad ecosystem type. *Millennium Assessment*, *supra* note 475, at 14, 18. By 1985, up to sixty-five percent of freshwater wet- lands had been drained for agriculture in North America and Europe. *Id.* at 14.

⁷⁴⁰ *Millennium Assessment*, *supra* note 475, at 96.

⁷⁴¹ Judith E. Koons, *Earth Jurisprudence: The Moral Value of Nature*, 25 *Pace Envtl. L. Rev.* 263 (2008) Available at: <http://digitalcommons.pace.edu/pelr/vol25/iss2/1>

⁷⁴² Goals 6,14 and 15 of Sustainable Development Goals, September 25th, 2015 Available at <https://sustainabledevelopment.un.org/?menu=1300>

and contemporary practices of governments and conservation agencies.⁷⁴³ The Global Biodiversity Outlook (CBD 2010) has already shown that designating protected areas is one of the few measures that have been proven to improve biodiversity on a global scale. Decisions on designating a protected area reached at CBD COP10 in 2010 and that now form part of the CBD's Strategic Plan for Biodiversity 2011-2020 are widely considered to be the most far-reaching and important in decades.⁷⁴⁴

The IUCN together with the United Nations Environmental Program and World Conservation Monitoring (WCMC) jointly manage the World Database on Protected Areas, mandated by the UN, to report on and communicate the progress that the global community is making on establishing and managing protected areas.⁷⁴⁵ The Protected Planet incorporates the World Database on Protected Areas and provides user-friendly access to anyone who registers to receive information on protected areas worldwide.

b. The IUCN Species Survival Commission

The IUCN Species Survival Commission is a science-based network of more than 9,000 volunteer experts from almost every country of the world, all working together toward achieving the vision of “A just world that values and conserves nature through positive action to reduce the loss of diversity of life on earth.”⁷⁴⁶

⁷⁴³ WCPA is one of six commissions of the IUCN (World Conservation Union). WCPA is the world's premier network of protected area expertise. It is administered by IUCN's Programme on Protected Areas and has over 1,400 members, spanning 140 countries. See http://cms.iucn.org/about/work/programmes/gpap_home/

⁷⁴⁴ See IUCN Protected Areas. Available at http://iucn.org/search_results.cfm?qxcvxc=IUCN%20World%20Commission%20on%20Protected%20areas%20

⁷⁴⁵ Id

⁷⁴⁶ “The Species Survival Commission.” *IUCN*. Available at http://www.iucn.org/about/work/programmes/species/who_we_are/about_the_species_survival_commission/

c. IUCN/SSC Global Tree Specialist Group

The IUCN/SSC Global Tree Specialist Group (GTSG) is a global network of experts who, working in their own regions and institutions, all contribute to the conservation of globally threatened trees. The aims of the GTSG are: To promote and implement global Red Listing for trees and to act in an advisory capacity to the Global Trees Campaign. Their ultimate goal is to develop a Global Tree Conservation Assessment by 2020, which will provide an updated status report of the welfare of the world's trees.⁷⁴⁷

d. Taking Action for Threatened Trees

GTSG is involved in a range of projects around the world working for the conservation of threatened tree species with the help of partners. Their projects support tree conservation in over fifteen countries on four continents. Among their tasks is the implementation of direct conservation action and training the next generation of tree conservationists.⁷⁴⁸

7. The benefits and the importance of preserving biodiversity in natural vegetation reserves

The biodiversity of plants is a collection of treasures that are not inexhaustible and which gives us the freedom of the evolution of agricultural crops and all kinds of food and medicine; this includes raw materials and textile chemicals to our industry-friendly environment. The biodiversity of plants is important insofar as plants provide

⁷⁴⁷ Gardens, Botanic. "Botanic Gardens Conservation International." *Richmond, UK*: 1-25. Available at <https://www.bgci.org/plant-conservation/globaltreeassessment/>.

⁷⁴⁸ Global Trees Campaign, "Global Tree Assessment" Available at <http://globaltrees.org/>.

food for all forms of life, and directly contribute to food security and the sustainability of agricultural work and global development.⁷⁴⁹

All discussion above is related to *in situ*⁷⁵⁰ conservation and now this chapter will discuss the other kind of conservation, which is *ex situ* conservation. *In situ* protection of wild plants and ecosystems is an application of wild law, and often reflects spiritual values. This protects the wild, regions untouched by human development.

8. *Ex situ* conservation:

Ex situ conservation is a technique of conservation of biological diversity outside its natural habitats, targeting plants and other life forms from all levels of biodiversity such as genetic, species, and ecosystems for protection in botanical gardens and other special plants, no longer in the wild.⁷⁵¹ “Its concept was developed before its official adoption under the Convention on Biological Diversity signed in 1992 in Rio de Janeiro.”⁷⁵² In general, *ex situ* conservation is as additional measure to supplement *in situ* conservation, which refers to conservation of biological diversity in its natural habitats.⁷⁵³ In some cases, *ex situ* management will be central to a conservation strategy and in others it will be of secondary importance.⁷⁵⁴ These structures aim not only to conserve species and their genetic heritage in a suitable environment, but also to contribute to increasing public awareness of the importance of preserving biodiversity and raising funds for conservation projects. Moreover, they play a key role in providing material for

⁷⁴⁹ See Richard book about danger of pesticides. Carson, Rachel. “*Silent spring*”, (1962).

⁷⁵⁰ *In-situ* conservation, the conservation of species in their natural habitats, is considered the most appropriate way of conserving biodiversity.

⁷⁵¹ Institute of Biodiversity Conservation, Ethiopia: Second Country Report on the State of PGRFA to FAO, FAO, Rome, Italy, (2007).

⁷⁵² E. D. Kjaer, L. Graudal, and I. Nathan, *Ex Situ Conservation of Commercial Tropical Trees: Strategies, Options and Constraints*, Danida Forest Seed Centre, Humlebaek, Denmark, (2001).

⁷⁵³ Mohammed Kasso and Mundanthra Balakrishnan “*Review Article Ex Situ Conservation of Biodiversity with Particular Emphasis to Ethiopia.*”

⁷⁵⁴ *Id.*

scientific research, which provides both a better understanding of the biological cycles of diverse species and of the *ex situ* preparation of *in situ* conservation strategies to recreate or restore damaged natural ecosystems. Broadly, *ex situ* conservation includes a variety of activities, from managing captive populations, education and raising awareness, supporting research initiatives and collaborating with *in situ* efforts.⁷⁵⁵ It is used as a valuable tool in studying and conserving biological resources (plants, animals, and microorganisms) for different purposes⁷⁵⁶ through different techniques such as zoos, captive breeding, aquariums, botanical gardens, and gene banks”.⁷⁵⁷ This protects the genetic “wild” heritage when no place still exists in wild natural areas for plants to survive. It is a “last restart.” In the future perhaps plants can be reintroduced into world areas to grow again wild.

a. Importance of *Ex situ* Conservation

In situ conservation is generally preferred when it comes to threatened species because of its enabling methods to reserving evolutionary processes that are deemed more likely to flourish in natural habitats. Nonetheless, we must take into account our wide loss of natural habitat, which in turn decreases our *in situ* conservation. Thus, *ex situ* cultivation has become increasingly crucial to preservation. Furthermore, because of the challenges faced today, *in situ* conservation may not be enough to assure conservation of these endangered species. Instead, the scientific community is focusing on translocation,

⁷⁵⁵ T. Getachew, “Biodiversity hotspots: pitfalls and prospects,” *IBC News Letter*, vol. 1, pp. 14–16, (2012).

⁷⁵⁶ S. F. Carrizo, K. G. Smith, and W. R. T. Darwall, “Progress towards a global assessment of the status of freshwater fishes (Pisces) for the IUCN Red List: application to conservation programmes in zoos and aquariums,” *International Zoo Yearbook*, vol. 47, pp. 46–64, (2013).

⁷⁵⁷ <http://www.hindawi.com/journals/isrn/2013/985037/>

introduction, reintroduction, and assisted migrations as species conservation strategies to help address some of the challenges, especially in the face of climate change.

Although some individuals may argue that *ex situ* conservation lacks usefulness, arguing that problems with storing the seed of recalcitrant species, its ability to freeze evolutionary development or genetic diversity, I hold the opinion that its proven advantages are worth pursuing. Some also argue that bringing the wild “inside” takes away from its wildness and makes for a controlled environment. The second issue forms around genetic engineering and whether this can be counted as part of the wild or if it is a new creation of human origin that veers from the term ‘wild’ as we generally understand it. Despite these concerns, some of the advantages of *ex situ* conservation are: its efficiency and feasibility for medium and long-term secure storage; wide diversity of each target conserved; easy access for characterization, evaluation and utilization; and little maintenance. By reason of the aforementioned advantages, it is at least worth continuing the present studies to develop alternatives where conventional and traditional approaches have been exhausted. This provides an opportunity to repair what humans have destroyed for many years. We need to protect the wild life for the generations to come. This is part of the spiritual values that protect God’s creation. Humans must all exercise their duty to protect God’s creation.

The goal is to develop and save wild nature, such as is found in parks and forests. Furthermore, we can build nature systems that house greenhouses such as those found in Singapore and those that Saudi Arabia plans to create. However, in order to develop, we must seek to conserve and preserve large areas outside of greenhouses to promote the continuation of these plant species in the face of climate change.

b. The Saudi Biome

Much has been done to move the focus from preventing further harm, to remedying harm that already has taken place; the Saudi Biome is such a project. The project seeks to “bring the rainforest to the desert of Saudi Arabia.” The massive domed city will contain a hotel, residential units and retail space and will employ water management and heat regulation systems. In addition, the project will include hundreds of different species of trees and plants, water features, an aquarium and a range of renewable energy technologies.⁷⁵⁸

Critics of this type of proposal, of course, cite the need to allow the wild to be just that, “wild.” Some argue that by bringing the plants and other organisms indoors, they are now controlled by humans, and thus, cease to be wild in nature. Of course the alternative is the complete loss of the ecosystem due to high desiccation and climate change. With programs such as this and the natural greenhouse systems being developed in Singapore, we can hope to save some of the wild and natural organisms currently residing in parks and forests. Of course, indoor development alone will not be sufficient and outdoor involvement would be much needed, but the programs currently running and those being proposed, still get the ball rolling in the right direction. What can result from all this is new methods of development and even genetic engineering of many plants and species; the process is already being employed today and thus, the idea is not too farfetched. These areas and notions can help develop a space for plants to grow “wild,” while teaching humans to implement our religious duty to care for nature.

⁷⁵⁸ Yuka Youeda. “Saudi Biome Concept Could Be World’s Largest Biosphere” (2010). Available at <http://inhabitat.com/saudi-biome-concept-could-be-worlds-largest-biosphere/>

9. Wild Law and Islam

Each creature has rights in Islam; human rights, the rights of the unborn, and the child's rights and the rights of the plant, and animal rights, and micro-organisms living rights. In this section, wild land and plant's rights within Islam will be discussed. Islam is unique insofar as many rights deemed natural and or inalienable are protected under scriptures. In fact, many cite the scriptures as a sign that Islam has always promoted environmental development. The *Qur'an* and the *Hadith*, for example, are replete with proverbs, quotes and scriptures that speak to the purpose and design by the Higher Power with relation to the responsibility of humans to preserve their environment. Some of the most important pillars of Islam are: *Tawhid* (unity), *Khilafa* (trusteeship), and *akhirah* (accountability). These notions are not only of utmost importance but present the case for some who criticize the current system as having moved away from the values they hold. The idea of unity is discussed at length in the *Qur'an* indicating human unity with that which the Creator created and deemed good. On the other hand, humankind is given the role of *Khalifa* (trustee) requiring that each person perform wisely, responsibly and with accountability to the Almighty.⁷⁵⁹ The *Qur'an* goes on to indicate how God (the Glorified and Exalted) presented humans with insight so as to understand nature and maintain a balance.⁷⁶⁰ It is important to note that reference to the creation of the Earth in the *Qur'an* far exceeds all mention even of the heavens.⁷⁶¹ This further illustrates the notion that the Earth, while subservient to humankind, should not be exploited irresponsibly.

⁷⁵⁹ Qur'an: Surat al-Baqarah (2), ayah 30 and Surat al-Hijr (15), ayah 19.

⁷⁶⁰ Hope, Marjorie, and James Young. "Islam and ecology." *CrossCurrents* (1994): 180-192. Available at <http://www.crosscurrents.org/islamecology.htm>

⁷⁶¹ Earth is mentioned 453 times; while the Heavens are mentioned 320 times.

Understanding the sanctity of nature is crucial to understanding the emphasis put on it by Islamic notions. For example, the color green is the most blessed of all colors for Muslims, and together with a profound sense of the value of nature as God's perfect and most fruitful plan, it provides a charter for a green movement that could become the greatest exertion yet known in Islamic history, a "green *jihad*" appropriate for addressing the global crisis.

a. The right of plants in Islam

As a means to push some of the Islamic notions as they relate to the environment, Islamic teachings underscore the importance of growing crops, planting trees, and raising gardens. Muslims are urged to engaged in these activities by the Prophet (PBUH) who said: "There is no Muslim who plants a tree or sows a field, and a human, bird or animal eats from it, but it shall be reckoned as charity from him." The teachings are such that even generals, like Yazid ibn Abi Sufyan, refused to cause harm to enemy territory in observance of the environmental principals on orders of Abu Bakr. He told how he advised his general: "Do not cut down a tree, do not abuse a river, do not harm crops and animals, and always be kind and humane to Allah's creation, even to your enemies." This illuminates the importance of the environment to the early Muslims and the Islamic state.

From the above discussion and as further noted by Ang Kean Hua, "it follows that Islamic teachings increase the environmental space sensitivity of an Islamic society. More trees and crops are grown for the benefit of human and non-human beings. In addition, there is a general tendency to avoid creating different forms of pollution and environmental hazards. These efforts favorably affect both the supply and demand sides

of the environmental balance.”⁷⁶² There are fundamental rights for plants within Islamic scripture and understanding.⁷⁶³ The teachings indicate that he who shall revive the land and such would give him fruit will have a right to reclaim that land as his, for the act is prophetic that the revived land belongs to such a man. This promotes the idea that the land shall be put to its best use and the revival shows a connection between the soil and the man who nourished the land. Conversely, if a human is found to have failed to care for the land in a way that develops and nourishes it, then his right to the land is withdrawn and by his actions or lack thereof, he forfeits the land for the land’s own protection.

(1) The Right of Plants to be protected

Islam imposes an affirmative duty on all Muslims to protect the right to life, trees and animals. Islamic jurisprudence seeks to protect plants from loss and perdition by setting minimum standards such as the enclosure of animals to guard them when necessary or the protection of plants from destruction, overgrazing and vandalism. Islamic jurisprudence prevents pilgrims from cutting or damaging plants.⁷⁶⁴ Even at a time of war, it is forbidden to all Muslims to cut down trees; instead the Prophet Mohammed (PBUH) states that: “If on the day of resurrection, there is in the hand of one of you a sapling, then let him or her plant it.”⁷⁶⁵

⁷⁶² Hua, Ang Kean. “History and Philosophy of Science: An Analysis.” *International Journal of Scientific Research in Science, Engineering and Technology* 2.1 (2016): 21-30.

⁷⁶³ See more Hua, Ang Kean. “History and Philosophy of Science: An Analysis.” *International Journal of Scientific Research in Science, Engineering and Technology* 2.1 (2016): 21-30. Available at http://www.academia.edu/25122354/History_and_Philosophy_of_Science_An_Analysisfile.

⁷⁶⁴ Al-Masjid al-Haraam (The Sacred Mosque in Makkah),

⁷⁶⁵ Jusoff, Kamaruzzaman, and Siti Akmar Abu Samah. “Environmental sustainability: What Islam propagates.” *World Applied Sciences Journal* 12 (2011): 46-53.

(2) The Right of Plants to Maintain their Genetic Origins

Through various scriptures in the book of *Qur'an* it is forbidden to cause mischief on the Earth and thus alter the genetic origins of plants that have been created by our Creator. Humans are part of the Universe, complimentary to one another in an integrated whole. As such, God (Glorified and Exalted) has ordained stewardship (*khilafa*) on the Earth to human beings. Every human must then execute God's injunction and commands and manage the Earth in accordance with his role as a beneficiary and not a disposer. The right to utilize and harness natural resources, which God has granted humans, necessarily involves an obligation on man's part to conserve them both quantitatively and qualitatively. It follows that humans have no right to cause the degradation of the environment and distort its intrinsic suitability for human life and settlement, nor to exploit or use the natural resources unwisely.⁷⁶⁶

10. Wild Law as It Should be Conceived of and Implemented

Despite the fact that the environmental movement has had almost two generations to mature, protection of the wild is still in its childhood. It has been nearly years since IUCN was founded, and 45 years since the founding of Greenpeace and the first UN environment meeting in Stockholm, over half a century since the groundbreaking publication of *Silent Spring* by Rachel Carson and well more than a century since Arrhenius warned that burning hydrocarbons would change the Earth's atmosphere. Despite all this and much more, our collective efforts have not succeeded only in slowing down, but not stopping the rapid destruction of our home.⁷⁶⁷

⁷⁶⁶ See The Religion of Islam. "Environmental Protection in Islam (part 1 of 7): A General Introduction." Available at <http://www.islamreligion.com/articles/307/>

⁷⁶⁷ Gregory, Bateson. "Steps to an Ecology of Mind." *New York* (1972). "The major problems in the world are the result of the difference between how nature works and the way people think."

There is very little wild land left. As humans we must understand that any act which violates life, violates ourselves. This should provide the incentive to learn the laws which govern life, in order to become “eco-literate.” By expanding the development of alternatives to some of our most harmful chemicals such as hydrocarbon emissions, we can begin to halt the rapidly snowballing effect of this problem. Moreover, educating the public as to the real effects that their individual actions have on the planet can help lessen the current abuse of the Earth. Unfortunately, unless the people are heavily monitored, we would not achieve rapid development. Thus, it is imperative that change must start in the legal realm, insofar as there is a push for legislation that forces humans to be eco-friendly.

11. Western Culture and Religion Compared to the Rest of the World

In light of this notable contrast between Western culture and the rest of the world, many scholars have sought to rationalize their approaches and the differences. Cultural historian Thomas Berry has long studied how Western religion and culture failed to sustain a more collaborative relationship between humans and the Earth. In his most influential projects -- *The Dream of the Earth*, *The Universe Story*, and *The Great Work* - he traced the West's estrangement from the earth to expose how it was implicit in the growth of our technological culture. Berry calls for a new cosmology, expressed in a “New Story” or mythic consciousness that will reunite humans with the creative energy of the universe and overcome our destructive spiritual estrangement from the source of life. Berry's work offers both a conceptual framework for understanding how this western cultural estrangement has come about and a means of overcoming it through his new cosmology. Implicit in Berry's work is a reunification of science and religion

through an “Earth Spirituality,” an incarnational spirituality, an affirmation of the spiritual potential of matter, and a reflection of how we treat the material world.⁷⁶⁸

Considering Barry’s point of view, we must consider the notion that every component of the Earth community has three rights: the right to habitat, the right to be, and the right to fulfill its role in the ever-renewing processes of the Earth community.⁷⁶⁹

12. Conclusion

Previous chapters discussed the environmental aspects with its crises in terms of reform and protection as universal under the religious value of Islam. This is true throughout at both the international level and the national level, throughout developing countries and developed countries and throughout hard law to soft law. Islamic principles show us that these religious notions can be useful and work with other laws in protecting the environment and its components. Earth and all of its life are sacred, meaning that the Earth has an intrinsic right to be and to exist. Every element of “Earth has a role to play in contributing to the health and integrity of the whole Earth Community. No one species has the right to decide to exterminate other species if they are not ‘useful’ to them. Wild law is a way to require humans to be careful stewards of nature.

Earth Law recognizes that human governance systems must be derived from and comply with the laws of Earth. It recognizes that we have a moral responsibility towards our Earth and all forms of life on Earth. Our correct relationship with Earth is essential for the integrity of the web of life - including our own lives. As Berry observes somewhat stridently “The Earth’s laws are non-negotiable. Breaching Earth’s laws to self-regulate

⁷⁶⁸ Angyal, Andrew J. “Thomas Berry’s Earth Spirituality and the “Great Work”.” *Ecozoic Reader* 3.3 (2003): 35-44.

⁷⁶⁹ Id.

and enhance diversity will lead to devastating consequences, as we see from the multiple crises we now face globally - climate change, extinction of species, ecosystem collapse, human inequity and more.”⁷⁷⁰

Once mankind loses or abandons the sense of responsibility for each other and the larger planet of which it is a part, the integrity of life becomes threatened. Remaining wild is nature’s right; nature has its own right and this wild category is a place where one should respect nature’s right. All religions agree and believe in the rights of nature. As discussed above using Islamic principles as an example of the religious aspect and sentences from Comarc, Berry and Leopold all of whom called for respect of the rights of nature. And Vandana Shiva⁷⁷¹ wrote of ten principles in respect of nature rights, such as:

1. Ecological Democracy-Democracy of all life.

We are all members of the Earth community. We all have the duty to protect the rights and welfare of all species and all people. No humans have the right to encroach on the ecological space of other species and other people, or treat them with cruelty and violence....⁷⁷²

2. The Intrinsic Worth of all Species and Peoples

All species, humans and cultures have intrinsic worth. They are subjects, not objects of manipulation or ownership. No humans have the right to own other species, other people or the knowledge of other cultures through patents and other intellectual property rights.⁷⁷³

3. Diversity in Nature and Culture

Defending biological and cultural diversity is a duty of all people. Diversity is an end in itself, a value, a source of richness both material and cultural.⁷⁷⁴

4. Natural Rights to Sustenance

⁷⁷⁰ Thomas Berry, *The Dream of the Earth* (1988) and *Befriending the Earth* (with Thomas Clarke, 1991)

⁷⁷¹ Vandana is a world-renowned environmental activist and physicist.

⁷⁷² Shiva, Vandana. *Earth democracy: Justice, sustainability and peace*. Zed Books, (2006). p. 101-102.

⁷⁷³ *Id.*

⁷⁷⁴ *Id.*

All members of the Earth Community including all humans have the right to sustenance -- to food and water, to safe and clean habitat, to security of ecological space. These rights are natural rights: they are birthrights given by the fact of existence on earth and are best protected through community rights and commons. They are not given by states or corporations, nor can they be extinguished by state or corporate action. No state or corporation has the right to erode or undermine these natural rights or enclose the commons that sustain all through privatization⁷⁷⁵ or monopoly control".⁷⁷⁶

Mankind must work to establish precedent in relation to laws for preserving the Wild, which translates principles of Earth Jurisprudence into written law. These precedents recognize the essential laws of life as legally binding and non-negotiable. Also we must work to recognize the rights of nature and of future generations, and our responsibilities to maintain the health and integrity of the Earth Community. James Lovelock used the environmental protections regionally and internationally.

a. The New Challenge and Legal Approach

At this juncture a new challenge is to ensure the coexistence of the wild and man exclusively dependent on wild. Consequently the concept of wild needs to be widened and it may be defined as a community consisting of undomesticated plants, animals and their dependents inclusive of human beings. Plants and all other parts of the wild community should be considered as a person in the eye of the law. All kinds of rights should be vested to the Wild Community for its benefit and protection. Recognition of traditional knowledge can be an essence for better management of Wild Community and saving the life of all its members. Wild Community as a person should have a right to regulate the activities of man for access to wild. This new shape of wild law can secure a

⁷⁷⁵ *Rights of Nature: Making a Case for the Universal Declaration of the Rights of Mother Earth* by Maude Barlow, Vandana Shiva, Desmond Tutu, Cormac Cullinan, Edwardo Galleano, Nimo Bassey, Thomas Goldtooth, and Shannon Biggs. (2011). P. 42

⁷⁷⁶ Id

better environment for all and can restore environmental discipline throughout the universe.

On the basis of the above discussion, it is clear that protection of plants should be ensured in the following ways:

1) establishment of rules and standards for efficient use and replenishment of the plants;

2) establishment of bans and limitations on use of the plants;

3) protection from unauthorized use and other violations of the established utilization procedures;

4) protection of the conditions under which wild plants grow;

5) prevention of the extinction of species of wild plants through industrial use;

6) creation of preserves, reserves, and other protected areas;

7) cultivation of rare and endangered species of wild plants in artificial environments;

8) restriction of the picking of wild plants and their fruit for the needs of the population and economy;

9) performance of measures to transplant and acclimatize species of wild plants;

10) organization of scientific research directed at establishing the scientific bases for measures to protect the plants.⁷⁷⁷

This chapter has shown that today there is no national law specifically and completely devoted to the protection and utilization of the plant world, and that this situation is not consistent with the growing requirements for protection and improved

⁷⁷⁷ Aida Bagratovna Iskoyan, *Issues Related to Legal Protection of Wild Plants*, 5 *Pace Env'tl. L. Rev.* 519 (1988). Available at: <http://digitalcommons.pace.edu/pelr/vol5/iss2/11>

utilization of plant resources. For this reason, it would seem expedient for international law, as well as laws of the many countries, to be adopted concerning the protection and utilization of the plant world. Such laws would help to solve problems involving the legal regulation and utilization of wild plants.

Chapter 10: Reawaking Environmental Responsibility through Law and Religious Values for Sustainable Development

This chapter offers conclusions based on the arguments and evidence presented in the previous chapters of this thesis. It argues that humanity's only home, the planet Earth, cries out for sustainable development, without which humans and all other living entities face calamity after calamity. After a half century of effort, the international community has accumulated sufficient scientific research to understand the most pressing environmental concerns. States and governments have also created the necessary institutions and drafted most of the requisite laws that would enable us to forestall disaster. What has been missing is a sustained effort to instantiate these lessons within communities, particularly communities of faith, by crafting arguments for sustainable development that draw on deeply held religious values.

Islam offers the ideal case study. Countries ruled by sharia face some of the imminent and serious threats from failing ecosystems, and yet they sometimes appear least well prepared to face the challenges. This unfortunate situation has an ideal remedy, in *sharia* itself. For this faith, properly interpreted, has the capacity to perfect laws and promote widespread adherence out of respect for the teachings of the Prophet (PBUH) and from them, an enlightened understanding of the sanctity of all God's creations including water, wild life and wilderness. Adherents of Islam are all stewards of the environment, and with some more education, we can live up to these crucial obligations.

This thesis has led its readers to understand how the Holy *Qur'an* instruments about the duty to education each other about the environment, and to take protection of the environment as a daily duty. Islam can regain leadership in the sciences, in ecology and the knowledge of the Earth, while it restores the Earth. Arab states can find a new golden age of science while building socio-economic sustainability. It can harmonize the rule of human law with God's laws.

a. The Problems

What if one day the air becomes polluted everywhere, and we have no choice but to inhale polluted air? Too many hundreds of millions of people face this dilemma today. What if one day people find that all of the water on the Earth is contaminated and there is no clean drinking water for them and their children? Two billion people endure this fate already. What if one day people see the ground devoid of forests and other nourishing vegetation? Desertification is a growth threat worldwide. What if one day the world is swept by cyclones and floods? What if everyone woke up one day and found plants and animals have become extinct? The sixth great extinction of species on earth is being produced by human behavior. What if one day humans find a depleted ozone layer and nothing protecting human, marine and animal life from the solar radiation?

Would humanity realize then, that pollution and environmental change is a predictable result of the negligence and lack of responsibility to maintain the environment now? Would they acknowledge industrial and toxic waste as a direct cause of the severe climate change? Would society recognize that tampering with natural materials is the main source of climate change? Would every person admit that his or her selfishness and

pursuit of material gains ultimately destroyed the planet? Knowing this, what would individual humans do if they knew that our religious concepts and values can save and protect the environment and provide sustainable development as well? Would an individual continue our destruction of the earth's natural systems while ignoring religious values? Ultimately, is present behavior sustainable? Are our environmental laws adequate?

Although no one can know what the future holds, today humans do know what the enduring values are. If humans are unable to stop some of this damage, they harm themselves, their children and all of nature. This pattern of corruption cannot be halted instantly, but people can strive to observe and implement the values as a response that enables movement of activity that helps replace the damage that has taken place. All persons should recognize that their acts of corrupting the Earth do not form part of their values. Simultaneously new patterns of behavior, which are parallel to humanity's core values, must be adopted.

Climate change is our over-arching global issue Earth causes too many greenhouse gases and the SDGs will not work unless people succeed in a tremendous and unprecedented global effort to prevent and mitigate climate change. UN SDG 15 guides all natures as follows "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss."⁷⁷⁸ So the number one way to implement SDG 15 is for wild plants to restore the Earth's greenery. One way humans can do this is through planting wild plants. If humans were to plant trees all over the Earth, they would help remove the amount of carbon dioxide entering the atmosphere. Moreover, this solution is

⁷⁷⁸ SDG 15

simple; God (the Glorified and Exalted) gave us the method, which we do not have to invent or refashion, but we simply have to plant and care for the trees. Another way to contribute is to care for the Earth's precious water by preserving a bit of extra rain water and make rivers that will help irrigate the new trees. We also need campaign to restore the natural systems that will help create a balance again in nature, which is currently uneven.

The main question to decide is how to proceed towards a sustainable future, taking into account human rights, environmental rights and the environmental reality of deterioration? How do people achieve the right balance among capital, natural, social, human, industrial, and financial considerations? Several studies and environmental talks have discussed at length the malfunctions within the global environmental governance system. Through discussions, they have indicated that humans exhaust the natural resources through energy use, water usage, and food consumption.

Humans have to work to achieve comprehensive reform through the cooperation of all working in unity as a community. God calls for those who conduct their affairs by mutual consultation.⁷⁷⁹ This demand is similar to principle 10 of the Rio Declaration, which stated "environmental issues are best handled with participation of all concerned citizens, at the relevant level."⁷⁸⁰ Therefore, all countries must implement both the international law and religious values in order to obtain a sustainable environment, particularly within Muslims countries since such a call is also a religious duty. Muslims must build their protection of the environment through the inclusion of their fellow citizens. They should also work to improve environmental management, which is

⁷⁷⁹ Qur'an: Surat ash-Shura (42), ayah 38. "وأمرهم شورى بينهم". This is the authentic Arabic for this quotation text in English.

⁷⁸⁰ Rio Declaration, Principle 10 (1992).

possible through observation of the experience of other countries which have demonstrated strong records of environmental regulation and policy making, such as the USA and the EU. For example, the U.S. began to educate its citizens by issuing annual reports on environmental issues and progress. The annual report, prepared for the President by the Council on Environmental Quality, reckoned environment quality, studied the environmental issues facing the U.S. and advised the people and Congress accordingly. These reports have been issued from 1970 onwards provided many years of documented information on what were considered serious environmental problems.⁷⁸¹ Much of what was studied is still a problem today. The USA should resume issuing these annual reports, as its National Environmental Policy Act requires.⁷⁸²

Publishing a regular report on the environment is also used by the UN Environment Program and is issued twice each decade, currently GEO 5. The reason that UNEP did that was because many countries do not have assistance to prepare these reports so UNEP tells everyone how bad these conditions are. These reports are essential to inform about the state of the environment. Therefore UNEP should issue annual reports to build up the public understanding of the environmental challenges and support for environmental policies. The Kingdom of Saudi Arabia should prepare and distribute annual reports on the environment, which would then educate the people and help convince them of their duties to protect it.

⁷⁸¹ Council on Environmental Quality (CEQ)- Title II of NEPA. Available at <https://www.whitehouse.gov/administration/eop/ceq/about/> The duty to file reports still exists in law but is not being observed. This shows weak values. For more of CEQ Regulations for Implementing the Procedural Provisions of NEPA are available on www.nepa.gov at ceq.hss.doe.gov/ceq/regulations/regulations.html.

⁷⁸² National Environmental Policy Act, §§102 a103, 42 U.S.C. 4321.

Although Saudi Arabia has agreed to international environmental agreements and programs, the difficult part is ensuring social awareness and compliance. The lack of community involvement would be remedied if the King were to take these general agreements to the people and advise them accordingly. This would help the fight to save the Kingdom's environment insofar as the people would have a medium by which to provide invaluable information and to propose policies that promote the environment, particularly since the citizens of the community have a better understanding of their own environment. This also would give citizens the knowledge and opportunity to exercise their obligation to protect their environment and to implement the practices needed to safeguard their own environment adequately.

Thus, regulators must promulgate rules that are transparent and must invite community input and involvement. "Every human has to ask themselves: what is my duty regarding the environment?" This is especially true for Muslims since they should set the example and be leaders through the values of Islam. Not only should each human become involved, but also Muslim institutions should cooperate as well. With cooperation we can do more than a single individual can accomplish by himself. Finally, the knowledge to do this should be shared with others. Moreover, in addition to gaining critical insights, public participation fosters public awareness and support for – and presumably voluntary compliance with – the resulting rules. Thus, public participation empowers the government to effect the needed change.

This thesis made clear that environmental problems are caused by human impact on ecosystems. As Chapter 5 discussed, the human intention to avert harm has not been translated into human actions. How can humans repair the damage done to the

environment, when their selfishness towards the environment has not changed? When they see each other planting trees, caring for nature or protecting clean water, they will wish to do more to preserve the environment.

Humans continue to corrupt the environment, mindlessly exploit its resources, and utilize technology contrary to the values of maintaining a healthy environment simply to achieve economic progress based on physical production. Moreover, humans continue to see themselves apart from the environment. In order to effect useful environmentally conscious practice, humans must alter their outlook on the environment and return to the right path charted by God (the Glorified and Exalted). It is time humans began to manifest the values embedded by religion, by incorporating science that is widely accepted as a proper approach for environmental protection. When this occurs, then humans can be said to have taken steps towards effective enforcement of laws that protect the environment.

The concept of environmental protection is linked to the existence of humans on Earth because humans are the successor of God (the Glorified and Exalted) or his steward (*khalifa*). Many of the Holy *Qur'an* verses and the teachings of the prophet Muhammad (PBUH) refer to the need of humans to protect the environment, discussed at length in Chapter 3 of this thesis.

Environmental laws have emerged to guide society, but as the discussion in Chapter 6 made clear, despite continuous calls from all over the world, conventions held, laws and principles issued from the 1972 Stockholm conference, the environment and its resources still experience widespread and severe degradation and depletion. This proves that we have not achieved perfection through the objectives of the 1972 Stockholm

conference or the recommendations of *Our Common Future*. However, there has been slow progress throughout, emerging from the Earth Summit in Rio in 1992, which adopted treaties on climate change, biodiversity and desertification, and adopted Agenda 21 and the Rio Declaration. These measures have led to global agreement on the 17 holistic and beautifully integrated UN Sustainable Development Goals.

All these concepts of environmental governance are imbued within religious principles. For example, the concept of environmental protection in a holistic approach: that is, achieving a balance of our limited resources and ensuring the diversity of life. This demonstrates that religions, whether Muslims, Christians, Hindus, or others, have given mankind knowledge of the general basic principles that must be followed to perfect their dealings with the environment. In other words, God (the Glorified and Exalted) provides the general framework that calls for human action. Religion, therefore, is not a restrictive measure, but rather, leaves humans free to act in accordance with the religious values. Through an examination of global trends, this thesis reveals that society is on the brink of irreversible environmental change. This situation of imbalance is known in Islam as “corruption.” The transformation of society and the global economy to a sustainable model is the most important challenge in the twenty first century.

With the 2015 adoption of the SDGs, the nations of the world agreed on a common approach to Earth’s problems. It is clear that sustainable development is a neutral platform for dialogue between the cultures of the West and the East. Thus, the means of harnessing local knowledge and cultural norms of the definition of sustainability must be encouraged.

More important is formulating goals for sustainable development in order to address local challenges, including poverty, unemployment and food insecurity, gender inequality and the availability of drinking water and particularly, the gaps between rural and urban areas and between the haves and the have-nots.

The most important question remains how individuals can contribute to addressing the developmental issues. One of the main agenda items and characteristics of the post-2015 discussions is to provide a framework to respond to emergency needs and challenges in an innovative way that combines economic, social and environmental sustainability on the one hand, and the principles of good governance, human rights and justice, on the other hand. It can once again be said that Islamic values and culture can play a key role in addressing these challenges. Humans must ask, what is needed within Islamic leadership that will be transformative and improve and support the discourse on sustainability, as it is represented in the Islamic Declaration on Climate Change recently announced in Istanbul? Can Muslim leaders contribute to enrich this discourse and influence it for the better? Does not the *Qur'an* require Muslims to urgently act to protect and restore the Earth? This thesis provides ideas about how they could begin. Other ways to address these issues may include:

- 1- The exploitation of local wisdom and knowledge of Islamic civilization.
- 2- Activation of local development models, such as *Hima*, an area protected forever from development.⁷⁸³

⁷⁸³ **حِمَى** A *hima* “inviolable zone” refers to an area set aside for the conservation of natural capital, typically fields, wildlife and forests - contrast *haram*, which defines an area protected for more immediate human purposes. A Muslim has a specific obligation to practice stewardship over nature, and each species of animals is said to be “its own nation.” “Human beings are God’s representatives on earth. This means that if they are not charged with maintaining the world, or tending to it, they must at least not destroy it”.

- 3- Participation in the global dialogue of religious beliefs, in order to support sustainable development.
- 4- Advocacy for policy change. For example, Islamic values and the definition of the concept of public interest as well as the principle of “no harm” can deter the development of practices that represent a serious interference with climate system policies.

Simultaneously, Muslim leaders have the responsibility to open this dialogue to the public via the concept of global citizenship in Islam, or the concept of the “middle of the nation.” Islam has many examples of good environmental management, and clear examples through the teachings and practices of the Prophet Muhammad (PBUH), who strongly opposed to extravagance and waste, showed sympathy toward everyone, and urged the planting of trees. Muslims across the world should embrace the responsibility of directing the moral and spiritual strength of Islam towards building a sustainable human civilization for the future.

If this thesis has done nothing else, it has shown that the environmental movement has a need to acknowledge its spirituality and its guidance. “Spirituality gives people the strength to sustain their action throughout their lives. This correlation has suggested that an inner strength is needed to sustain environment.”⁷⁸⁴ Many environmental groups have argued their objectives on purely secular terms, and often these efforts have not been well received. Consequently, proposing concepts grounded in religious faith and theories may be advantageous to the environmental debate.

Planting trees- greening the Earth- can save the planet and human life.

⁷⁸⁴ See Steven Jeffrey, “Spirituality and the Environment” *Gatherings* (August 2003). Available at http://www.ecopsychology.org/journal/gatherings8/html/spirit/spirituality_jeffrey.html

Environmental laws are tools to adopt to guide our human actions to nurture the wild plants on which life depends. Values must guide the law. Our planet is worth fighting for and yet, without an effective environmental movement, it is left open to incremental degradation. We must cultivate a culture that promotes environmental ethics.

Edward O. Wilson offers an interesting concept his important book, *Half Earth*.⁷⁸⁵ A renowned biologist, he claims that humans cannot save the human species unless we save at least half of the Earth for plants and animals, reckoning that it is both plants and animals that care for us humans. Accordingly, he reasons that if humans do not care for their lives, then plants would not make the oxygen they need nor produce the different foods. In light of this, humans must take action to accomplish SDG 15 which says humans must save the terrestrial ecosystems. And as the previous chapters have observed, terrestrial ecosystems cannot be saved without also preserving the planet's water systems. And yet the questions remains how to save them and for whom?

Consistent with the analysis of this thesis is Wilson's proposal to save half of the Earth so that the both halves may survive. Currently, two-thirds of the Earth is water which means humans can save most of the Earth simply by creating protected areas within the marine life. On the other hand, land may be protected through laws that protect designated areas such as parks and forests. Wilson's focus and scientific support for saving nature is similar to the themes relied on for this thesis. This thesis provides a discussion of the religious reasoning for protecting nature and recognizing the rights of wild plants. States in the Organization of Islamic Cooperation, including those discussed in this thesis's three national case studies can do more to protect nature, as Islamic

⁷⁸⁵ Edward O. Wilson *Half-Earth: Our Planet's Fight for Life* (2016).

principles require. Specifically, if wild plants have a right to exist, then what must humans do to respect that right?

Accordingly, the thesis endorses the approach proposed by Wilson and also provides a legal, spiritual, and religious groundwork to embed environmental protection into human culture. Wilson's views are logically consistent with the spiritual values of water and the idea of wild nature. In other words, the obligation that human should allow nature space to behave in normal way. Thus, is fundamental to Islamic principles for stewardship of Earth. Unlike Wilson's proposition that humans must preserve wildlife for the sake of biological diversity, this thesis maintains that such obligations are mandated by spiritual laws.

It is well settled that plants and water go together, since we cannot have plants without water, and humans cannot live without water. Yet, knowing this has not stopped humans from contravening these core values. A key example of this can be found within many of our great cities, which are built without adequate provision for plants or access to potable water. Ultimately, this poor planning leads to other issues, such as water shortages, flooding and expensive but unsustainable forms of irrigation. The lesson to be learned is one worthy of reflection. For example, let us look at the cities noted within the case studies or look to your own cities: how many cities in the world can we say are "garden cities?" What does that tell us? If water and plant are essential to life and it is our desire to maintain some wild life, then something other than maintaining the current *status quo* must be done. It is not enough for each person to plant a tree. Rather, humanity must help nature to fruition and promote wild life in order to live within it and as a part of it. This is the essence of this thesis.

Humans must accept the fact that, despite the comfort of their urban lives, their cities remain essentially unnatural and require great efforts must be made to sustain them. Human should “green” their cities. Streets should be as natural as parks. Humans must bring the cycle of water and plants into harmony with their lives, or else they will experience deserts growing around the world. This is humanity’s opportunity to bring these new changes to their daily life. Sustainable development and endurance means green cities with surrounding water and plants. Humans have to return to the deep values of nature and the *Qur’an*.

The thesis’ message is a plea for humanity to return to the deeper values within sustainable development, to change urban planning, to cultivate the trees amongst the cities, and bring clean water to its surroundings. An end to the corruption is required. As we have seen throughout this thesis, water is an important part of life. If humans continue to mistreat water, they will harm all life include humans them self. Humans and wild nature need water and without it there will be no human and no wild nature. So why must humans treat water and all other aspects of God’s creation so badly? If humans are to survive, they must do better.

b. The promise

Whether for secular or religious reasons, people are awakening to a more enlightened appreciation and enjoyment of nature. In fact, many writers have acknowledged the co-existence between humans and nature in ways that resonate with the insights of *sharia*. For example, Thomas Berry has, among others, proclaimed: “we are a part of nature and part of the Earth. We are in love with the Earth and we are in love with the beauty of the Earth.” Other artists, such as singers and poets, speak of the

grappling beauty of nature. Despite the level of appreciation by so many, people cannot help but escape a terrifying truth: humans, collectively, fail time and time again to express and show love and respect for Earth, nature and its resources. Thus, humans' "love" of their surroundings is not consistent with true appreciation for nature and Earth.

This very moment, millions of humans are taking actions that cause substantial harm to the Earth. This thesis recognized and discussed that human behavior are on the path that damage and threaten the integrity of the environment. Their acts of corruption are leading to depletion of our natural resources and extinction of many ecosystems and animals within the respective systems. It is well documented that climate change and drastic environmental changes to these ecosystems are in fact what has led to extinctions. An example of a system at risk of extinction can be found in Hoggar Oasis in Algeria – a unique place dating back to the earliest humans. The Oasis has dozens of unique animals and plants currently under threat of extinction. Another example of a unique ecosystem at risk is the Madagascar forest, which has been in existence for more than 2000 years. The island of Madagascar is covered with a layer of rainforest and is home to more than 170 different species of palm trees and rare species. But they face unremitting pressures and may collapse without a serious change in the direction of human development.

In addition to areas under threat of extinction, there are places that have been badly neglected or degraded which must be restored. These areas are affected by human development of cities, roads, technology and the high increase of human habitation. These changes to the natural land leave little to no room for natural and wild plants to grow and develop in their habitat. An example is a desert in Saudi Arabia in the spring when all the flowers come out. How can society maintain natural ecosystems on the

fragile Arabian Peninsula, home to Islam's most sacred sites? Instead of heeding the call to stewardship, we allowing eve more roads and traffic and cars to come and destroy what little room for nature there is! Like the people in Algeria and in Madagascar – in fact people everywhere – Saudis must come to terms with their stewardship obligations if they are to preserve their precious environment.

Unfortunately, humans too often still fail to recognize that Earth is a gift from God that has been granted to the collective human body for their enjoyment and reasonable use. This gift was bestowed with conditions to be fulfilled by human nurture and care. Failure to protect the Earth leads to disasters, causing disease and destruction. Today, humans are more and more witnessing natural disasters and are plagued by harsh and preventable diseases. Moreover, failure to protect the planet affects generations to come. Without much input or ability to prevent the potential harm, future generations would be deprived of the wonders of nature and the Earth as we know it. Clearly this violates the terms of God's gift.

With this in mind, societies have developed plans for the preservation of natural resource and the protection of our environment from pollution. Particularly, Islamic principles offer scriptural messages to focus the attention of believers on their responsibilities towards God's creation, Earth. These principles demand a human standard that prevents human actions that run contrary to the preservation of the Earth. Unfortunately, studies have shown that neither the observation of degradation of nature nor moral, ethical or religious dictates have yet sufficed to halt human damage to the environment. Nevertheless, religious obligations have provided a plan of action for

addressing some of these environmental issues. Accordingly, this thesis focused on these as a starting point to resolving a bigger issue.

Thus, this thesis focuses on the importance of religious values and Islamic principles as they relate to human responsibility to Earth and nature as a whole. More importantly, the thesis proposes the incorporation of these Islamic principles as a guiding force for existing environmental laws and other legislation within Muslim countries. The thesis also discusses the need to modernize Muslim jurisprudence where it fails to live up to the timeless obligations to protect and preserve God's gifts. Islamic principles provide great perspective to our current challenges. The principles embody a set of ideas that should lead believers down a more sustainable path.

As this thesis has detailed, it is important, if not demanded, that Muslims engage in sincere debates about the environmental consequences of their actions as well as to conduct conversations to explore the environmental crisis and propose solutions consistent with Islamic principles. We must, therefore, work in partnership with other groups and organizations that can provide their fair input on how to manage these challenges. Moreover, Muslims must recognize the need for adjustment of their own behaviors to model the Islamic principles and remain true to these principles insofar as they sustain the environment. A Muslim who remains true to this, remains true to himself and the welfare of others with whom he shares his planet.

“Islamic environmentalism begins with the self and then radiates to the home, the school, the mosque and the wider community.”⁷⁸⁶ This concept acknowledges that Muslim scholars have endless possibilities from which to actively engage environmental

⁷⁸⁶ Khalid, Fazlun. “Islam and the Environment—Ethics and Practice an Assessment.” *Religion Compass* 4.11 (2010): 707-716. P.9.

concerns and give service to humanity. This further acknowledges that much progress can be made if Muslim countries take on their environmental responsibilities seriously.⁷⁸⁷ Arab countries must make a stronger stand to implement SDGs. It is time for our leaders, scholars, institutions, and industries to take environmental concerns to the heart, and *sharia* leads believers down the right path.

⁷⁸⁷ Strategic information and regulation “*Middle East and Arabic Countries Environmental Law Handbook Volume 1*” (2009) by USA International Business Publications

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