

Islamic Environmental Ethics:
**A model for shaping Muslim attitudes in helping to
promote environmental education, awareness and
activism**

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed (candidate)

Date 15th May 2022

STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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STATEMENT 2

I hereby give consent for my thesis, if accepted, to be available for deposit in the University's digital repository.

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Date 15th May 2022

DEDICATION

I dedicate this thesis in memory of my dear and beloved sister, *Sharifa Begum*. May her children, *Mishuk Awal* and *Tasfia Awal (Miti)*, find peace in this life and the next? For all those who may benefit from this work may Allah pass on all credits to my sisters' account on the Day of Judgement?



Sharifa Begum 1962-1993

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In the name of God, the Gracious, the Merciful

ABSTRACT

The environmental themes contained within the Quran and the traditions of the Islamic faith are some of the most understudied and largely ignored concepts within the Islamic educational landscape. Amid the severity of the environmental crisis there has been a growing interest in the subject area of Islamic environmental ethics by scholars who have elucidated the environmental themes contained within the Quran and the traditions of the faith. These scholarly works have helped to raise awareness and revive Islam's ecological ethic, inspiring many Muslims worldwide to translate some of its principles into practice. Islam's foundational educational institutions, however, still remains a vital but underutilised learning centre for imparting Islam's ecological teachings.

This thesis provides a review of the historical development of environmental ethics and the growing interest amongst scholars to coalesce religion and science to help tackle the environmental crisis. This work explores and presents an Islamic theological perspective of the environmental crisis. The concepts of *tawhīd*, the *Covenants*, and the *Attributes of God* are significant themes within the Quran and these are explored, together with Islam's five pillars of faith, to show their significance in the development of Islamic Environmental Ethics.

The study affirms the importance of presenting a holistic view of Islam's ecological teachings and concepts with a transformative approach which can help to educate, inspire and change the perceptions and behaviours within the British Muslim communities. Using Islamic concepts, based upon *tawhīd* and the covenantal obligations, it puts forward a theocentric ecological ethics which can help to change attitudes, lifestyles and reinvigorate a spirituality that will create a metaphysical view of the world based on these Quranic concepts. The work provides an incentive to Muslim communities to introduce Islamic environmental ethics into teaching curriculums and to create alliances and inter-faith dialogue to help better the environment and create future leaders and academics in both the secular and religious environmental disciplines.

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Firstly, I would like to sincerely thank Professor Gary Bunt for that initial interview I had with him and the inspiration he gave me to pursue this study. I would like to thank him for the support and the feedback he had given me during the many drafting of this thesis. This study has indeed opened my eyes to the untold possibilities that Islam presents to inspire and raise the ethical, moral and intellectual possibilities of human endeavour. I would also like to thank UWTSD for the financial bursary which helped me pursue this study.

I would also like to thank my family and my wife, Khawla, for their patience during the course of this work. May my children, Maryam, Aameena and Hamza find inspiration from this work?

My original inspiration in the Quran dates back to 1979 when my parents, after returning from performing the Hajj, brought back with them an audio of the recitation of the Quran by the late Sheikh Abdul Basit Abd As-Samad, who is still regarded as one of the all-time best Quran reciters. It was his recitation of Surah As-Shams which had the most profound impact on me. The melodic eloquence of his recitation is I consider still un-matched. It was not until I read for the first time the English translation of this Surah by Yusuf Ali years later that I truly appreciated its sublime beauty and the eloquence of the Arabic language. In particular, I was mesmerised how it presented the most majestic of God's creation which we can witness every day of our lives but reflect upon very little. I grew up in a time when access to Islamic education in the UK was not readily available as it is today, and without the internet, it was not easy to get inspiration from some of the most inspirational scholars of the time who were generally not known outside of Islamic scholarly circles. My education thus took on a completely different path, focussing on engineering, a profession in which I am currently practicing in. But the fascination of the natural world had always been on my mind, and I know now that this is part of being a Muslim as the natural world, the environment and all creatures are themselves signs of God.

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In the name of God, the Gracious, the Merciful

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1 The Environmental Crisis an Opportunity for Change

Corruption has appeared on land and sea because of that which men's hands have earned, that He may let them taste some of that which they have done, that haply they might return¹

1.1 Introduction

Material extremism, which is a defining feature of modern society, has continued to place ever increasing pressure on the earth's eco-systems and its capacity to sustain life. This is now at such a level that scientists are warning that we are fast approaching a tipping point. In some areas this is already happening with the loss of species, collapse of eco-systems and climate change, all resulting from humankind's activity. With the complexity of eco-systems and the dynamics of their interrelatedness there is growing evidence that a significant portion of all environmental collapses are interrelated and could amplify each other in a cascade effect².

Scientists and environmentalists have started to recognise that the current environmental crisis is unprecedented in the history of human civilisation because of its magnitude, pace and severity with ecological systems being stretched to their critical thresholds³. Climate change is already considered to be approaching that critical threshold and has started to affect millions of people throughout the world, disrupting livelihoods and food sources. With the increasing skewedness of global consumption, in monetary terms, where 1 billion people from developed countries consuming 80% of the world's resources, will only further exacerbate the environmental problems⁴. Social unrest and wars will not be uncommon, a scenario that is already being played out in many parts of the world.

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1. The Study Quran; 30:41.
All Quranic verses in this thesis are taken from The Study Quran, Editor in Chief Seyyed Hossien Nasr. General Editors; Caner K. Dagli, Maria Massi Dakake, Joseph E. B. Lumbard and Assistant Editor Mohammed Rustom. Harper Collins Publishers.
Where Arabic terms have been used these are transliterated according to the general standard transliterations found in academic works and generally conforms to the guidance on Romanization systems given in "Arabic Romanization (updated December 20019)" available in <https://www.gov.uk/government/publications/romanization-systems>.
 2. Rocha, J. C., Peterson, G., Bodin, O., & Levin, S., (2018). "*Cascade regime shifts within and across scales*". Science 21st December 2018: Col. 362, Issue 6421, pp. 1379-1383.
 3. Park, C., (2001). *The Environment, principles and applications*. Routledge London & New York, 2nd Edition, 12.
 4. Cassara, A., (2007). *How Much of the World's Resource Consumption Occurs in Rich Countries?* Earth Trends August 31st, 2007. <https://archive.globalpolicy.org/social-and-economic-policy/the-environment/general-analysis-on-the-environment/45393-how-much-of-the-worlds-resource-consumption-occurs-in-rich-countries.html>. Accessed 24th April 2021.

Amid the enormity of the environmental crisis there is a growing coalescence between the world's great religions and scholarly activity in re-shaping world views to address the threats stemming from this crisis by developing a new type of approach, *Environmental Ethics*, a subject which is the main theme of my research. Environmental ethics requires a collaborative effort which must involve all of the world's religious communities, because ultimately the environmental crisis is intrinsically a human problem and is intimately related to our understanding of what it means to be human. Religious engagement, particularly Christianity, Judaism and Islam, offers tremendous scope in reviving environmental awareness from the themes contained within their doctrines. Their combined impact on the world landscape could be phenomenal as these religions, particularly Christianity and Islam, transcend different cultures and languages and represent 55% of the world's population⁵.

In the current debates, which has helped to stimulate the 'Green Revolution', there is a growing realisation that the roots of the environmental crisis are also both metaphysical and philosophical in nature, ultimately reflecting on our spiritual state. This view is now starting to align itself to some of the very early writers, such as the writings of Huxley⁶ and Berry⁷. Huxley believed that modern psychology has not been in touch with the traditional wisdoms and that there needs to be a revival of the integrated metaphysical view of the world and the meaning of life. A central theme of Huxley's work is the recognition that within the central tenets of all faiths is the knowledge of a divine reality other than what we see, and although religions are different, but in essence they all point to the same truth. Man's life on earth is to identify himself with his inner spirit and the knowledge of the divine. Berry, advocated for a re-clarification of the relationship of the world's religion with the natural world, realising that the state of the religious traditions and educational institutions were not sufficient to deal with the growing threats from the environmental crisis.

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5. Hacket, C., and McClendon, D., (2017). "*Christians remain world's largest religious group, but they are declining in Europe*". PEW Research Centre, 5th April.
 6. Berry, T., (1988). *The dream of the earth*. (San Francisco: Sierra Club Books.
 7. Huxley, A., (1947). *The Perennial Philosophy*. Chatto & Windus, London.

1.2 Thesis Aims and Objectives

In the quest of greening the world religions Islamic Environmental Ethics is becoming a growing academic discipline, which aims to show Islam's environmental credentials. It is in this light this thesis provides a review of the current discourse that is taking place on the subject and the efforts that is taking place in translating the eco-ethics of Islam into the educational landscape and environmental activism. The thesis explores and affirms how this new branch of knowledge has the potential to re-invigorate and change the Muslim world view to help tackle the environmental crisis, whilst still maintaining Islam's normative religious practice. It affirms the importance of the role that the Islamic faith can play in helping to change attitudes, lifestyles and to reinvigorate a spirituality that will create a metaphysical view of the world that is based on the themes contained within the Quran of which the primary one is the doctrine of the unity of God, *tawhīd*⁸. The main Islamic rituals and other Quranic theological concepts, creation and causality, the fall narrative, the Covenants and the names and attributes of God, are also explored to show their relevance in the Environmental Ethics discourse. The works of Lombard⁹, and other scholars on the concept of the Quranic Covenants, will be explored further to show how this theme has significant implications in the development of Islamic Environmental Ethics. The primary aim of this thesis is to provide a relevant framework by which the current shortcomings of environmental education within Muslim communities can be remedied by introducing Islamic Environmental Ethics to complement the traditional normative learning within the British Islamic educational landscape. The thesis affirms the importance of presenting a holistic view of Islamic Environmental Ethics with a transformative approach which can help to educate, inspire and change the perceptions and behaviours within the British Muslim communities in the UK. It will give these communities an incentive to create alliances and inter-faith dialogue to help better the environment and create future leaders and academics in both the secular and religious environmental disciplines.

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8. *Tawhīd* is the defining doctrine of the Islamic faith. It declares absolute monotheism—the unity and uniqueness of God as Creator and Sustainer of the universe. " *tawhīd*." In The Oxford Dictionary of Islam. , edited by John L. Esposito. Oxford Islamic Studies Online, <http://www.oxfordislamicstudies.com/article/opr/t125/e2356> (accessed 30-Apr-2021).
 9. Lombard, J. E. B., (2015). "*Covenant and Covenants in the Quran*". Journal of Quranic Studies (June 2015), Volume 17 Issue 2, pp. 1-23, ISSN 1465-3591.

1.3 Methodology and Scope

This study presents the subject of Environmental Ethics to show that its underlying principles, objectives and purpose are already manifested within the core themes of the Quran as well as outwardly through Islam's rituals. The presentation of the subject follows a general chronological order, firstly showing a timeline how the subject evolved in Western environmental discourse, and when influential Islamic scholars brought the subject to the attention of the Muslim community. Within this timeline discussion I have shown how the secular sciences and religious perspectives of the environmental crisis have coalesced to collectively address the crisis.

I have primarily used the Quran (The Study Quran) in this work, though I have referred to hadith traditions as well other various academic works and classical literature in places to support my discussion. My primary aim in this work is to highlight how Islamic Environmental Ethics can be framed from the theological concepts found in the Quran, the hadith tradition, as well as from its rituals, to show how this can be presented as a separate distinct subject or augmented within the current normative Islamic educational curriculum. This will help to inspire Muslims to study the environmental perspectives of the faith and to engage in contemporary environmental and scientific debates to help forge alliances with all people for the common good of humanity.

2 Environmental Ethics

2.1 Introduction

The loss of the spiritual and metaphysical state of the human condition which should drive our world views, perceptions, consciousness, and or cosmology, lies at the heart of the environmental crisis¹⁰. In its place has evolved an anthropocentric world view and the acceptance of the modern techno-scientific paradigm¹¹. These views, together with the modern capitalist economic ideologies, have ultimately created the environmental condition that humanity is trying to reverse. With the latter mind set the approach adopted to tackle the environmental crisis have been based on interventionist and techno-centric models through development and enactment of environmental policies and laws, at local government levels and through various international bodies. However, many organisations, individuals and scientists, have started to realise the importance of the participation of the various religious communities in tackling the environmental crisis. Such is the magnitude of the crisis that scientists have come to accept that a broader perspective is needed to its solutions, and this from the outset, must have a religious as well as a scientific dimension¹². Religion therefore entails a philosophical basis of engagement to the environmental crisis. The branch of philosophy that has emerged, which could be used as a basis for engagement, is ‘*environmental philosophy*’, or as it is widely referred to in the academic world is, ‘*Environmental Ethics*’. Ethics, is the action that is derived from practical reasoning and environmental ethics, according to Millgram, is practical philosophy¹³. It is the study of the moral relationship of humans and their interactions with the natural environment and other life forms.

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10. Nasr, S. H., (1968). “*Man and Nature: The Spiritual Crisis in Modern Man*”. London: Unwin Paperbacks.
 11. Watson, M and D. Sharpe., (1993). “*Green Beliefs and Religion. In The Politics of Nature: Explorations in Green Political Theory*”, eds. A. Dobson and P. Lucardie., London: Routledge. pp. 210-228.
 12. Mary Evelyn Tucker and John A. Grim., (2001). “*Religion and Ecology: Can the Climate Change?*”. DAEDALUS Journal of the American Academy of Arts and Sciences, Volume 130, Number 4, of the Proceedings of the American Academy of Arts and Sciences.
 13. Millgram, E., (2001). “*Practical Reasoning: The Current State of Play,*” in Varieties of Practical Reasoning. Cambridge, MA: MIT Press. p. 9.

2.2 Historical Development

It was during the 1970s that environmental ethics developed as a distinct philosophical discipline, challenging the anthropocentric, or the human centred view of the world¹⁴. The subject also developed in part due to the awareness of the adverse impact to the environment as a consequence of the rapid advancement of technology, industry, infrastructure, economic expansion and population growth, which took place from the 1960's. It was also during this period that chemical pesticides were widely used, and the threat of this to not only public health but to the destruction of wildlife, was highlighted by Rachel Carson in the "*Silent Spring*"¹⁵. The "*control of nature*", as she likened to the use of chemical pesticides, was seen to exist solely for man's benefit. But this arrogant conception of this phrase, according to Carson, is based on a primitive science and in its application in the eradication of insects using chemical pesticides, which she considers "a terrible weapon" also turned against the earth. Another book also published in the same period, which also attracted much attention as well as criticism, is "The Population Bomb" by Paul Ehrlich¹⁶. The book was published during a period of much social un-rest and conflict in the US and went on to become one of the most influential and debated books, which incited a worldwide fear of overpopulation. The book argued the need for population growth control in order to maintain the world's resources and minimise the pressures on the economies. The book also opened up much debate, but its core message was misunderstood. The book highlighted the dangers of overpopulation and over consumption and their impact on the environment. The main emphasis of the book was to draw attention to the environmental issues arising from population growth and to bring this into debate¹⁷.

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14. Cochrane, A., (2008). "*Environmental Ethics*", London School of Economics and Political Science, <http://eprints.lse.ac.uk/21190/>.
 15. Carson, R., (1962). "*Silent Spring*". Boston: Houghton Mifflin.
 16. Ehrlich, P., (1968). "*The Population Bomb*". New York: Ballantine Books.
 17. Paul R. Ehrlich & Anne H, Ehrlich., (2009). "*The Population Bomb Revisited*". *The Journal of Sustainable Development* 1 (3).

The subject of Environmental Ethics is still evolving and therefore continues to go through much change. It is developing closer connections with other disciplines, particularly the biological, social sciences and more recently the religious and spiritual realms. The continued and sustained academic interest in the subject and the building of synergies and cooperation between philosophers, religion, communities, as well as the natural and social scientists, is helping to reinvigorate and revive the metaphysical and spiritual view of creation and the natural environment. The timeline and key historical figures responsible for the development of the subject in the West, as well as inspiring others to the various disciplines of environmental ethics, is shown in Figure 1. For example the works of Rolston¹⁸, Keller¹⁹ and Callicott²⁰ were influenced by Leopold²¹, Carson²² and Berry²³. The works of Tucker & Grim were inspired by Berry.

In the Islamic world Seyyed Hossein Nasr is considered to be one of the first to highlight the religious and spiritual dimension of the environmental crisis back in the 1960s. Nasr, a Professor of Islamic Studies at George Washington University (USA) with over 50 books and over 500 articles, is considered to be one of the world's most influential Muslim scholars of the contemporary period. His many areas of scholarly works covers classical Islamic philosophy, Islamic science, Sufism, interfaith relations and other key areas of classic Islamic knowledge. However, it was his position on the environmental crisis, which today would be considered way head of its time, which sets him apart from other Muslims and academics of his generation.

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18. Holmes Rolston III, (2020). "A New Environmental Ethics: The Next Millennium for Life on Earth". 2nd Edition, Routledge.
 19. Keller, David R. (ed.) (2010). "Environmental Ethics: The Big Questions". Wiley-Blackwell.
 20. Ann S. Causey. Callicot, John Baird American Environmental Philosopher. Environmental Encyclopedia. Encyclopedia.com.
<https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/callicot-john-baird-1941-american-environmental-philosopher>. Accessed 17th January 2020. Factors. Sciencing, <https://sciencing.com/definition-abiotic-biotic-factors-8259629.html>. Accessed 16th February 2021.
 21. Aldo Leopold (1887–1948) promoted a view of nature based on respecting the land and preserving its integrity, or its healthy, natural form. He called this view a "land ethic." Ethics is the study of morality, and ethical behaviour is defined as that which is "good" or "right." Extending ethics to include the interactions between humans and the natural environment, Leopold maintained in his classic work A Sand County Almanac and Sketches Here and There (1949), that all ethics "rest upon a single premise: that the individual is a member of a community of interdependent parts." The land ethic, Leopold continued, "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land. "Leopold, Aldo". American Social Reform Movements Reference Library. . Encyclopedia.com. (June 16, 2021). <https://www.encyclopedia.com/social-sciences/news-wires-white-papers-and-books/leopold-aldo>.
 22. Ibid, 15.
 23. Ibid, 6.

Nasr has inspired many to the plight of the environmental crisis and has helped to revive the spiritual and sacred significance of nature with his book, *“The Encounter of Man and Nature”*, which critiques the modern scientific world view of nature²⁴. In a similar academic landscape, Mawil Izzi-Dien, a former Professor in Islamic Studies at the University of Wales, Trinity Saint David in the UK, now retired, has dealt with the subject of environmental ethics from the Islamic perspective. His work has identified and examined in detail the environmental components found within the Quran and Sunnah and their implication for environmental management. Dien’s work in this field, published in his book, *“The Environmental Dimensions of Islam”*, also helped to raise awareness that the environment is a central tenet of the Islamic faith²⁵. These scholars have no doubt inspired others to the cause. I will discuss their works further in my discussion on environmental ethics as well as other numerous academics, not shown in Figure 2, but who have also engaged with the subject at various levels.

God’s wisdom is demonstrated in the diversity in creation, and this is also extending to the humankind, reflected in the differences in languages, colours and the ability to comprehend things. In Islam this is one of the signs of God and part of the majesty of his creation is that this is in so much abundance. Human beings, who have descended from Adam are considered to be the most majestic of God’s creations, demonstrate diversity in the most extraordinary ways, through their ethics, literature, intellect and creativity. It is in this context that I have presented some of the key historical figures who have demonstrated intellectual diversity from the different communities and how they have helped to shape the subject of Environmental Ethics in the modern contemporary era. Historically, it is well accepted that when Islam entered into other cultures it illuminated and revived those cultures and their literature, enabling them to flourish. This can also be reciprocated to enhance Islamic thought on modern contemporary issues such as the environmental crisis. Human beings are thus not one homogenous community but made up of very different communities, but united by a sense of purpose inculcated by religion, whether it be Christianity, Judaism, Islam or Hinduism. It is through this unified sense of purpose that the environmental crisis must be tackled collectively, and this provides the reason why Muslims must engage with other cultures and religion in local and global collective efforts.

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24. Nasr, S. H., (1968). *“The encounter of man and nature: The spiritual crisis of modern man”*. George Allen & Unwin Ltd.
25. Izzi-Dien. M. Y., (2000). *“Environmental Dimensions of Islam”*. Lutterworth Press.

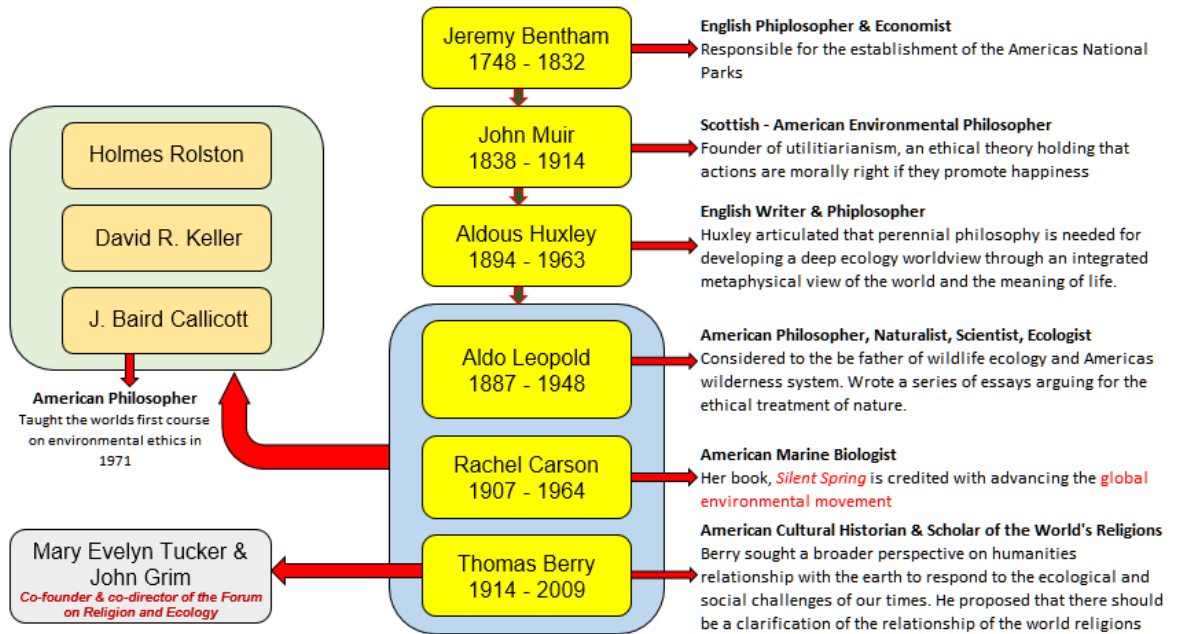


Figure 1. Historical timeline and key people (produced by the author)

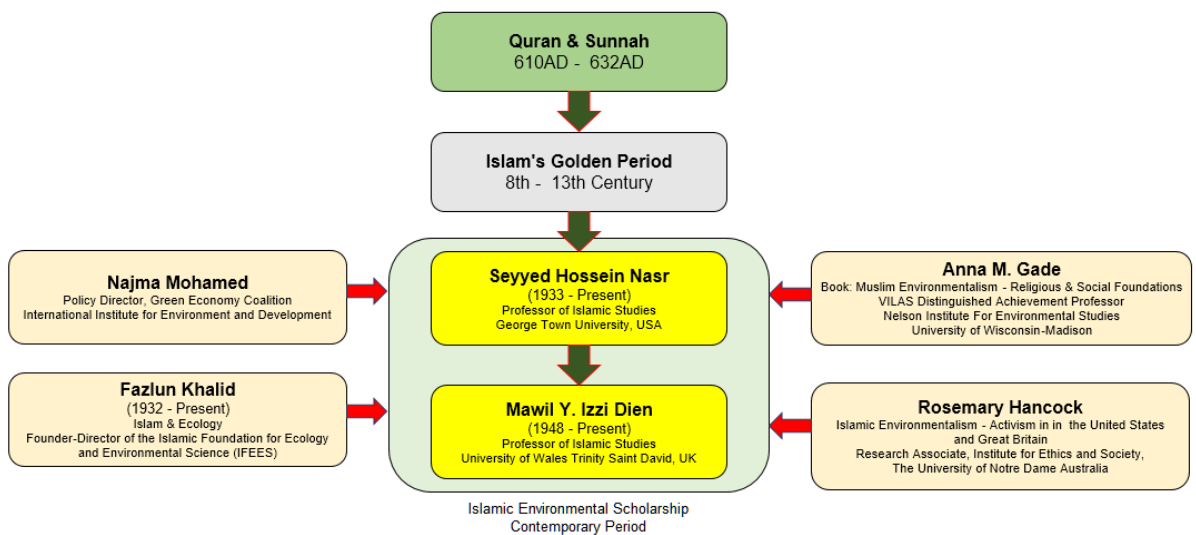


Figure 2. Islam's historical timeline and key people (created by the author)

3 Literature Survey

3.1 Christian Perspectives

In the last three decades there has been a considerable amount of interest and discussion in academia on the environmental crisis. What has emerged from these discussions is the grouping of the causes of the crisis into three broad categories; the widespread anthropocentric world view; the acceptance of the scientific-technological paradigm and the world's capitalistic economy system²⁶. In the latest debates on the environmental crisis it is now becoming accepted that the roots of this crisis is also one of a metaphysical and philosophical nature. This view is now starting to align itself to some of the very early writers, such as writings of Thomas Berry, whose work is briefly discussed.

The revival of the environmental debate by including religion has led to what has come to be known as the *Green Revolution*, which is reshaping our understanding of the cosmological assumptions of religions and spiritualism²⁷. As a result many religious and spiritual groups are converging through various interfaith alliances around their shared commitment to address the global environmental crisis²⁸. According to Reuter there is a growing trend in the world religions whose people and their scholars are re-evaluating the cosmological status of their relationship with nature and the environment with reference to their sacred texts. Reuter is of the opinion that this interest will eventually create local and global interfaith alliances who will advocate for strong action on the most pressing of the environmental issues.

The magnitude and complexity of the environmental crisis is seen as the result of economic, political and social factors. It also reflects upon humanity's moral and spiritual crisis. The former remains in the realms of scientists, lawyers and policymakers to deal with, but the latter requires a much broader philosophical and religious engagement. Academics are realising that all religions need to be re-examined to help shape our attitudes, views and interactions with nature. Religion is a key instrument by which world views, ethics and our fundamental attitudes towards different cultures and societies can be shaped.

26. Watson, M and D. Sharpe., (1993). "Green Beliefs and Religion". In *The Politics of Nature: Explorations in Green Political Theory*, eds. A. Dobson and P. Lucardie, pp. 10-228. London: Routledge.

27. Hortsman, A and Reuter, T. A., (2009). "The Post Modern Shift". *Asian Journal of Social Science* 37: pp. 853-56. Introduction to a special issue on "Refluxive Transformation and Religious Revitalisation: Perspective from Southeast Asia.

28. Reuter, T. A., (2015). "The Green Revolution in the World's Religions: Indonesian Examples in International Comparison". *Religions* 2015, 6, pp. 1217-1231. ISSN 2077-1444.

More importantly, religion also provide meanings, through its sacred texts and beliefs, to the age old question of: *who we are? Where we have come from? And ultimately, where we will go?* In the modern technological world, being removed from nature, these questions seem to have no relevance and therefore the majority of the humankind are unable to view the earth as sacred or our position within it. How we deal with the environmental crisis is ultimately linked to how we view ourselves, a view that Lyn White iterated “what people do about their ecology depends on what they think about themselves in relation to things around them. Human ecology is deeply conditioned by beliefs about our nature and destiny – that is, by religion”²⁹.

Environmental ethics from a Christian perspective does indeed have a strong theological basis, but the moral principles adopted by the West in general, are not reinforced by any religious doctrines, but they do nevertheless provide a strong commitment and responsibility towards the environment. At the same time there are many who hold Christianity being responsible for the environmental crisis due to their blatant lack of regard for creation. The most cited paper in reference to this argument is Lynn White’s paper “*The Historical Roots of our ecological crisis*”³⁰. According to White, “Christianity bears a huge burden of guilt”³¹. In the context of this discussion it is important to re-iterate his conclusion, “Both our present science and our present technology are so tintured with orthodox Christian arrogance toward nature that no solution for our ecologic crisis can be expected from them alone. Since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call it that or not”³². There are many Christian academics who refute the general message which is drawn from this conclusion. They believe that by focusing on this one issue, his core message is overlooked, one which challenges us to think about the roots of the environmental crisis. As his audience is primarily Christian, it is this particular group that he is targeting. He is challenging their commonly held view of their moral superiority, which they assert through their anthropocentric axioms.

29. White, L., (1967). “*Historic roots of our ecological crisis*”, Science, Vol.155. pp. 1203-07.

30. Ibid. 29.

31. Ibid. 29.

32. Ibid. 29.

White effectively calls on all Christians to rethink their religion and promote the message of stewardship by redefining the human-nature relationship from their scriptures. Another important aspect of White's essay is that he does not believe that the solution to the environmental crisis can be achieved through more science or technology, as the latter, according to him, has grown out of Christianity's arrogant relationship with nature. White also proposes a solution to the problem, "what we do about our ecology depends on our ideas of the man-nature relationship more science and technology are not going to get us out of the present ecological crisis until we find a new religion or *re-think our old one*"³³. The core message which can be derived from this work is that humankind must remove those arrogant tendencies and learn humility, caring for oneself and for the whole of God's creation. What he was thus advocating for is an environmental ethic.

Thomas Berry, a historian of world religions, in early as 1971 reflected on the effects of modern culture on the environmental crisis³⁴. What is most remarkable about Berry is how he was able to foresee and be able to acknowledge the magnitude and complexity of the environmental issues from so early on; complexities that scientists and academics have only now come to realise. Berry also highlighted the anguish of the human physiological condition and that this could not be solved by technology or through physical and psychological control. Berry acknowledged, and this was one of his most recurring themes, that there should be a clarification of the relationship of the world religions with the natural world. Berry framed his insights of this relationship by being well versed in the cosmological messages from all of the world's great religions. He believed that through interaction with the natural world and thinking in the context of the whole planet, and having concern for its integrity, that one would be able to encounter the divine, a view that very much resonates with the Islamic faith.

Berry's writings add much significance and weight in the search of building new sustainable human-earth relations by involving the world religions. Berry was a staunch critic of the religious establishments for their blindness to the fate of the earth. He blamed their quest for personal salvation above all other concerns.

33 Ibid. 29.

34. Berry, T., (1999). "*The Great Work – Our Way into the Future*". Bell Tower, New York.

In a tribute to Thomas Berry, the noted theologian John Cobb commented “No other writer in the ecological movement has had analogous effectiveness” which has helped us to appreciate the “radical uniqueness of the crisis”³⁵. For Berry, and like many other academics, the spiritual and ethical consideration of the environmental crisis is one of the most important components which requires cooperation from all communities; individuals, institutions and religions. Berry had tremendous insight into the religious significance to the environmental crisis, and many of his contemporaries ignored his warnings back then, however, it is now high on the agenda.

The theological perspective of the environmental crisis within Christian communities appeared during the 1970s and 1980s³⁶. Christian theological studies continued into the 1990s, leading to the new discipline of religion and ecology. This branch of knowledge was most notably advanced by Tucker & Grim³⁷ as well as others such as Gottlieb³⁸, Berry³⁹, and Jenkins⁴⁰. As an emerging field, this new discipline provided much scope as its engagement embraced multiple disciplines which include environmental studies, geography, history, anthropology, sociology, and politics⁴¹. In the context of this new field Christian theologians started to reevaluate and reinterpret their traditions and their classic texts. Those marginalised elements of the faith, which supported an ecological ethic have been revived, whilst at the same time those unchallengeable elements of the faith have been rejected⁴².

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35. John Cobb, preface to *The Christian Future and the Fate of Earth*, by Thomas Berry, eds. Mary Evelyn Tucker and John Grim (Maryknoll, NY: Orbis Books, 2009), xi.
 36. Eaton, H., (2012). “*Mapping eco-theologies: deliberation on difference*”, *Theology* 116(1), pp. 23-27.
 37. Tucker, M. E., and Grim, J., (1997). “*The challenge of the environmental crisis*”. Centre for the Study of World Religions, Harvard Divinity School, Religions of the World and Ecology Series.
 38. Gottlieb, R. S., (2006). “*A Greener Faith, Religious Environmentalism and Our Planet’s Future*”. University Press Scholarship Online.
 39. Berry, T., (2009). *The sacred universe*. Columbia University Press ME Tucker (ed). New York, NY.
 40. Jenkins, W. J., (2009). “*Religion and ecology: A review essay on the field*”. *Journal of the American Academy of Religion* 77(1), pp. 187-197.
 41. “*Ecology and Religion: An Overview*.” *Encyclopedia of Religion*. Encyclopedia.com. (April 15, 2021). <https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/ecology-and-religion-overview>. Accessed 3rd May 2021.
 42. Roger S. Gottlieb., (2009). “*Introduction: Religion and Ecology – What is the Connection and Why Does it Matter*”. *The Oxford Handbook of Religion and Ecology*, Edited by Roger S. Gottlieb. Oxford Handbooks Online. Scholarly Research Reviews. <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195178722.001.0001/oxfordhb-9780195178722-e-1>. Accessed 3rd May 2021.

This scholarship led to the development of the three Christian environmentalism ethics in the 1990s based on stewardship, eco-justice and eco-spirituality⁴³. The awareness of these developments has been invaluable, it provided the foundation for ecologists, scientists, and other faith groups, to build and improve partnerships. Furthermore, it also helped to dispel common misconceptions amongst many scientists that religions are an obstacle in promoting environmentalism.

43. Ellingson, S., Woodley, V.A., & Paik, A., (2012). *"The structure of religious environmentalism: Movement organisations, inter-organizational networks, and collective action"*. Journal for the Scientific Study of Religion 51(2), pp. 266-285.

3.2 Islamic Perspectives

In the Islamic community Nasr⁴⁴, even before these debates and scholarship, articulated on the absence or limited metaphysics which science provides and the loss of transcendental unity amongst all religions during the 1960s. Hussein was particularly concerned by the environmental crisis and the fact that people were blind to the seriousness of the crisis. Hussein, drawing attention to the crisis, advocated for revival of religions cosmological basis where humans are seen as only a small element of creation within a much bigger whole. According to Nasr the Quran has more connections with the natural world than any of the other monotheistic faiths. It is these concepts that Nasr explored in order to connect Muslims with the current environmental crisis.

Overall scholarship within Muslim communities on ecology were very few and it was not until the 1990s that Muslims started to take notice and articulate environmental ethics based on its traditional sacred texts and teachings. For example, the Quran makes references to creation, various life forms, and natural phenomena, which one would normally be accustomed with, and presents these as 'signs' of God by which humans should contemplate and reflect. This contemplation of God's creation is in itself one of the greatest acts of worship in Islam⁴⁵. The Quran encourages this activity using various methods and literary styles to appeal to every human temperament and spiritual condition, encouraging them to witness the Divine signs of God in His creation with insight and to awaken ones senses. The magnitude and status of this contemplation is projected throughout the Quran by God's own faith in His creation, as He Himself swears by some of them. This is no doubt that the greatest call upon humanity by God Himself is to ponder deeply over His creation, the "Almighty swears by the dawn, the midmorning, the twilight, the moon, the figs and the olives; He swears by the winds, the stars, the sky, the break of day and the descending night"⁴⁶.

44. Nasr, S. H., (1968). *The Encounter of Man and Nature: The Spiritual Crisis of Modern Man*. George Allen & Unwin, Ltd.

45. Badri, Malik, Jeremy Henzell-Thomas, and Abdul-Wahid Lu'Lu'a. "The Qur'an and the Contemplation of God's Creation." In *Contemplation: An Islamic Psychospiritual Study*, New., 53–63. International Institute of Islamic Thought, 2000. <https://doi.org/10.2307/j.ctvk8w1xc.9>.

46. Ibid, 45.

The linking of creation with the Divine, through signs, has enabled Muslims to see the environment as a testament to God's all-encompassing presence⁴⁷. It reminds humanity of the mercy and love of God towards them and to other creatures of the earth. This should soften the hearts of believers who are sensitive and enable them to show their appreciation for God's grace. In presenting Islam's environmental teachings many scholars cite verses from the Quran which forbids spoiling the earth⁴⁸ and to not spread corruption in the land⁴⁹. There are also other verses in the Quran which have been interpreted to have green implications⁵⁰. It is these concepts that many contemporary Muslim scholars have explored, using different approaches, in response to the environmental crisis and debates. One approach has been to present a more holistic approach to Islamic environmentalism, which not only covers the environmental components, but also the theological, legal and economic implications derived from the Quran. Others have shown the need for Muslims to reconnect with creation in the divine order by re-evaluating the disruptive aspects of modernity, consumerism and industrialisation. The works presented by various contemporary Muslims have helped to re-invigorate an Islamic environmental discourse, with many prominent academics involved in articulating an Islamic environmental ethics from some of Islam's theological concepts. The works of these contemporary scholars are presented and discussed further in Section 3.4.

47. Hope, A. L. B., and Jones, C. R., (2014). *"The impact of religious faith on attitudes to environmental issues and Carbon Capture and Storage (CCS) technologies: A mixed methods study"*. *Technology in Society* 38 (2014), pp. 48-59.

48. *The Study Quran*; 7:18.

49. *The Study Quran*; 28:77.

50. Hummel, D., & Daasaa, H., (2019). *"Walking Gently on the Earth: An Interview with Nana Firman on Islamic Environmental Ethics"*. *The Journal of Islamic Faith and Practice*, Volume 2, Issue 2.

3.3 Coalescence of Religious and Environmental Education

Albert Einstein once said, "Science without religion is lame, religion without science is blind"⁵¹, a statement which has provoked much controversy between both people of faith and no-faith, with each wanting to claim him as their own. This statement within the environmental context, and with many of the Quranic verses which asks all humankind to reflect on creation, has some element of truth, but a belief in religion was not the original intent of the statement. The relationship between science, religion and pedagogy has always been the subject of contention, nowhere more so than on the theory of evolution. Prior to the Western world's achievement in the sciences it was Islamic scholars who made significant contributions in many scientific fields⁵². The Quran, which does not specifically stipulate a secular learning, nor is it considered a book of science, but through its recitation and its references to creation and natural phenomena had inspired many early Muslims. It was during the reign of al-Mamun (813-33) when the House of Wisdom was established in Baghdad, propelling Islamic scholarship in medicine, astronomy and physical sciences⁵³. However, it was the culmination of the philosophical and theological debates concerning reason and secondary laws in nature, which eventually caused the expiration of those scientific endeavours⁵⁴. In the centuries that followed traditional Muslims failed to progress science and showed little interest "in separating the observational from the mystical and the logical from the political"⁵⁵. This legacy has remained within the Muslim world to the present day, and which ultimately has shaped a general view that science and religion are incompatible⁵⁶.

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51. "Albert Einstein." In Oxford Essential Quotations, edited by Ratcliffe, Susan. : Oxford University Press, <https://www.oxfordreference.com/view/10.1093/acref/9780191826719.001.0001/q-oro-ed4-00003988>. Albert Einstein's article in Science, Philosophy and Religion, A Symposium, The Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc., New York, 1941.
 52. Jaki, S. L. (1990). *Science and creation: From eternal cycles to an oscillating universe*. Edinburgh, Scotland: Scottish Academic Press. Cited by John G. Yegge., (2014). "A Historical Analysis of the Relationship of Faith and Science and its Significance within Education". PhD Thesis Walden University USA.
 53. Rahim Kaviani, Nafiseh Salehi, Ahmad Zaki Berahim Ibrahim, Mohd Roslan Mohd Nor, Faisal Ahmad Faisal Abdul Hamid, Norhayati Hj Hamzah and Abdullah Yusof., (2012). "The Significance of the Bayt Al-Hikma (House of Wisdom) in Early Abbasid Caliphate (132A.H-218A.H)". Middle-East Journal of Scientific Research 11 (9): pp.1272-1277.
 54. Reilly, R. R., (2010). *The closing of the Muslim mind: How intellectual suicide created the modern Islahimmic crisis*. Wilmington, DE: ISI Books.
 55. Ibid, 52.
 56. Thigpen, C. L., Johnson, C and Funk, C., (2020). "On the Intersection of Science and Religion". PEW Research Centre. <https://www.pewresearch.org/religion/2020/08/26/on-the-intersection-of-science-and-religion/>. Accessed 14th April 2022.

During Britain’s colonial period Muslims, such as Sayed Ahmed Khan (1849-1928)⁵⁷ of India and Sayyid Jamal al-Din al-Afghani (1838-1897)⁵⁸ in Egypt, have tried to revive the teaching of science to Muslims. In the modern era, the Nobel Prize winning physicist, Abdus Salam⁵⁹ (1926-1996), argued that it is a duty upon every Muslim to study nature as almost one-eighth of the Quran (750 verses) exhort believers to so⁶⁰. In one of his writings he states ““The Holy Quran enjoins us to reflect on the verities of Allah’s created laws of nature; however, that our generation has been privileged to glimpse a part of His design is a bounty and a grace for which I render thanks with a humble heart”⁶¹. Nidhal Guessom⁶², a contemporary physicist, is also advocating for Muslims to recover Islam’s true scientific heritage and integrity in his book “*Islam’s Quantum Question*”⁶³. He explores how Islamic religious thought and science can be brought together. He also highlights the dangers of a literalistic reading of religious texts and the lack of scientific understanding, a position which he argues has created an absence of scientific literacy in the Arab world and an anti-science standpoint⁶⁴. According to Guessom, this is further exacerbated by an outdated and obsolete curriculum⁶⁵. By providing examples on how past and contemporary Muslims have approached science, Guessom shows that both Islamic religious traditions and methodologies, and similarly those of science, can exist without having to reject one or the other⁶⁶. A comprehensive review of Guessom’s work is provided by Lohlker and Wetchy⁶⁷.

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57. Syed Ahmed Khan was Muslim scholar and reformer in 18th century India under British rule. He was responsible for introducing the teaching of science in the Indian Islamic institutions. <https://historyofislam.com/sir-syed-ahmed-khan/>. Accessed 14th April 2022.
58. Sayyid Jamal al-Din al-Afghani, an Iranian, was Muslim advocate for Islamic reform and Muslim unity against Western conquest. He wrote extensively on a wide range of issue and was in favour of reforming Islamic sciences. "Sayyid Jamal al-Din al-Afghani". In obo in Islamic Studies, <https://www.oxfordbibliographies.com/view/document/obo-9780195390155/obo-9780195390155-0002.xml> (accessed 14 Apr. 2022).
59. Abdus Salam, born: 29 January 1926, Jhang Maghiāna, India (now Pakistan) won the Nobel Prize for Physics 1979 for his work on Abdus Salam – Facts. NobelPrize.org. Nobel Prize Outreach AB 2022. Sat. 16 Apr 2022. <https://www.nobelprize.org/prizes/physics/1979/salam/facts/>.
60. Sabina Shamim., (2015). “*Islam and Science: A Preliminary Exploration*”. International Journal of Humanities and Social Science Invention ISSN (Online): 2319 – 7722, ISSN (Print): 2319 – 7714. www.ijhssi.org Volume 4 Issue 1 January. pp.19-26.
61. Ibid, 59.
62. Nidhal Guessom specializes in astro-physics and is a professor physics and astronomy at the Americal University of Sharjah, United Arab Emerates. Guessom, personnel website.
63. Guessom. N., (2011). “*Islam’s Quantum Question – Reconciling Muslim Tradition and Modern Science*”. I.B. Tauris and Co. Ltd.
64. Guessom. N., (2018). “*The Young Muslim’s Guide to Modern Science*”. Beacon Books. p14.
65. Ibid, 64.
66. Ibid, 63.
67. R. Lohlker., and M., Wetchy., (2021). “*Colliding Epistemologies: Reflections on Nidhal Guessom*”. Interdisciplinary Journal for Religion and Transformation in Contemporary Society, 7, pp.426-446.

For much of the early Islamic history science and religion had co-existed peacefully. It was the Quran which opened the eyes of early Muslim to the wonders of creation. Using both faith and reason to understand the mysteries of creation, both disciplines flourished together. Early Muslims never lost sight of their ultimate purpose in life and the message that the Quran was trying to give to humanity. The situation today, however, is rather different in the Islamic world, science no longer compliments religion and vice-versa. The conflicts primarily stem from the fundamental differences in how the world is viewed. Both have very different notions about what constitutes truth and the nature of reality. Religious truth is being accepted purely based on divine scripture and revelation, which is not entirely true in the Islamic world view, as both views complement each other, as was demonstrated by those early Islamic scholars. Their worldview was framed by science as well as Islam's spiritual dimension of reality, one which transcended the material world. It is this which ultimately Guessom tries to revive in his works by exploring Islam's scientific heritage to show that both scientific and religious worldviews can coexist.

The challenge is no doubt immense, as it will require, according to Moosa, "epistemological overhaul...with substantial revision of earlier theologies"⁶⁸. In the first step of this endeavour both science and religion must first acknowledge each other's worldview with respect, and no one worldview should seek to dominate as being the only truth. However, in the West the popularity and persuasiveness of Christianity is in decline, stemming from the social changes that are associated with modern technology, science and the rise of liberal democracy⁶⁹. Recent data shows that people in Britain continue to stop identifying themselves with a religion and the non-religious continue to become less and less religious⁷⁰. However, with the gravity of the environmental crisis the dominant scientific world views at the exclusion of religion is being challenged.

68. Moosa, Ebrahim. *The British Journal for the History of Science*, vol. 46, no. 4, 2013, pp. 736–38, <http://www.jstor.org/stable/43820452>. Accessed 14 Apr. 2022.

69. Bruce, S., (2018). *Researching Religion: Why We Need Social Science*, Oxford: Oxford University Press.

70. *British Social Attitudes 36*, (2019). "Religion – Identity, behaviour and belief over two decades". The National Centre for Social Research, London.

Many environmental scholars consider science and technological development to be at the heart of the environmental crisis, especially when they are not constrained by any ethical or moral principles. They agree that science and technology alone will not solve the crisis, and that religion must play a part. Islam's scientific heritage as well as its theological concepts, as I will argue in this work, provides a framework by which the two worldviews can coalesce.

In the early Islamic civilisation much of the environmental issues were relatively simply and localised. Solutions to environmental issues were easily found and adopted using Islamic concepts such as, the *himā*⁷¹ and the *harām*⁷². Today environmental problems are on a global scale and far more complex. In most cases they are the product of nonlinear interactions between people and the environment, which makes our understanding of the dynamics incomplete and with much uncertainty⁷³.

Despite the seemingly differences between science and religion coalescence of the two is inevitable. Both scientists and theologians believe this is possible. In 1966, the Nobel prize-winning physicist, Charles Townes, explained in bible class that science and religion will ultimately converge⁷⁴. The reality of this vision is being realised amongst the Christian and the Islamic faiths. Scholars and theologians from both faiths have become vocal in their concern for the environmental and the coalescence of religious environmental education with science.

71. "A *himā* is a reserved pasture, where trees and grazing lands are protected from indiscriminate harvest on a temporary or permanent basis. It existed in the Middle East before Islam; but it was treated as a private reserve for powerful chieftains who were said to have used it as a tool of oppression", cited in Gari, Lutfallah. "A History of the Hima Conservation System." *Environment and History* 12, no. 2 (2006): 213-28. Accessed July 13, 2021. <http://www.jstor.org/stable/20723574>.

72. *Harām* means "inviolate zone", a sacred place or territory. It was used in urban planning during the early Muslim civilisation. In the Islamic world the principle *Harams* today are in Mecca, Medina and Jerusalem. Both the *harām* and *himā* were used in the Islamic world to preserve water sources. When it comes to natural resources like water and forests, Islam enjoins man to be the custodian of these resources rather than being its owner. The concept of trusteeship was widely applied in Islamic lands to deduce laws with regard to distribution, use and preservation of water with Ottoman Government laying down rules with regard to its sharing for irrigation, human consumption, and domestic and public use. Siraj, M. A. and Tayab, M. A. K. (2017). "Water in Islam". In: Raju, K. V. and Manasi, S. (ed.) *Water and Scriptures: ancient roots for sustainable development*. Springer, pp15-58.

73. Nikolaos Voulvoulis & Mark A. Burgman., (2019). "The contrasting roles of science and technology in environmental challenges." *Critical Reviews in Environmental Science and Technology*, 49:12, pp. 1079-1106, DOI: 10.1080/10643389.2019.1565519.

74. MacCammon, L., (2013). "Saving the 'Ignorant American': Reflections on Science, Religion, and Public Scholarship," *Verbum*: Vol. 10 : Iss. 2 , Article 2.

In May 1992, 150 American theologians, scientists, heads of churches and ecumenical leaders, attended a conference in Washington titled “Joint Appeal by Religion and Science for the Environment”. Their rationale for the appeal aligns with many of the Islamic concepts, in particular man’s relationship with God and the natural world, fashioned by the principles of the *fitrah*, *khilāfah* and *amānah*. The outward manifestations of these principles makes the humankind a partner of Creation (*khalq*), requiring each generation of people to leave the world in a better place for the next generation. Their statement reads as follows,

“We believe that science and religion, working together, have an essential contribution to make toward any significant mitigation and resolution of the world environmental crisis...., How will our children and grandchildren judge our stewardship of the Earth? What will they think of us? Do we not have a solemn obligation to leave them a better world and to ensure the integrity of nature itself? Insofar as our peril arises from a neglect of moral values, human pride, arrogance, inattention, greed, improvidence, and a penchant for the short-term over the long, religion has an essential role to play. Insofar as our peril arises from our ignorance of the intricate interconnectedness of nature, science has an essential role to play”⁷⁵.

The statement also makes reference to other key human moral deficiencies which have shaped human behaviour and life-styles and have thus contributed to the environmental crisis. These adverse human qualities inherent in the humankind are also emphasised in the Quran as well as in the Christian faith. The subjugation of these egoistic tendencies in Islam is seen as the constant struggle (*jihād*)⁷⁶ of the self (*nafs*). The statement emphasises the importance of being able to understand the intricate interconnectedness of nature which, without a scientific understanding and the spiritual religious view of creation, would make any long term solution to the environmental crisis difficult to achieve. The vision set out by the appeal is in tune with many of the concepts in the Quran, in particular the verses on creation which requires humankind’s reflection for which a scientific mind is needed.

75. Joint Appeal by Religion and Science for the Environment “*Declaration of the ‘Mission to Washington’*”. Washington, DC, May 12, 1992
<https://www.bnl.gov/envsci/schwartz/jointappeal.html>. Accessed 31st March 2021.

76. *Jihād* in Islam is a personal spiritual struggle. It’s importance is rooted in the Quran’s command to struggle in the path of God and as exemplified by the Prophet and his companions. In its general meaning it refers to the obligation incumbent on all Muslims, but it is also a concept with multiple meanings and as such has been used and abused throughout Islamic history and in current times.

Muslim countries are at some of the highest risk from the effect of climate change, and despite their vulnerability, they are also contributing the problem. Large parts of the Middle East are expected to become uninhabitable. Indonesia is the world's fifth largest emitter of greenhouse gases. Bangladesh and Pakistan are two of the most polluted countries in the world⁷⁷. The industrialisation of these countries, without due regards to the cultural, environmental and religious ethics, has no doubt exacerbated the environmental problems in these countries. The abandonment of Islamic values and ethics in Muslim countries has also led to social and educational conflicts⁷⁸. With the environmental situation worsening there has been a growing revival of the some of the key environmental messages and concepts contained within the Islamic faith to bring about a coalescence of scientific and Islamic religious education. Islamic environmental education in Malaysia and Indonesia seem to be at the forefront of this new approach, considering the number of research papers on the subject that have originated from their universities. Furthermore, there is also significant government investment to promote environmental awareness using religion. Other countries, such as Bangladesh, North African and Middle-East countries have also started to initiate their own environmental educational programmes. Their approach however, is still in its infancy and after much environmental damage has been done. Iran in particular has been at the forefront of Islamic environmental education, particularly at grass roots level. School curriculum in social studies and sciences are based on the three environmental educational grounds; ecology, environment and human activity⁷⁹. Furthermore, the protection of the environment for future generations is enshrined in the 1979 Article 50 of its constitution⁸⁰.

77. Ibrahim Ozdemir., (2020). "What does Islam say about climate change and climate action?". <https://www.aljazeera.com/opinions/2020/8/12/what-does-islam-say-about-climate-change-and-climate-action>. Accessed 11th April 2022.

78. Norshariani Abd Rahman, Fatin Nur Marhamah Zabidi and Lilia Halim., (2020). "Integration of *tawhīdic Elements for Environmental Education from the Teachers' Perspectives*". Religions 2020, 11, p. 394; doi:10.3390/rel11080394.

79. Salmani, B., Hakimzadeh, R., Asgari, M. and Khaleghinezhad, S. A., (2015), "Environmental Education in Iranian school Curriculum, A content analyses of Social Studies and science textbooks". Int. J. Environ. Res., 9(1): pp. 151-156, Winter 2015, ISSN: 1735-6865.

80. Article 50 Preservation of the Environment, Constitution of the Islamic Republic of Iran Ministry of Foreign Affairs' website.

3.4 Islamic Environmental Perspectives

The pursuit of knowledge lies at the heart of the Islamic faith. Indeed the very first verse revealed to the Prophet Muhammad was the commandment to read⁸¹, which made it a Divine obligation for the pursuit of knowledge. The Quran urges the humankind to reflect on the wonders of creation. It also uses repetition to embed certain key concepts into the contentiousness of the human mind⁸². Islam therefore makes it obligatory for every Muslims to seek knowledge. The Prophet Muhammad in this respect said “Seeking Knowledge is an obligation on every Muslim”⁸³. The acquisition of knowledge in Islam, be it any knowledge, is not an end to itself but must provide the means by which humanity’s purpose in life can be achieved with the ultimate aim of saving oneself in the hereafter. Knowledge, and in particular scientific knowledge, is “one method to comprehend the Glory of God”⁸⁴. The diversity of knowledge that accumulated during its formative golden period is testament to the dynamic and inspiring nature of the Islamic faith. Indeed Islam’s knowledge base and its educational system laid down the roots from which all modern educational systems evolved. Credit must be given to those early Islamic scholars to whom modern society is much indebted as they had displayed “diversities in theme and orientation that demonstrated the dynamic nature of Islam, far from its image that has been portrayed in certain media as a monolithic and stagnated system of ideas”⁸⁵. The Western world, through its racial hierarchy and contempt for other cultures, have been slow to acknowledge the Islamic origins of their scientific knowledge. But it is no longer possible for this to be ignored. Equally, Muslims must also acknowledge their own contributions to scientific knowledge to enable bridges to be built within their own communities and others⁸⁶.

81. The Study Quran; 96:1.

82. Wani, Z. A. and Maqbool, T., (2012). *"The Islamic Era and Its Importance to Knowledge and the Development of Libraries"*. Library Philosophy and Practice (e-journal). p. 718.

83. Hadith in Al-Tirmidhi.

84. Al-Hayani, F. A., (2005). *"Islam and Science: Contradiction or Concordance"*. Zygon, 40 (3), 565-576.

85. Moaddel, M. and Talattof, K. (eds.), (2000). *"Contemporary debates in Islam: an anthology of modernist and fundamentalist thought"*. New York: St. Martin's Press, p. 1.

86. Faruqi, Y. M., (2007). *"Islamic view of nature and values: Could these be the answer to building bridges between modern science and Islamic science"*. International Education Journal, 2007, 8(2), pp.461-469.

In the same spirit by which early Islamic scholars contributed to many branches of knowledge Islamic environmental ethics is a rapidly growing area of scholarship amongst many contemporary Muslim scholars. This is providing the inspiration and the means by which scholars, and those concerned with the world's environmental situation, to articulate the environmental message of Islam to show its moral and spiritual imperatives, which requires every Muslim to be the guardian and carer of the earth and its inhabitants. Scholars are also extracting from Islam's environmental imperatives the outward practical behaviour that Muslims should implement in their lives. Islamic environmental ethics can thus provide the direction for Muslims in "returning to the environmentally conscious traditions and lifestyles of Islam"⁸⁷. Despite the growing scholarship in Islamic environmental ethics this knowledge has yet to filter through into the grass roots educational systems within communities. There is a growing trend in environmental groups, campaigns and concerned individuals who are actively engaging with environmentalism but this number is still considered to be marginal in Muslim communities both in the US and UK⁸⁸. The UK, however, is much better placed today than ever for Muslims to engage in environmentalism at all levels because of its established Muslim educational institutions as well as the normal university establishments, many of which provide various Islamic courses and research opportunities. This is the hidden gem of the UK educational landscape from which Muslims and the non-Muslim communities, working collectively, can bring great change and benefit to combat environmental issues as well as those relating to individual wellbeing. The outward effect of this on the whole community will be a very positive one. It will allow Muslims to be engaged with contemporary environmental and other important societal issues. Furthermore, it will provide the inspiration and increase the aspirations of younger generation of Muslims to be more engaged and make a positive contribution in the wellbeing of the whole community and conversely the whole of humanity.

87. Manzoor, S .P., (1984). "*Environment and Values: The Islamic Perspective*". In *The Touch of Midas: Science, Values and the Environment in Islam and the West*, ed. Z. Sardar, pp. 150-169. Manchester: Manchester University Press.

88. Hancock, R., (2019). "*Islamic Environmentalism, Activism in the United States and Great Britain*". Routledge Taylor and Francis. p. 64.

The Quran conceptualises God-human-nature relationship through the covenantal concepts which provide the basis for having environmental concern. The *sharī'ah*, which is a body of religious law that forms part of the Islamic tradition, aims to instil an ethical conduct, through developing ones relationship with the Creator, which outwardly manifests in a moral and just society. Through its legal mechanism, and by extension of those mechanisms, *sharī'ah* is a dynamic system as it provides the means by which many contemporary environmental issues could be addressed. For example, within the scope of *sharī'ah* there is a specific category of jurisprudence called *fiqh al-bi'ah*, or jurisprudence of the environment. By delineating and expounding on these concepts, enshrined in the Quran and Sunnah, an Islamic ecological ethic can be framed.

The foundational environmental ethical principles articulated in the Quran can be drawn from the covenantal concepts of the *fitrah*, *tawhīd*, *khilāfah*, and *amānah*, as well as the names and attributes of God. Islamic scholars concerned for the environment have used these concepts to articulate their argument in supporting a theo-centric ecological ethic to show the Divine origin of all creation, its purpose and functions in accordance with a Divine will. As humans will be answerable for how they have discharged their duties in their role as *khilāfah* and Trustee, then caring for the environment, and all creation, becomes a religious obligation.

Islam presents creation in a holistic context of unity and this is the vision which humanity must also have and why nature deserves to be treated with justice and balance. The *sharī'ah* also provides the dynamic normative Islamic legal mechanisms in setting out the limits and conditions for the discharge of the responsibilities under the Trusteeship with the aim of "securing the universal common good and welfare of the entire creation"⁸⁹. Achieving ecological literacy amongst Muslims, framed within an Islamic spiritual context, must encompass knowledge of the current environmental and ecological issues to highlight the need for individuals to take positive environmental action. The Islamic faith contains the perspectives by which a religious understanding of nature can be framed within the context of some of the main themes of the Quran which are implicitly environmental in nature.

89. Mohamed, N., (2012). "Revitalising an Eco-Justice Ethic of Islam by way of Environmental: Implications for Islamic Education." PhD dissertation, Stellenbosch University. p. 201.

In the normative Islamic theological landscape there is no doctrine of the environment per se. The word environment does not actually appear in the Quranic Arabic language but many Muslim academics use key Quranic terms, such as *al-ard* (the earth), which is mentioned abundantly in the Quran, to systemise an Islamic environmental eco-ethics based on balance and justice. As the word environment is a modern word, derived from the French word “environia” meaning to surround, the nearest Arabic term for it is the word ‘*al-bi’ah*’ (a place of habitation) in the Quran. The word is infrequently used in the Quran but is always used in the context of human habitation, or a place of settlement. The word is also used to describe the lodging of community by God in a certain place. Quite appropriately, this word has been translated to mean environment by Qaradawi, in his writings on the welfare of the environment from Islamic perspectives⁹⁰. The translation of the book is not readily available in English but a commentary of Qaradawi’s work is provided by Dien⁹¹. Dien, an Islamic eco-theologian and scholar, helped to draft one of the first contemporary declaration on conservation from an Islamic perspective for the protection of the environment. The work, in collaboration with other scholars, was originally for the establishment of a central administration for the protection of the environment in the Kingdom of Saudi Arabia but was later published by the International Union for Conservation of Nature and Natural Resources (IUCN) in English, French and Arabic⁹². The paper defines the concept of the environment from an Islamic perspective with references from the Quran, and then using this to define the set of objectives which should govern humankind’s relationship and interaction with the environment. Dien defines the key elements of the environment; water, air, plants and animals with particular emphasis on their duality of purpose in that they themselves attest to God’s wisdom and omnipotence, whilst at the same time are also for the service of the humankind. The paper then deals with environmental pollution and degradation, giving examples of the different forms which are now predominant.

90. Al Qaradawi, Yousuf., (2001). *Ri’ayat al-Bī’a fi Shari’at al Islam*. Dār al-hur-q.

91. Mawil Izzī Dien., (2013). “*Islam and the Environment: Towards an “Islamic” Ecumenical View*”. *Quranica, International Journal of Quranic Research*, Vol. 5, Issue 2, Dec 2013. pp. 33-52.

92. A. B. A. Ba-Kader, A. L. T. El-Shirazy Al-Sabbah, M. Al-Sayyed Al-Glenid and M. Y. S. Izzie Dien. Basic Paper on the Islamic Principles for the conservation of the natural environment. International Union for Conservation of Nature and Natural Resources (IUCN) Environmental Policy and Law Paper No. 20 1983. pp. 1-25.

The paper also emphasizes that any form of damage to the natural environment is forbidden in Islam, citing the juristic ruling of “elimination of mischief and corruption placed before the acquisition or production of goods and advantage”⁹³. The paper also provides an insight into the legislative rules of Islamic Law which can provide the development of a framework for the protection and conservation of the environment. From the perspective of protection and prohibition under Islamic law and the sanctity offered by the Quran, the need for environment conservation and development, for its own sake as well as for the benefit of humankind, is evidently made clear. According to the authors humankind’s interaction with the environment should be defined by the purpose for which it is provided, contemplation and worship, inhabitation and construction, utilisation and the enjoyment/appreciation of beauty⁹⁴.

It is clear that there is considerable debate and effort in the Muslim world by Islamic scholars in promoting environmental awareness and the sanctity which the Quran affords to all of God’s creation. Scholars are therefore urging a return to the rich tradition of principles, laws and institutions, which have always been the characteristic trait of the Islamic faith, to help in promoting an Islamic vision of the environment. This is the key requisite, and the foundation that is required, for the development of any ethical environmental practices⁹⁵. Dien supports this view, but emphasizes that any new system emanating from this must be in the context of the modern human being, and this must not “reject the bedrock of Islam and the environmental elements that it supports”⁹⁶. His work on the subject culminated in the publishing of his book, “*The Environmental Dimensions of Islam*”⁹⁷. The book provides an understanding of the environment from an Islam perspective using references from the Quran, the Sunnah and the various sources of Islamic law. Dien provides a systematic examination of some of the theological, ethical, legal and economic concepts, and their implications for environmental management, based on Islamic principles. Other important questions are also raised by Dien, on the controversy surrounding the concept of the *khilāfah*, Muslim excesses during Ramadan and Hajj and the effects of aggressive conservation.

93. Ibid, 92.

94. Ibid, 92.

95. Wersal, L., (1995). “*Islam and Environmental Ethics: Tradition Responds to Contemporary Challenges*”. *Zygon* 30(3): pp. 451-459.

96. Izzi Dien, M.Y., (1997). “*Islam and the Environment: Theory and Practice*”. *Journal of Belief & Values* 18(1): pp. 47-57.

97. Ibid, 25.

In the legal section of the book Dien examines Islamic legal sources and maxims and shows how these provide the tools for initiating environmental legislation. He argues that as both nature and the Quran emanate from the same source, God, then they complement each other, as revelations are composed of signs which are displayed out in the natural world. Islamic legal maxims are based on the concept of harm, benefit, and necessity. Using these concepts Dien shows that, with the right balance and attaching greater weight to removing harm over and above any benefits, they provide scope for environmental legislation. Under Islamic law, *sharī'ah* gives precedence to the removal or mitigation of creaturely harm⁹⁸.

The recovery of society's connection with nature has been voiced by many contemporary scholars of environmental ethics who have argued that a religious understanding of nature, rooted in spiritual awareness, will benefit humanity on a global scale⁹⁹. Islamic environmental education provides a viable means in guiding and controlling human behaviour to help control consumerism which are most destructive to the natural world. This is where the two environmental ethical views, the eco-centric and religious, finds common ground in their opposition to anthropocentrism¹⁰⁰. Many ecological writers now recognise the value of religion, which emphasis a personal responsibility with an outward scope of social action, to help create environmental stewardship. It is also recognised that religion can give students a much wider and richer perspective on creation by which environmental values can be examined¹⁰¹. The dominance of the scientific view and its approaches to environmental education is also being discussed, and many scholars are critical of its dominance due to its privileged position¹⁰².

98. Ibid, 89.

99. Beringer, A., (2006). "*Reclaiming a Sacred Cosmology: Seyyed Hossein Nasr, the Perennial Philosophy and Sustainability Education*". Canadian Journal of Environmental Education 11: pp. 26-42.

100. Ashley, M., (2006). "*Finding the Right Kind of Awe and Wonder: The Metaphysical Potential of Religion to Ground an Environmental Ethic*". Canadian Journal of Environmental Education 11: pp. 88-99.

101. Hitzhusen, G. E., (2006). "*Religion and Environmental Education: Building on Common Ground*". Canadian Journal of Environmental Education 11: pp. 9-25.

102. Gough, N., (2002). "*Thinking/Acting Locally/Globally: Western Science and Environmental Education in a Global Knowledge Economy*". International Journal of Science Education 24(11): pp. 1217-1237.

A religious environmental education is thus seen as a means to counter the monopoly held by the modern world views dominated by science. Science, however, is not the only player in this environmental crisis, but it is no doubt a major one. There are also cultural aspects of the environmental crisis, as different cultures have different perspectives on environmental issues. For example research shows that people in the United States are generally less concerned about environmental issues than people from most other countries¹⁰³. Cultural attitudes to the environmental crisis is another area of interest amongst scholars. Cultural anthropology is seen as a means to understand some of the cultural aspects of environmental issues¹⁰⁴.

Environmental problems, and the way we respond to it, is no longer seen as a clash between two opposing sides. The problem is multi-faceted and thus cannot be purely solved by any one means but by the collaboration of all disciplines of knowledge including technological, scientific and religious. Ultimately, any form of knowledge must be acted upon, it must manifest outwardly into action by way of behavioural change. Knowledge enables individuals and societies to assess the urgency of those actions, but it does not necessarily need a religious dictum. In the case of Islam, however, environmental knowledge, responsibility and action, are all connected through the *tawhīdic* view of creation and through the obligations placed on humanity via the covenants. Other religions of the world also have elements of environmental teaching within their faith. Religious knowledge provides an ethical reference point which helps govern human interactions with creation, but from an intellectual perspective, it also provides the means to critique and challenge other forms of knowledge about the environment, in particular the monopolising influence of modern science¹⁰⁵.

103. Schultz, P., (2002). "Environmental Attitudes and Behaviours Across Cultures". Online Readings in Psychology and Culture, 8(1). <https://doi.org/10.9707/2307-0919.1070>.

104. Fitchen, J. M., (1987). "Cultural Aspects of Environmental Problems: Individualism and Chemical Contamination of Groundwater". Science, Technology, & Human Values. 1987;12(2):pp1-12. doi:10.1177/016224398701200201.

105. Nasr, S.H., (1992). "Islam and the Environmental Crisis". In Spirit and Nature: Why the Environment is a Religious Issue, ed. S.C. Rockefeller, pp. 84-108. Boston: Beacon Press.

Islamic, and all religious environmental education, must sit within broader scope of other basis of knowledge. Portraying environmental problems in a simplistic superficial way will not provide the holistic view that is needed to understand and deal with the issues effectively. Environmental education, although having many areas of common ground with all cultures, must also overcome the influencing forces of dominant cultures imposing their own values and beliefs on others¹⁰⁶. Islamic environmental education must therefore present the subject as a serious source of environmental knowledge to help shape human morals and ethics. It must therefore challenge the current globalising forces which have excluded and marginalised religious knowledge.

The ecological message of Islam for most parts has been presented by following a standard methodical process of examining the Quran and the Sunnah for their message, which imply a certain understanding and or behaviour towards nature. Like the scientific study of nature, which tends to isolate and deal with the specifics, most Islamic environmental teachings also reflects this approach. There is however, a growing interest by present day scholars who are extending this engagement from a purely theoretical perspective to one which can be implemented through behavioural change and action. Jenkins highlights the two challenges facing Muslim scholars, on the one hand scholars need to maintain Islam's normative instruments, which are well established, and on the other extend these concepts to deal with modern contemporary environmental issues¹⁰⁷. Considering that the understanding of the magnitude of the environmental crisis is relatively recent, certainly in the Islamic world, then it is no surprise that environmental educational studies within curriculums, if it exists at all, is still in its infancy. Academics such as; Subbarini¹⁰⁸, Al-Naki¹⁰⁹ and Abu-Hola¹¹⁰ all highlight that more is actually written on the case for presenting a strategy rather than putting one forward.

106. Mueller, M.P. and M.L. Bentley., (2006). *"Beyond the Decorated Landscapes of Educational Reform: Towards Landscapes of Pluralism in Science Education"*. Science Education 91(2): pp. 321-338.

107. Jenkins, W., (2005). *"Islamic Law and Environmental Ethics: How Jurisprudence (Usul Al-Fiqh) Mobilizes Practical Reform"*. Worldviews 9(3): pp. 338-364.

108. Subbarini, M.S., (1993). *"Biocentrism as an Approach to Environmental Ethics: An Islamic Determiner for Environmental Education"*. Environmental Education and Information 12(3): pp. 207-212.

109. Al-Naki, K., (2004). *"How do We Communicate Environmental Ethics? Reflections on Environmental Ethics from a Kuwaiti Perspective"*. International Research in Geographical and Environmental Education 13(2): pp. 128-142.

110. Abu-Hola, I., (2009). *"An Islamic Perspective on Environmental Literacy"*. Education 130(2): pp. 195-211.

All three of the Abrahamic faiths have specific environmental concepts and they each have their role to play in promoting environmental literacy, but Islam's position is particularly clear, as it provides a most comprehensive holistic approach at the doctrinal level. The primary purpose of an Islamic environmental education would be to emphasise the importance of and the obligations of the role of the *khilāfah* and *amānah*, which requires all humankind to live in accordance with the Divine laws and within the holistic worldview encapsulated by *tawhīd*. The outward manifestation of this education will provide just and balanced individuals, who will exhibit the qualities of mercy, compassion and justice to all of God's creation. This will remove pride and arrogant tendencies, instilling the characteristic of someone '*who walks softly upon the earth*'.

Muslim scholars have articulated various aspects of Islam's ecological knowledge with the central emphasis being placed on spreading the ecological message of Islam through education. It was Nasr, who started the debate on the environmental crisis from a religious Islamic perspective by his publication of "Man and Nature"¹¹¹ in 1968, and through his subsequent academic works to highlight the environmental crisis from a religious perspective in "Religion and the Order of Nature"¹¹². He is considered by many to be the first to predict the environmental crisis. At the time Nasr was not widely known among environmentalists or academics, but in the subsequent years his work on religion and the environment helped to broaden the debate within a Western, Christian academic context¹¹³. It can be argued that it was Nasr who perhaps has helped to re-awaken contemporary Muslim scholars to the study of the environment in an Islamic context. As a result Muslim theologians have continued to examine and extend Islam's discourse on ecology and environmental ethics. This study primarily has been guided by the two principle elements of the Islamic faith; the Sovereignty of God and the trusteeship, *khilāfah*, of the Earth. These studies have helped to create a theocentric ecological philosophy of Islam based on the ethical precepts contained within the Quran and Sunnah¹¹⁴.

111. Ibid, 10.

112. Nasr, S. H., (1996). "*Religion and the Order of Nature*". New York: Oxford University Press.

113. Foltz, R. C., (2003). "*Worldviews, religion, and the environment*". Belmont, CA: Wadsworth/Thomson.

114. Mohamed, N., (2013). "*Islamic Education, Eco-ethics and Community*". Studies in Philosophy and Education, An International Journal. ISSN 0039-3746.

In light of the environmental crisis in many Muslim countries, the studies have helped to create a vision for the need of an Islamic environmental education. First and foremost eco-Islamic writers have provided the argument on why Muslims should be educated about the environment and how Islam has the potential for the promotion of sustainable living as well as the scope for developing environmental regulations in modern legal systems¹¹⁵. Much of the early works has been focused around raising awareness of every Muslims responsibility and religious obligations for the care of the environment. Some of this work has helped to re-invigorate further learning and has inspired action amongst many concerned Muslims. What is still sparse is how Islamic environmental ethics can be framed within existing educational curriculums.

There is tremendous scope, opportunities and methods for initiating and delivering an Islam environmental education, but ultimately any programme must be framed from the concepts articulated within the Quran and Sunnah and from the sources of the Islamic faith for it to have any legitimacy. Dien has provided a cross-disciplinary detailed examination of the Islamic position on the environment within a theological, ethical, legal and economic context¹¹⁶. One of his main aims was to extract an Islamic educational framework, putting theory into practice¹¹⁷, that will fit the modern age, without rejecting the main tenets of the Islamic faith and the environmental elements of the faith that it supports. He presents an insight into the classical elements of the Islamic faith on the environment, in particular, the Islamic position on water, earth, air, humans and animals. He emphasis these elements as tangible objects all with their own intrinsic values and that these need to be understood from an Islamic theological context, based on the position that all are God's creatures, both the seen and the unseen.

115. Arensberg, A., (2005). *"A Guidebook for Environmental Conservationists in the Muslim World: How to Use Islam to Increase a Project's Effectiveness"*. Honours dissertation, University of Florida (Environmental Studies).

116. Ibid, 25.

117. Izzi Dien, M. Y., (1997). *"Islam and the environment: Theory and practice"*. Journal of Belief and Values, 18(1), pp. 47-57.

Scholars, such as al-Naki¹¹⁸ and Hussein¹¹⁹, have shown how Islam's ecological knowledge aligns with some of the secular ecological ideologies, such as Deep Ecology. They have also used these similarities to present the case for a more collaborative approach and learning to help address many ecological concerns. Shomali examines the four major environmental topics that are found within the Islamic texts; water, earth, plants and animals¹²⁰. Using these Quranic texts Shomali shows how Islam teaches on the intrinsic value of each animal in that they belong to a community similar to humans. This spirit of community is not only enshrined in the Islamic faith but in all of the major faiths. This is seen as a divine purpose for all life forms, and therefore this provides the rationale to view all life form as sacred.

An overview of the ethical concepts derived from both anthropocentric and theocentric approaches is provided by Sarvestani & Shavalli¹²¹. The authors, discuss these, and other approaches, in the context of "centre of value" and the "basis of evaluation". These two basis of evaluation were proposed by Gue¹²², others include, conservationism, preservation and sustainability as defined by Brennan & Lo¹²³ and Newton¹²⁴. Sarvestani and Shavalli discuss theo-centricity in an Islamic context by viewing the natural world based on the Quranic verse in which Allah affirms that He encompasses all things. They compare this with the ideas proposed by O'Riordan¹²⁵ and Marshall¹²⁶ to show that a comprehensive holistic environmental ethical principles can be derived from the Islamic faith. Mian et al.¹²⁷ provides a discussion on environmental ethics which specifically looks at individuals' obligations and responsibilities found in the *sharī'ah*.

118. Ibid, 108.

119. Hussain, A., (2004). "Islamic Education: Why is There a Need for it?" Journal of Beliefs & Values 25(3): pp. 317-323.

120. Shomali, M., (2008), "Aspects of Environmental Ethics: An Islamic Perspective". Thinking Faith.

121. Sarvestani, A. A., & Shavali, M., (2008). "Environmental Ethics: Toward an Islamic Perspective". American-Eurasian J. Agric. & Environ. Sci., 3(4): pp. 609-617. ISSN1818-6796.

122. Gue, L., (2004). "The case for ethical inquiry in science and technology policy". EcoAction Journal, 2: pp53-69.

123. Brennan, A., & Lo, Y, S., (2002). "Environmental Ethics". In: The Stanford Encyclopaedia of Philosophy.

124. Newton, L. H., (2002). "Ethics and Sustainability: Sustainable Development and the Moral Life". Prentice Hall, New Jersey, p. 117.

125. O'Riordan, T., (1989). "The Challenge for Environmentalism". In: New Models in Geography, R. and N. Thrift (Eds.). Unwin Hyman, London: pp. 77-102.

126. Marshall, A., (1988). "A postmodern natural history of the world: Eviscerating the GUT's from ecology and environmentalism". Student. History. Phil. Bil. Biodmed science 29: pp. 137-164.

127. Mian, H. S., Khan, J., & Rahman, A., (2013), "Environmental Ethics of Islam", Journal of Culture, Society and Development – An Open Access International Journal, Vo. 1. 2013.

In a similar context Sarkar¹²⁸ examines the relationship of humans with their environment based on the two perspectives given in the Quran; man as the Lord of nature and the environment and man as the steward (*khalifah*). In either case Sarkar argues that humans have not honoured their obligations as set out by God. Manoiu et al.¹²⁹ discusses environmental themes in the context of unity, balance, responsibility, water & air, and earth-plant & animals in a holistic context. An Islamic holistic concept of the environment is a recent phenomenon but the authors show that this concept is enshrined within the Quran. The key aspects of this message is in the moderation of man's relation and behaviour to avoid excess, and this the authors believe, can be achieved from the three principles of unity, balance and responsibility contained within the Quran.

By adopting a theocentric view of the world there is ample scope within the Islamic texts of the Quran and Sunnah, to revive and derive new the rulings which pertain to the protection and welfare of the environment and animals. Using Islamic jurisprudence there is scope for formulating environmental laws and policy. In contrast to Lynn Whites argument that religion is the source of modern anthropocentrism scholars are now recognising the importance of a faith based approach to environmental ethics to tackle the environmental crisis¹³⁰. In defence of Islam, Rizvi¹³¹ has shown that Islamic environmental ethical concepts are non-anthropocentric and that these can be implemented both theoretically and practically.

Rizvi's, using O'Neal's definitions on what constituted intrinsic value showed that Islam places intrinsic value to all of the environment, including animals¹³². Rizvi's other discussion focused on morality and its practicality which he says is governed by man's desire to dominate and consume which neglects the world to come but treats this world as the eternal and only reality. According to Rizvi what is needed is not an abandonment of this world but to prioritise our lives to show our desire and commitment to attain eternal life that is to come.

128. Sarkar, I., (2015), "Islamic Values and Environment Disquiet, Philosophy and Progress": Vols. LVII-VVIII.

129. Manoiu, V. M., Arslan, R., Madani, A., and Duzgunes, E., (2016). "*Environmental Education in the Holy Quran*". Lucrarile Seminarului Geografic "Dimitri Cantemir" NR. 42, 2016.

130. Ibid, 29.

131. Rizvi, A. M., (2010). "*Islamic Environmental Ethics and the Challenge of Anthropocentrism*". The American Journal of Social Sciences 27:3.

132. O-Neil, J., (2002). "*The Varieties of Intrinsic Values, in Environmental Ethics: An Anthology*", ed. Andrew Light and Holmes Rolston (Oxford: Wiley Blackwell). pp. 131-42.

Rizvi argues for this prioritisation to be both at an individual as well as the wider social level, worshipping not the creation through our desires, but the one true God. It is this metaphysics that is needed to enable the rejection of a desired-based morality. In Rizvi's final discussion the challenges of implementing Islamic Environmental Ethics in relation to the conflicts that exists internally between the legal and spiritual dimensions of Islamic thinking are highlighted. This conflict, which has been in existence for most part of the last half century will be, according to Rizvi, the main obstacle that will need to be overcome before any Islamic ethical policies

Llewellyn highlights that the current environmental legislation that exist within many of the Muslim countries are based on Western laws, and many of these are inadequate as well as not being enforced¹³³. The main reason for its ineffectiveness is that any law which is not based on *sharī'ah* is seen by Muslims as having no legitimacy, particularly when it is derived from Western beliefs and values. What Llewellyn argues is that Muslim countries need not borrow legislation from Western sources but to use the already existing Islamic instruments of jurisprudence as well as the rulings already available within *sharī'ah* pertaining to the environment to derive their own environmental laws. The fundamental principle by which Islamic laws are derived is based upon the intended objective, and it is in this context that all matters are evaluated, which ultimately aims to ensure the welfare of all of God's creatures. Within this contextual framework sits the principles of the universal common good and the fundamental necessities; life, posterity, reason and property, which *sharī'ah* aims to protect¹³⁴. Using these fundamental principles Llewellyn argues for the study and establishment of the subject of Islamic Environmental Law as a separate discipline within the Islamic legal system. He discusses many aspects of the essential elements already within the *sharī'ah* and how these can be used to formulate new laws, policies and even planning within the society so that this new discipline can be established. For example the principles of the universal common good, known as *maslaha* in Islamic legal terminology, and independent reasoning (*ijtehad*), provide scope for deriving laws for solving environmental problems.

133. Llewellyn, Othman., (2003). "*The Basis for a Discipline of Islamic Environmental Law*" in R. Foltz., F. Denny and A. Bahruddin (eds). *Islam and Ecology: A Bestowed Trust*. Cambridge: Harvard University Press, pp. 185-247.

134. *Ibid*, 133.

These concepts, however, have not been expanded to tackle contemporary environmental issues and this is where, according to Llewellyn, that the real gap exists between the current Islamic laws and the environmental conservationist. According to Llewellyn this is the direct result of the marginalisation of Islamic jurists (*Fuqaha*) throughout many of the Muslim countries over the last few centuries. Llewellyn discusses these aspects and proposes for academic degree level programmes which will provide the means by which these can be overcome and enable a curriculum on Islamic Environmental Law to be developed as a distinct and separate discipline.

Jenkins, similar to Llewellyn, discusses the challenges of maintaining Islam's normative concepts whilst trying to deal with many of the environmental challenges by formulating new rulings¹³⁵. Jenkins shows that the principles of Islamic Jurisprudence is still very much applicable in the formulation of new rulings in an environmental context whilst still holding on to and maintaining its normative concepts. However, one of the difficulties that Jenkins highlights is the disparity between the Islamic jurists and the technical specialists who do not have any training in jurisprudence. Trained Islamic jurists do not have the necessary knowledge to be able to engage with any particular environmental problem. According to both Jenkins and Llewellyn, this is one of the biggest obstacles in trying to establish the discipline of Islamic Environmental Law. A mere citation or even Muslim environmental specialist are not by themselves sufficient to provide a practical Islamic approach to the environmental problem. What both argue is that a collaboration is needed between specialists (scientists) who understand the environmental problem and jurists who are able to methodically approach these problems using Islam's normative methods. It is only then, they argue, that a practical Islamic environmental ethics framework can be attained.

To formulate any Islamic environmental ethics framework the void in Islamic environmental teachings must first be addressed to fully appreciate its potential. Scholars, such as Al-Naki¹³⁶, Haddad¹³⁷ and Abu-Hola¹³⁸, are realising the need for the introduction of new educational programmes.

135. Ibid, 40.

136. Ibid, 109.

137. Haddad, M., (2006). "*An Islamic approach towards environmental education*". Canadian Journal of Environmental Education, 11, pp.57-73.

138. Abu-Hola., (2009). "*An Islamic perspective on environmental literacy*". Education, 13(2), pp. 195-211.

Al-Naki, in particular, argues the case for deriving an educational programme of environmental ethics in an Islamic context for Kuwaiti schools based on the concepts and teaching methods of the West. He also recognises that the Islamic faith may also help western environmentalist, as much of its doctrines already aligns to western thinking on the environment. He also argues that the environmental crisis is also a moral and quasi-religious one, a position which is in close agreement with many environmental philosophers. Collectively they agree that the environment crisis cannot be resolved purely by techno centric means and that a philosophical and spiritual basis of engagement is needed in the longer term.

Tabar & Shobeiri, identify 15 environmental themes in the Quran which articulates humankind's relationship with the environment¹³⁹. They believe these can form the basis from which an environmental curriculum could be developed to help Muslim countries formulated environmental policies. Religious environmental education alone, however, will not be sufficient to tackle the environmental crisis. An understanding of the dynamics and the workings of the natural world, eco-systems and its creatures is needed. The sciences, which will enable future scientists, engineers and mathematicians to develop, as well as those in the humanities and religious subjects, must be inspired in children from an early age. The humankind in both these fields has indeed made significant progress with the availability of modern computing and the advances made in all branches of science, technology, engineering and mathematics. Scientific knowledge has provided its own worldview and has affected and shaped modern human understanding of both ourselves and the world in which we live. The most significant aspect of this world view is the exclusion of a Creator. It is this which has had the most profound impact on human thought, behaviour and lifestyles, and which has contributed to the environmental crisis. Science and technology, on various ethical grounds, has always has always been criticized, and quite rightly so. Scientific knowledge, however, must now coalesce with the religious worldview to help address the environmental crisis and therefore must be included in any environmental educational curriculums.

139. Tabar, M. R., & Shobeiri, S. M., (2015). *"The foundations of environment in Quran with a review of seven United Nations Conferences on the environment"*. Environment Conservation Journal 16 (SE), pp. 185-197.

The challenge of developing an Islamic Environmental educational programme is to be able to present the subject in the context of modern scientific knowledge and current environmental issues using contemporary language. Scholars such as Nasr¹⁴⁰, Sardar¹⁴¹ and Mohamed¹⁴² have all argued that any environmental ethics knowledge derived from Islamic sources must be relevant in today's context. Thus, any environmental ethics education must have the breadth, depth and scope to tackle current and long term environmental concerns, but first and foremost it must develop within Muslims the "cultural awareness of the environment"¹⁴³. This requires a complete holistic view, and one which is at the heart of the Quranic view of creation. It is in this context that Mabud summarises what he believes how any Islamic environmental and scientific education should be framed, one that is based on the principle of balance, harmony, order and sustenance in the natural world¹⁴⁴.

A recent study on developing environmental education based on Islamic environmental ethics is presented by Mohamed¹⁴⁵. She examined the connection that exists between Islam, ecology and education and how these can be introduced into existing curriculums within Islamic educational institutions in South-Africa. She showed how traditional Islamic institutions and its resources, could be utilised in helping to meet some of the contemporary environmental challenges through an educational curriculum based on the key themes derived from the Quran; *Earth*, *tawhīd*, *khilāfah*, *khalq* (value of nature), *fasād* (corruption of the earth) and *fitrah*¹⁴⁶. She presented two options for implementing these subjects, either as a complementary module or integrating them into existing curriculums. Most importantly she highlights why environmental education is so intrinsic to the Islamic faith by showing its relevance for Muslims to the fulfilment of their obligation for environmental care under the mandate of the trusteeship, *khilāfah*.

140. Nasr, S.H., (2003). "Islam, the Contemporary Islamic World, and the Environmental Crisis". In Islam and Ecology: A Bestowed Trust, eds. R.C. Foltz, F.M. Denny and A. Baharuddin, pp. 85-105. Cambridge: Harvard University Press.

141. Sardar, Z., (1977). "Science, Technology and Development in the Muslim World". London: Croom Helm.

142. Mohamed, Y., (1991). "Knowledge in Islam and the Crisis in Muslim Education". Muslim Educational Quarterly 8(4): pp. 13-31.

143. Ibid, 25, p. 32.

144. Mabud, S.A., (1992). "Aims and Objectives of an Integrated Science Curriculum for a Multi-faith, Multicultural Country". Muslim Education Quarterly, 9:4 (1992), pp. 14-24.

145. Ibid, 89.

146. The *fitrah* is the primordial state of the human individual, the natural position and disposition. The Quran: an Encyclopedia. Edited by Oliver Learman. Routledge Taylor & Francis Group. (2006), p. 212.

Yassin¹⁴⁷ presents approaches to environmental education for Muslim students by showing Islam's connection with the natural world. Her approach to education is aimed at raising awareness and to encourage an environmentally friendly lifestyle. She addresses the various Islamic perspectives on ecology within the traditional Islamic sources, whilst exploring the perspectives for defining best practice for delivering an environmental education. Much of her work was not readily available in English therefore my discussion is very limited on her works.

147. Kowanda-Yassin, U., (2021). "*Chapter 10 Connecting Religion and the Environment in Islamic Education: Raising Awareness, Exploring Perspectives, and Defining Best Practice*". In Middle East and North Africa. Leiden, The Netherlands: Brill. doi: https://doi.org/10.1163/9789004444973_012. Accessed 11th April 2022.

4 Islamic Concept of Creation & the Fall Narrative

4.1 The Abrahamic Religions

Islam recognises both the Judeo-Christian revelations as having originated from God, and this forms part of the belief of a Muslim¹⁴⁸. The Quran refers the Judeo-Christian revelations using the terms *Tawrāt*, *Zabūr*, and *Injīl*. *Tawrāt*, which refers to the revelation given to Prophet Moses, more commonly known as the Hebrew *Torah*. *Zabūr*, which refers to the revelation given to Prophet David, more commonly known as the *psalms*. Thirdly, the term *Injīl* (Gospel), refers to the revelation revealed to Prophet Jesus, and in many cases mentions this revelation in conjunction with the *Tawrāt*. There are also other Prophets mentioned in the Quran by name, and according to Hadith traditions, there are also others who are not specifically mentioned in the scriptures. In the Islamic tradition there is a specific difference between Prophets. The definition of Prophet is “*nabī*”, or a Messenger, but the Quran also uses the term “*rasūl*”, which also refers to a Prophet. According to Islamic traditions a “*rasūl*” brings new revelation, or divine laws, to a specific community. Every “*rasūl*” is also a Messenger (Prophet) of God, but not every Messenger is a “*rasūl*”. The two terms are, however, used interchangeably in the Quran. All of the aforementioned Prophets are seen as both *nabī* and *rasūl*, but in the case of Muhammad, he is also considered to be the last of the succession and the seal of the Prophets. The revelation given to him, the Quran, is therefore for the whole of humanity.

Islamic theologians, and even many Christian theologians, do not affirm the authenticity of the previous scriptures as they stand today. The extant texts, at least where they differ from the Quranic text, are generally understood to be additions or the product of human authors. There are also major theological doctrinal positions which vary significantly with Islamic theological positions, the story of Creation and Adam’s fall are two such areas. The biblical texts which describe these have also provided much contention and criticism in the Christian theological discourse throughout the centuries. However, recent interpretations by Christian theologians have now shed a different perspective of these two narratives, and they have started align with the Islamic concept of the *khalīfa*. This alignment provides an immense opportunity for Muslims and Christians to align their efforts in promoting environmental teaching and action from their respective scriptures.

148. The Study Quran, 2:138.

4.2 An Islamic Theological Perspective on Creation and Causality

In the Abrahamic faiths the notion of *creation ex nihilo* (creation out of nothing) is a firmly established doctrine. It states that God, who is the only absolute reality, created the universe out of nothing, no pre-existing matter, space or time¹⁴⁹. Ontologically all creation is based on God, and are the manifestation of His attributes of *jalal* (majesty) and *jamāl* (beauty)¹⁵⁰. This provides the foundation for the understanding of the nature of God who is the transcendent Creator of everything that exists. Therefore, all of creation is a “sign of God” and is evidence of His existence and power, a view that is universally accepted by theologians. Other areas, however, where there is a diversity of opinion, are primarily concerned with the origin of the physical world and its diversity, approaches to divine attributes and the understanding of the religious teachings.

The process of creation in Islam, unlike in the Judeo-Christian scriptures, are not described in a step-by-step process but are presented piecewise throughout the Quran. God, humanity and the universe represent major themes in the Quran and these have played a prominent role in all areas of Islamic thought. Islam presents creation as having started with God’s will, with a single commandment “Be!”, a phrase that is used throughout the Quran and also refers to God’s power of creation out of nothing. The Quran presents creation as a continuous process, starting from the very first moment of creation, the creation of the universe¹⁵¹. The second stage can be seen as the creation of all that exists on the earth, but excluding humankind at this stage¹⁵². The Quran specifically states that God made from water all living things¹⁵³. The Quran does not specifically give a time line other than stating that God created the heavens and the earth, and everything else between them, in six days¹⁵⁴. This sounds familiar to the biblical account of creation, but there are significant distinctions to be made. The word that is used in the Quran is “*yawm*”, which translates as day. The same word however, appears in other places in the Quran, each denoting a different measurement of time¹⁵⁵. Therefore, the verse is not understood to be a day based on our modern understanding of days, but rather one which signifies a long period of time.

149. Burrell, D. B., (2010). “*Creation and the God of Abraham*”. Cambridge University Press, p1.

150. Harris, R. R., (1989). “ON MAJESTY AND BEAUTY - *The Kitâb Al-Jalâl Wa-l Jamâl of Muhyiddin Ibn 'Arabi*”. J. of the Muhyiddin Ibn 'Arabi Society, Volume VIII, 1989, pp. 5-32.

151. The Study Quran, 21: 30.

152. The Study Quran, 2:29.

153. The Study Quran, 21:30.

154. The Study Quran, 7:54, 57:4.

155. The Study Quran, 70:4, 22:47.

Upon completion of creation the Quran states that God mounted Himself on the Throne¹⁵⁶. Another important distinction to be made here, and this is in reference to the biblical account where God rested on the seventh day, is that the Quranic account states that God was never weary of His creation¹⁵⁷. The third stage of creation is that of creation of Adam. It is understood that at the time of creating Adam the world already contained plant life and other animal species. From the Quranic description of the creation of Adam it is accepted that he was a unique creation of God, given the faculty of reason and a free will. While the creation of Eve is not described in detail the Quran does make it clear that she was created as a mate from the same nature and soul as Adam.

The fourth stage of creation is the process of continuous creation where God causes things to disappear and new creations to appear, such as the extinction of the dinosaurs and the new creations that followed. This process is also evident today where new plant species and animals are being discovered for the first time whilst others are disappearing. Today, it is human action which is accelerating the extinction of species. Scientists estimate that one million animals and plants are now threatened with extinction, and its impact on the natural environment will have significant consequences to the world's economies and food supplies¹⁵⁸. On the grander level the Quran states that the universe is being expanded¹⁵⁹, therefore, there are other creations yet to happen in the cosmos. Latest scientific evidence suggests that the universe is expanding much faster than previously predicted, and that there must some other unknown cause to be at work in the cosmos¹⁶⁰.

At the terrestrial level the continuous process of evolution amongst living things, natural selection and adaption, which Darwin presented is evidently clear, but unlike his theory, which stipulates randomness with no Divine intervention, in the Quranic view, however, God is involved in every moment allows those causal-effect relations to exist. Thus God is the Creator and Sustainer of everything that exists, and is responsible for the changes in all beings at all times. This is in keeping with the Quranic claim that nothing happens without the will of God¹⁶¹.

156. The Study Quran, 57:4.

157. The Study Quran, 50:38.

158. Pavid, K., (2019). "*The world is in trouble: one million animals and plants face extinction*". <https://www.nhm.ac.uk/discover/news/2019/may/one-million-animals-and-plants-face-extinction.html>. Accessed 26th April 2022.

159. The Study Quran, 51:47.

160. Greshko, M., (2021). "*The universe is expanding faster than it should be*". National Geographic. <https://www.nationalgeographic.com/science/article/the-universe-is-expanding-faster-than-it-should-be>. Accessed 26th April 2022.

161. The Study Quran, 9:51.

In the field of classical theology or *Kalām*¹⁶² debates concerning causality and necessity, theologians were challenged with describing divine and human actions in the course of world events. The challenge was to articulate a philosophical way by which faith and the free creation of the universe could be expressed whilst accounting metaphysical and ethical dimensions. The general understanding amongst Islamic theologians was that God created the world at an initial moment and then reproduces at every subsequent moment in which it exists¹⁶³. They also held the view that God was the immediate cause of every change that happens in the world. The *Ash'ari*¹⁶⁴ school of thought, one of the mainstream schools of thought which emerged at this time, viewed everything other than God to be consisting of transitory elements, atoms and accidents. These are continuously created, from one instantaneous period to the next out of nothing (*ex-nihilio*), for which God is the only cause for their continuity. Between one moment of creation and the next there is thus no connection. This notion gives rise to the belief that there is no horizontal or secondary causes as everything is created and governed by God, and it is this alone that gives nature its harmonious existence.

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162. *Kalām* is the Islamic tradition of philosophical theology and intellectual tradition. In the classical period Islamic scholars divided teachings into three parts; Doctrines (*'aqa'id*), Morals (*aklaq*) and Law (*ahkam*). The teaching of Doctrines dealt with the issues which must be understood and believed in, such as, the Unity of God, the Divine Attributes and prophethood, etc. The teaching of Morals was concerned with those aspects related to the spiritual and moral characteristics. The third, Islamic Law, related to the teaching of the practice and correct manner of performing the Islamic rituals and acts of worship. Sunni Muslims used *Kalām* as a tool to refute *Mu'tazilite* theologians, who they claim as having heretical ideas. *Mu'tazilite* claimed that humans have the power to produce their own actions, whether it be thoughts, voluntary actions or bodily movements. In the *Mu'tazilite* argument the circle of agent in the causal effects, include both God and humanity, since they see the humankind as having the authority for creating their own actions based on the power of God, which has been bestowed upon them. They held the belief that God had given humankind free will, and therefore did not require Him to be involved in their actions. According to *Mu'tazilites* every human being had the capacity to reason and decide on morality, but it is God who is ultimately responsible for giving the affirmation of that morality through reason. Using the argument for God's justice, they believed that it would be unjust for God to punish someone for an action that He himself was responsible for creating in them in first place. They believed that this in effect denies humankind any free will. They also believed that the human intellect alone is capable of understanding what is inherently a good or an evil action. The Sunni Muslims eventually developed two schools of thought, the *Ash'ari* and the *Mathuridi Madhabs*. These *Madhabs* incorporated into Islam ideas from Greek epistemology and metaphysics in ways they thought were philosophically rigorous but also in keeping with Sunni Islamic tradition.
163. Richardson, Kara, "Causation in Arabic and Islamic Thought", The Stanford Encyclopedia of Philosophy (Winter 2020 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/win2020/entries/arabic-islamic-causation/>>. Accessed 9th April 2022.
164. *Ash'ari* school of thought developed during the 4th, 5th, 10th and 11th centuries by the Islamic theologian Abu al-Hasan al-Ash'ari (874-936). The school's aim was to purge Islam of all non-Islamic elements and to re-align with the more orthodox Islamic doctrine using the Quran, the hadith tradition, the practice of the Prophet and the life of the early Muslims.

Searching for a proof for God's existence also pre-occupied Islamic theologians. Ibn Sina (970-1037), one of the preeminent philosopher and physician of the Islamic world, was first to articulate ontological arguments for the existence of God. According to Adamson Ibn Sina's argument, or proof, "is probably the most influential and interesting medieval attempt to show that God exists"¹⁶⁵. The argument, reformed by various other Islamic philosophers through the centuries, became to be known as the "Proof of the Sincere" (*Burhan al-siddiqin*). Ibn Sina's argument attempts to prove the existence of God, as being the Necessary Existent, by conceptually analysing existence itself. He argues that the nature of a contingent thing, which may exist or not exist, does not guarantee its existence.

Humankind are also contingent beings as there was a time when one did not exist and will fail to exist at some point in the future. The Quran emphasis this point, "Does not man remember that We created him before, when he was nought"¹⁶⁶ and "Every soul shall taste death.." ¹⁶⁷. By showing that the humankind, as well as everything that the humankind experiences directly, are indeed contingent, Ibn Sina argues that there must also exist something else, a necessary existent, who's very nature guarantees the existence of things or is the cause of it. Considering existence alone, he shows that a necessary existence can be no other than God, for if it is not necessary then this is either impossible or contingent.

In the wider context of creation, the environment and all other creatures, which is the aggregate of all things that are contingent, the argument enforces the view that there must be an external cause for its existence. The external cause can only exist outside of the aggregate of all contingent things, but itself cannot be contingent. Therefore, there must be a Necessary Existence, God, which causes all other things to come into existence.

165. Adamson, P., (2016). "*Philosophy in the Islamic World, A history of philosophy without any gaps*". Volume 3. Oxford University Press, 2016 p.126.

166. The Study Quran; 19:67.

167. The Study Quran; 29:57.

Ibn Sina's view of causation ultimately starts with the first causeless cause, God, who is the "supreme efficient cause, the necessary and sufficient condition for the existence of the world"¹⁶⁸. He argued that although one cannot observe a causal connection, one can however, over a period of time, establish a law likeness in nature which can be used as a guide to finding out future natural phenomena¹⁶⁹.

Ibn Sina, having provided an ontological argument for the existence of God, and together with the Ash'arite system, both prepared the ground for other preeminent Islamic scholars such as al-Juwaini (1028-1085) and al-Ghazālī (1056-1111). Al-Juwaini, who was al-Ghazālī's teacher, argued that creation is temporally finite from the awareness that it is originated. It is on this basis, he says, that one can come to know that there must be a Creator, as any creation which has a temporal beginning, there must be a God which causes it to be¹⁷⁰. Furthermore, for one to submit to God requires knowledge of divine sovereignty and this can be achieved through a knowledge of creation.

Al-Ghazālī did not accept the logic of Ibn Sina's view of the necessity of causal relations. Instead he argued that it is God's influence over the world's organisation which allows causal relations to exist, and if He wishes things to remain in existence He continually recreates them¹⁷¹. Ibn Sina's main position, however, had always been on the issue of the position of God, which he tried to protect by not relegating Him to the same level as His creation. This is indeed a complex matter and it is outside of the scope of this work to give justice to the many different perspectives of argument. One of the main contention between Al-Ghazālī and Ibn-Sina was in relation to the created universe. One group believed that the universe had a start point in time, and the other believed in the pre-eternity of the universe with no starting point. It is the latter which Ibn-Sina argued for, and for which Al-Ghazālī relegated him to the realms of disbelief. In *The Incoherence of the Philosophers [Tahafut al-Falasifah]* Al-Ghazālī provides a wide-ranging critique of Greek thought and Ibn-Sina's view of an eternal world.

168. Michael Mermura, "Efficient Causality in Avicenna", in ed. Michael Mermura, Islamic Theology and Philosophy, n. 1p. 175; see also Sheikh, Studies in Muslim Philosophy, n.26, pp. 120-121.

169. Mohammed Hashim Kamali. "Causality and Divine Action: The Islamic Perspective". <https://hashimkamali.com/index.php/component/k2/item/164-causality-and-divine-action-the-islamic-perspective>. Accessed 21st March 2022.

170. Carroll, William E. "Creation and Science in the Middle Ages." New Blackfriars, vol. 88, no. 1018, 2007, pp. 678–89, <http://www.jstor.org/stable/43251185>. Accessed 27 Apr. 2022.

171. Ibid 169.

Al-Ghazālī defended what he considered to be the orthodox Islamic doctrine of creation. Al-Ghazali’s refutation of Ibn Sina had had a profound impact on the progress of Islamic theology, philosophy and science as Ibn Sina was rejected by many Muslims, even in current times¹⁷². Al-Ghazālī no doubt made some of the most significant contributions in Islamic theology, philosophy and Sufism, and thus helped to make the *Ash’arite* theology to become the most popular amongst the Muslim community in general. This popularity has continued to the present time.

The origin of the universe, together with the origin of life, are still pertinent questions in current times. The subject is now in the realms of scientists and physicists as well as philosophers. On the subject of creation one of the most controversial areas of debate is surrounding the concept of evolution. This is a highly contentious subject amongst the three Abrahamic faiths. The subject of creation has also been dealt by the Islamic theologian, Al-Jahiz (781-869), who provided a comprehensive treatment of the subject of creation to show the divine order and perfection in all of creation and living things. He argues against creation coming about purely by chance from a holistic perspective to support his primary question, “did the world come about by chance or through creation?”¹⁷³. Most recently the subject of evolution has been dealt by Malik¹⁷⁴. His work comprehensively navigates through the different perspectives of evolution and its complexity using classical and contemporary Islamic thought and science. The different perspectives he presents are,

- i) the belief that everything is created by God instantaneously (Creationism),
- ii) everything (except humans) is created through the process of evolution,
- iii) everything (except Adam) is created through the process of evolution, and
- iv) that everything is created through the process of evolution, Including Adam.

172. Ahmed, S., (2017). “*The Disagreement between Avicenna and al-Ghazali on the Issue of the Pre-eternity of the Universe, how their Arguments Originated from Greek Philosophers and their Effect on Muslim Philosophers*”. MRes Thesis, UWTSD, p.20.

173. Al-Jahiz., (1995). “*Change or Creation ? God’s Design in the Universe*”. Translated and Introduced by M. A. S. Haleem. School of Oriental and African Studies, University of London. Garnet Publishing Ltd.

174. Malik, S. A., (2021). “*Islam and Evolution – Al-Ghazali and the Modern Evolutionary Paradigm*”. Routledge Taylor & Francis Group. London and New York. p. 11.

The subject of creation and evolution shapes how one views and understands the different perspectives in relation to environmental ethics. The environment with all its life form is by which some aspects of the divine reality of God, *al-Zāhir*¹⁷⁵, is outwardly manifested. It is this which can inspire Muslims to reflect on the mystery of the presence of God within creation. As the Quran states one cannot turn anywhere and not see God, “To God belong the East and the West. Wheresoever you turn, there is the Face of God. God is All-Encompassing, Knowing”¹⁷⁶. As God is the only absolute reality then everything else can only be temporal and will eventually cease to exist, “There is no god but He! All things perish, save His Face.”¹⁷⁷.

Even without any human impact environmental stresses from changes in climate associated with plate tectonics¹⁷⁸ means everything is ultimately perished, albeit at a geological time frame. The nature of the entire cosmos is transient, while at same time appearing as though it were permanent. In the end it is only the Face of God that will exist, and which is eternal, “All that is upon it passes away. And there remains the Face of thy Lord, Possessed of Majesty and Bounty”¹⁷⁹.

The complexity of creation that is evident in the natural environment, and its continuous process is too complex for human comprehension. The Quran eloquently reminds the humankind of this, “And if all the trees on earth were pens, and if the sea and seven more added to it [were ink], the Words of God would not be exhausted. Truly God is Mighty, Wise”¹⁸⁰. This verse evokes the notion of God’s limitless power of creation through Divine Speech and indicates the impossibility for the humankind to comprehend something which is incomprehensible. Even in this complexity God uses the term ‘*āyāt*’ to refer to the natural world as His signs for all humankind to reflect and affirm within themselves of the absolute reality, that is God, “We shall show them Our signs upon the horizons and within themselves till it becomes clear to them that it is the truth”¹⁸¹.

175. *al-Zāhir* is one of the names of God, meaning “Evident” or “Outer”.

176. The Study Quran, 2:115.

177. The Study Quran, 28:87.

178. “What killed the dinosaurs”.

<https://www.pbs.org/wgbh/evolution/extinction/dinosaurs/drift.html>. Accessed 27th April 2022.

179. The Study Quran, 55:26-27.

180. The Study Quran, 31:27.

181. The Study Quran, 41:43.

As transient as creation is the most vital challenge for society is to extend the longevity of humanity, something which the role of the *khilāfah* institutes, as it effectively obligates one to leave the world in a better place for future generations. One of the most perplexing and challenging question of the time is how long will creation last? In the Islamic tradition no humankind, or even the Prophets, knew or will know this time. In the Hadith tradition there are specific events that will happen in the world and humanity will be subjected to specific hardships before this time is eventually reached, but this does not mean that one should not worry about the environmental crisis, or indeed any other human calamity. On the contrary Islam encourages one to do good deeds up until ones death no matter what the world situation is, nor should one ever be in a state of despair. The environmental crisis should therefore be seen as an opportunity, balanced between God's punishment and His Mercy. First and foremost is understanding the science behind God's creation, as this will allow humankind to effect the appropriate response and change. This must also be seen as part of God's all-Encompassing plan for humanity, just as in the same context of Adam and Eve's fall, which I will discuss.

The science of creation needs to be understood as the environmental crisis is causing the collapse of the natural world at an alarming rate. As a result the study of ecosystem collapse mechanisms has become the focus of international attention, which reflects the growing concern of impact of human activity on the biosphere¹⁸². Scientific concepts such as 'ecosystem collapse' and 'recovery' and how these relate to thresholds, tipping points, stability and resilience have become an area of intense research. Unless humanity's worldview is changed the environmental and loss of creation will continue. The signs in nature to affirm God's absolute reality and to acknowledge that man is but a microcosm in the wider creation of the entire cosmos provides a spiritual perspective by which human conscience can be changed to help tackle the environmental crisis. The Quran, in *Surah al-Takwir*¹⁸³, and the Hadith tradition, give a glimpse of things to come. I will discuss these further, as it seems to predict the environmental calamity befalling humanity.

182. Adrian C. Newton., (2021). *"Ecosystem Collapse and Recovery"*. Cambridge University Press, . p.1.

183. The Study Quran, 81:1-29.

4.3 The Fall Narrative from an Islamic Perspective

The declaration by God to His Angels is no doubt momentous moments in humanity's history, but unlike in Christianity in Islam the opening scene is not on the earth but in heaven, with God's announcement to the angels, "I am placing a vicegerent upon the earth"¹⁸⁴. At this moment Adam has yet to appear on the scene, but what is significant in this verse is not the announcement itself, as God has the power to create anything He pleases, but is the response from the angels, "Wilt Thou place therein one who will work corruption, and shed blood..,"¹⁸⁵. This is indeed intriguing and significant as it comes from the noblest of beings who are perfect in their submission to God.

From this episode what is apparent is that the angels could not comprehend God's reason for creating Adam, a being which is inherently flawed and corrupt from their perspective, and considering that they are able to celebrate, praise and glorify God perfectly, they could not understand what purpose would be served by such a being to be put on the earth. Another intriguing question which arises from this opening scene is how could the angels know of Adam's inherent weaknesses if he had yet to be created, as the knowledge of the future is only known to God. This brings into the fore the realms of the *jinn*s, a separate parallel creation to the humankind¹⁸⁶. The story, which is depicted in Figure 3, exposes the angels inferiority, but more importantly it demonstrated the special qualities that God had given to Adam. It is this that enables all of the humankind to acquire knowledge, to comprehend its own existence and to be able to communicate that knowledge and experience at a very high level. It is this preeminent cumulative quality of human learning that differentiates the humankind from all other of God's creation and provides each humankind with the "*capacity for moral and intellectual growth*"¹⁸⁷, a quality of Adam which was concealed in the angels' objection.

184. The Study Quran; 2:30.

185. Ibid, 184.

186. The Quran and the Hadith make numerous references to the existence of Jinn's, which also includes a chapter named as Surah al-Jinn. The Jinn is a supernatural creation of God who are invisible to the humankind but who also have been given free will. According to Islamic tradition, Satan (*iblis*) is considered to be the Jinn but given rank amongst the angels because of his piety. According to the Quran God created Jinn's differently from that of man, but before the creation of Adam as told in the Quran, "*And We indeed created man from dried clay, made of molded mud, and the jinn We created from scorching fire*". The Study Quran; 15:26-27. The Jinn existed on earth before man, for how long, no one knows and this is not revealed in the Quran or any of the sacred texts. As the Jinn's were also given free will and therefore had the capacity to do wrong it is this that the angels were aware of and formed the basis of their logic and objection.

187. Lang, J., (1997). "*Even Angles Dare to Ask: a journey to Islam in America*". Amana Publications, USA. p. 19.

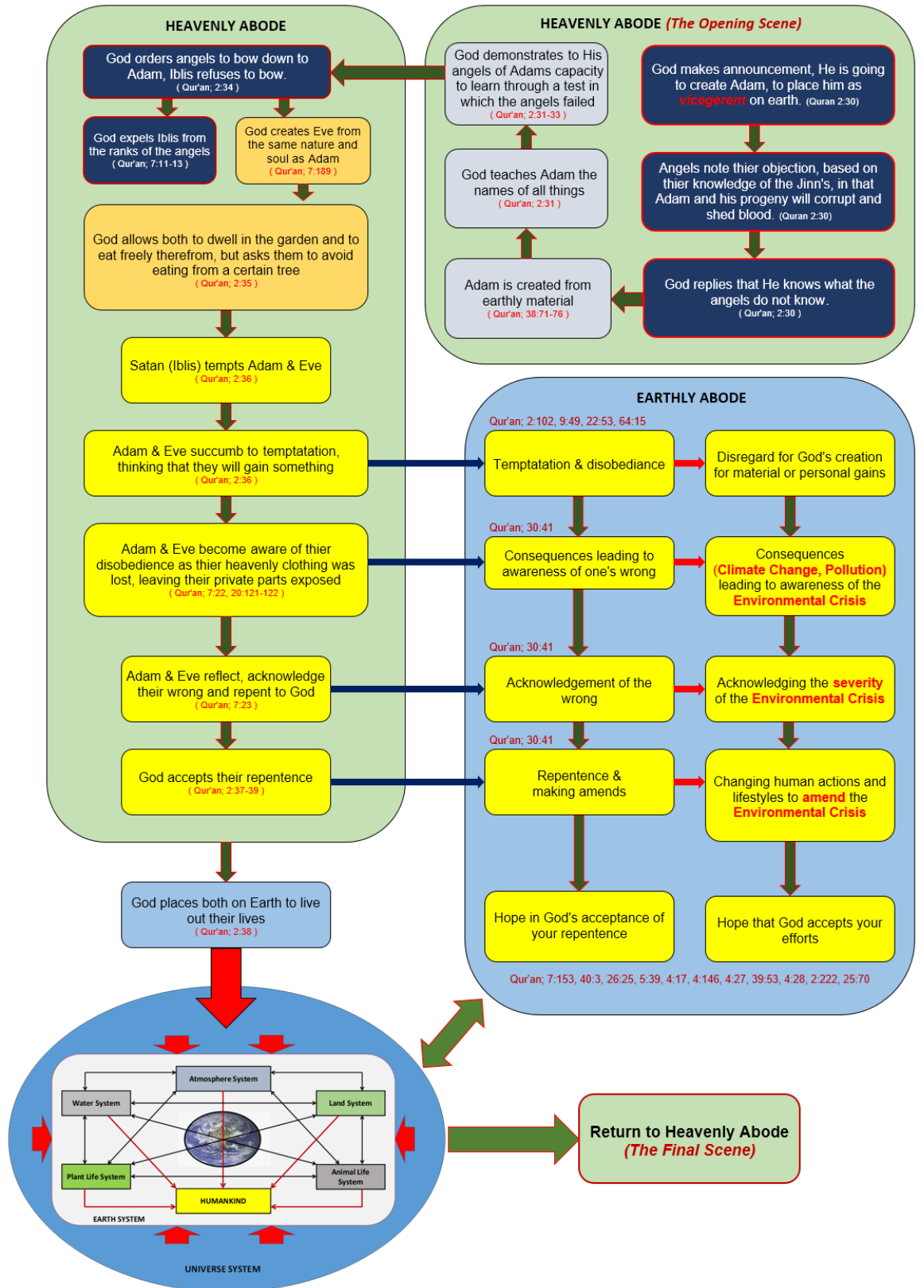


Figure 3 Humanity's opening scene (created by the Author)

In the story of Adam's opening scene, and his eventual placing on earth, the Quran presents a lesson for humanity. The disobedience of Adam was rooted in pride, to be like those of the angels and to have immortality for himself, and thus *Iblīs* (Satan) tempted them, "Your Lord has only forbidden you this tree, lest you should become like angels, or among those who abide [forever]"¹⁸⁸. It is the same pride which led to *Iblīs* being outcast for his refusal to bow to Adam: "I am better than him. Thou hast created me from fire, while thou hast created him from clay"¹⁸⁹. The Quran continually warns humanity of Satan's enmity towards humanity, "Truly Satan is an enemy to you; so take him as an enemy"¹⁹⁰. As Adam and Eve were tempted then what better way for Satan to wage war against humanity than by insinuating pride and arrogance into the souls of the humankind. When God eventually questioned them both for their actions there was no notion of individual blame, both were held equally accountable, and upon their repentance, both were forgiven. But they could no longer abide in paradise and earth would be their home for an appointed period.

Therefore, the fall of Adam and Eve dramatizes the fundamental nature of the humankind and the most deadliest of sins, to be arrogant and prone to temptation. The increasing decadence of the humankind, materialism and the innate desire for immortality are the result of the same tendencies which caused Adam and Eve's fall. These tendencies of the humankind we are now seeing in its extreme outward manifestation with the environmental crisis. Humanity's struggle, cycle of learning, erring, making amends and progressing forward to the next stage are constantly played out on earth.

188. The Study Quran; 7:20.

189. The Study Quran; 38:76.

190. The Study Quran; 35:6.

The environmental crisis and all of life's adversities can be mapped to Adam's opening scene in Figure 3. The Quranic account of the fall and the lessons to be learnt gives humankind a perspective of the present human condition. It presents humanity with the opportunity to demonstrate those great attributes of God¹⁹¹, which can enable the humankind to increase in spiritual, moral and intellectual growth. Conversely, through humankind's fears, weaknesses, acknowledgment and repentance, God demonstrates many of His attributes¹⁹², giving hope and inspiration for the humankind.

Hope and fear are two concepts mentioned in the Quran both singularly and paired¹⁹³. Humankind are required to balance the two for their spiritual growth. Adam and Eve's fall provides the opportunity for humanity to demonstrate these noble qualities through the gift of human freedom and responsibility. For the environmental crisis hope is given by the Quranic verse, "that haply they might return"¹⁹⁴, and be the true Trustee and *khilāfah*, a title with which God had elevated Adam to His angels in that opening scene. The true magnitude of this status can be glimpsed by the Quranic statement which informs humanity that God offered the trust to those majestic creations of God¹⁹⁵. It is these principles by which humanity's relationship with God and with the environment can be attuned.

191. The Quran contains many names of God, which collectively are called the "Most beautiful names". These describe the many different and diverse attributes and qualities of God. The names of God are actually infinite, but the 99 Names of God, which are commonly known in the Islamic world, comes from a Hadith of the Prophet Muhammad, Sahih Bukhari - Vol. 8, Book 75, Hadith 419.

192. The Names of God which are related to His mercy and forgiveness, such as Al-Ghafoor (The Most Forgiving), Al-Afuw (to heal, restore), Al-Tawwab (The Acceptor of Repentance), Al-Haleem (The Clement), Al-Rahman (The Most Merciful) and Al-Raheem (The Compassionate) are what provides the humankind with the inspiration and hope needed to overcome with patience and perseverance any of life's adversities, including the environmental crisis.

193. Bahmani, F., Amini, M., Tabei, S. Z., & Abbasi, M. B., (2018). "The Concepts of Hope and Fear in the Islamic Thought: Implications for Spiritual Health". *Journal of religion and health*, 57(1), pp. 57–71. <https://doi.org/10.1007/s10943-016-0336-2>.

194. Ibid, 1.

195. The Study Quran; 33:72.

5 Islamic Environmental Ethics

5.1 The *Khilāfah* and the *Amānah*

In the context of environmental ethics the two verses which encapsulate its holistic vision within the boundaries of Islamic monotheism, *tawhīd*, are the verses on the Trust (*amānah*) and the Vicegerency, (*khilāfah*). The verse of the Trust places an obligation on the humankind to uphold, with balance and justice, that which has been trusted to him, and this includes the natural world, “Truly We offered the Trust unto the heavens and the earth and the mountains, but they refused to bear it, and were wary of it – yet man bore it; truly he has proved himself an ignorant wrongdoer”¹⁹⁶. The word, *khalīfah*, widely used in environmental ethics discourse, means a *delegate, a representative, a person who is authorised to act for another*¹⁹⁷. The verse on the Vicegerency, (*khalīfah*), is mentioned in a number of places in the Quran¹⁹⁸. Why these verses are so important to environmental ethics is for the simple reason, that to give something in trust implies that we do not own what is given to us, and this is explicitly made clear in the Quran¹⁹⁹. As with any obligation, which the Trust is, then by honouring its terms and conditions the humankind is also fulfilling its role as the *khilāfah*. To get a glimpse of the significance and importance of these two verses one has to go back to a time (from our perspective as God is independent of time) before the creation Adam, when God announced to His angels that He was going to create man. But before this event, the humankind in their spiritual realm, accepted to take on the responsibility of the Trust. This was no doubt an immense obligation, one which the heavens, the earth and mountains, despite their immense size refused as they did not possess the capacity to undertake the burdens of God’s revealed laws²⁰⁰. Such was the fear that according to the Quran God informs us that, “Had We made this Quran descend upon a mountain, thou wouldst have seen it humbled, rent asunder by the fear of God”²⁰¹.

196. Ibid, 195.

197. Lang, J., (1997). *“Even Angels Dare to Ask: a journey to Islam in America”*. Amana Publications, USA. p. 19.

198. The Study Quran; 6:165, 27:62; 35:39.

199. God is above all wants and He is not in any way dependent on His creation. Everything belongs to God and He provides for all his creatures, *“To Him belongs whatsoever is in the heavens and whatsoever is on the earth. And God is truly the Self-Sufficient, the Praised”*. The Study Quran; 22:64.

200. The Study Quran; 33:72, commentary p. 1040.

201. The Study Quran; 59:21.

5.2 Islamic Ethics Through It's Faith & Rituals

In this section I intend to demonstrate that the main elements of the Islamic faith, it's pillars of faith and rituals, are all intrinsically connected with God's creation. Every aspect of these elements can thus be used to affirm Islam's connection with the environment and support the view that Islam indeed is the religion of the environment as Haleem²⁰², Gade²⁰³, Dien²⁰⁴, Nasr²⁰⁵, Khalid²⁰⁶ and others have so eloquently argued. I have taken a slightly different approach in this work in that I have presented my argument from a pedagogical perspective. This would allow Islamic educators to complement their traditional curriculum, which tends to focus purely on the traditional Islamic sciences, to show the rituals deeper significance and connections with the natural world. This approach perhaps will instil in children the awareness and reverence for the cosmos and the natural environment. It may also inspire in them the desire to study the sciences that help to explain many of the wonderful creations and natural phenomena, as well as understanding the obligations placed upon Muslims for protecting the environment.

The environmental connections of rituals are generally overlooked but what is obvious is that the Quran is replete with references to the natural world, its various workings and phenomena as well as many animals which are mentioned by name. The question that arises is why these are mentioned and for what purpose? The Quran explicitly states that nothing is created without purpose, "And We did not create Heaven and earth and whatsoever is between them in play"²⁰⁷, and even the most fundamental question of all, why humankind was created?, the Quran gives three reasons; for the worship of God, cultivating the land and for the preservation of progeny²⁰⁸. However, it is the verse on the worship of God that is predominantly emphasised, with the rituals being the primary form of worship.

202. Abdel-Haleem, Muhammad., (2004). *"Islam, Religion of the Environment: the Need for Re-Education and Retraining"*. In: Marie, Mamdouth and Sherif, Adel Omar, (eds.), *The environment and judiciaries of the Arab world: proceedings of the Arab Chief Justices' Conference and Symposium on the Training of Judges and Other Legal Stakeholders in Environmental Law and Sustainable Development*, Cairo, Egypt, May 29-31, 2004. Cairo: Supreme Constitutional Court of Egypt, pp. 68-83.

203. Anna M. Gade is a Vilas Distinguished Achievement Professor in the Gaylord Nelson Institute for Environmental Studies at the University Wisconsin-Madison. She is the author of a number of Islamic books including *"Muslim Environmentalisms Religious and Social Foundations"*, Columbia University Press, New York, 2019.

204. Ibid, 25.

205. Ibid, 24.

206. Khalid, F., (2019). *"Sign's on the Earth – Islam Modernity and the Climate Crisis"*. Kube Publishing Ltd.

207. The Study Quran; 21:16.

208. The Study Quran; 51:56, 11:61, 6:151, 64:15.

This singular approach to the understanding of worship overlooks all other argument for humankind's existence and therefore does not provide a holistic understanding of the concept of worship. It is the declaration of faith (*shahadāh*), belief in the unity of God (*tawhīd*), which encapsulates Islam's holistic vision of worship as illustrated by Figure 6. The *shahadāh*, also known as Islam's 1st pillar of faith, is the foundation by which all other actions and endeavours gain prominence in the sight of God. Islam's concept of worship, which is encapsulated by the obligations and responsibility placed upon the humankind by the covenants of the *amānah* and *khilāfah* is what makes Islam inherently a religion of the environment.

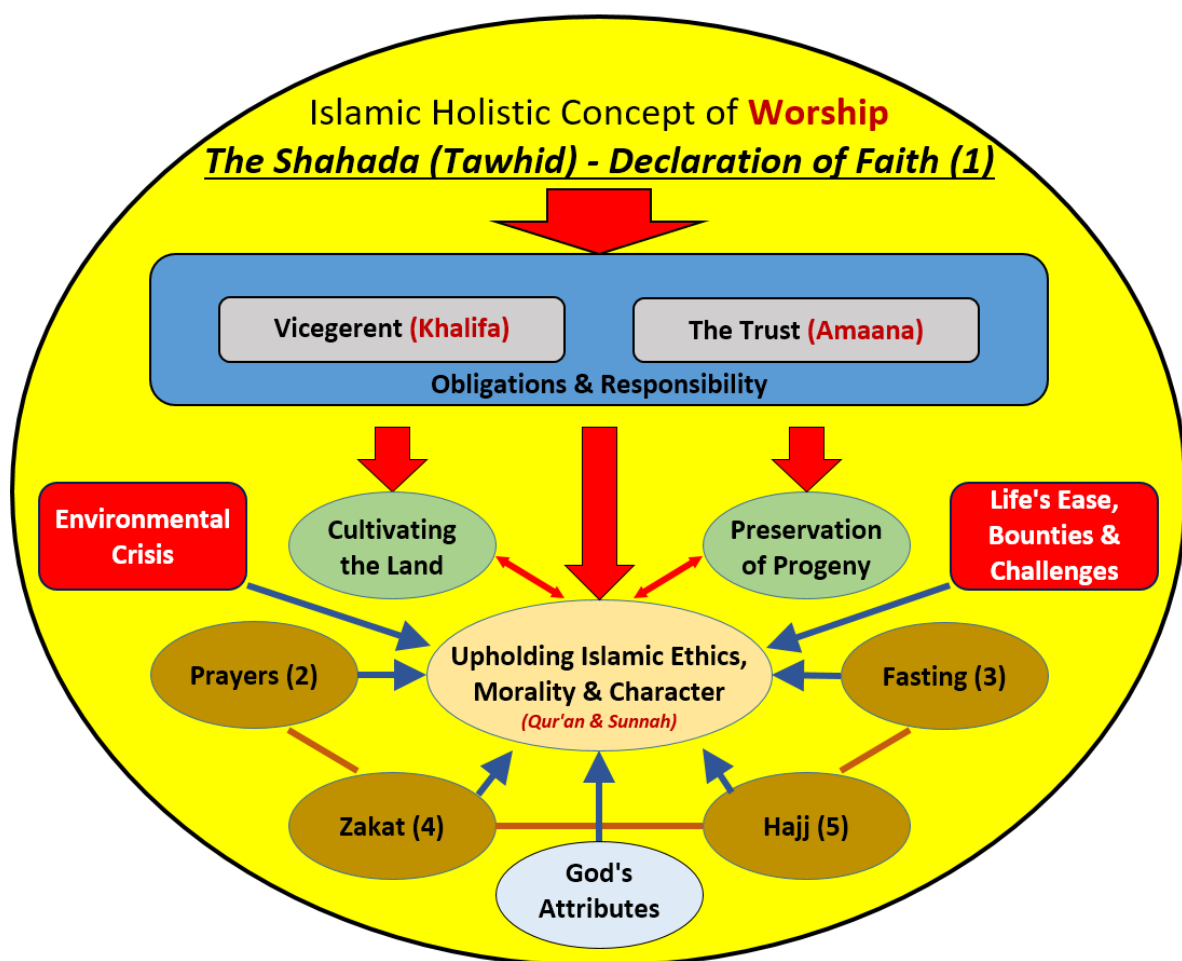


Figure 6 Islam's holistic concept of worship (created by the author)

5.2.1 Declaration of Faith – 1st Pillar of Islam

Muslims have divine obligations for the environment, which can be asserted from evaluation of the principle tenets of the faith and themes of the Quran. The *shahadāh*, Islam's 1st pillar of faith, represents the fundamental belief in the unity and oneness of God and not ascribing any partnership with Him. This is the foundational concept of belief, *tawhīd*²⁰⁹ or Islamic monotheism. The second part of the declaration is the professing of Muhammad as the last and final Messenger of God.

The doctrine of *tawhīd*, and the theological question that derives from them; the existence of God and the unity of God, helps shape an Islamic cosmology and the understanding of how God relates to His creation. The concept not only embodies the principle of the unity of the Creator, but it also encapsulates God's creation and the unity within it. It is this concept which provides the holistic lens by which Muslims should frame an Islamic view of creation. This is the basic premise upon which Islamic ideology is founded, and extends into all aspects of a Muslims life, ritualistically, spiritually and worldly. It accepts that everything was created by God and belongs to Him. This message is conveyed throughout the Quran in multiple chapters and verses where God indicates His supremacy over all creation and that everything is created according to measure and is dependent upon Him²¹⁰. During Islam's formative period, and over the centuries that followed, *tawhīd* had been a central theme of Islamic theology. As this is a vast topic in Islamic theology my discussion in this work is limited to how *tawhīd* shapes our view of the environment and consequently provides the foundational framework for an Islamic environmental ethics.

Said Nursi (1876-1960), one of the most influential modern Islamic scholar of Turkish origin, considered *tawhīd* as a primary theme in his works²¹¹. Nursi argues, using his "tree of universe" analogy that even the widest expanses of the cosmos to its minute detail are all within the power and will of God.

209. Ibid, 8.

210. The Study Quran; 20:6, 54:49.

211. Mehmet Ozalp., (2016). "*God and Tawhid in Classical Islamic Theology and Said Nursi's Risale-I Nur*". PhD Thesis. Department of Studies in Religion, School of Letters, Art and Media, Faculty of Arts and Social Sciences. University of Sydney. p. 226.

He further adds that it is through *tawḥīd*, unity of God, that the Creator, the universe and all of creation could be truly appreciated. It is in creation that the beauty and perfection of God is manifested, and according to Nursi, only people who have attained higher levels understanding would be able to appreciate this vision of *tawḥīd*, which Nursi calls the true *tawḥīd*. The other definition of *tawḥīd* which Nursi gives, is what he refers to the apparent *tawḥīd*, which is what Muslims generally understand. Nevertheless, an appreciation of *tawḥīd*, by reflecting on creation, life and the environment provides the means by which the humankind can attain a higher level of perfection. Even a simple act of a mother feeding a young amongst countless species of animals is a demonstration of one of the greatest acts of compassion (*rahma*) and the display of the inherent beauty (*jamal*) that God is displaying in His creation. This perfection in creation could have only been accomplished through *tawḥīd*, through a unique God who is One (*Ahad*) and has no partner and there is nothing that is like Him. For the ordinary Muslim this is simplistic understanding of the concept of *tawḥīd* and is sufficient to maintain their faith. However, in the context of environmental ethics an appreciation of the higher level of understanding of *tawḥīd* is needed as this will have a far more profound impact in the way all of creation is viewed, as Ozalp states; “The true divine unity is to attain a perpetual awareness of the divine presence and to confirm and believe almost with the certainty of seeing that everything emerges from the hand of God’s Power and that in no way does He have any partner or aide in His divinity, ownership and governance of the universe,”²¹².

The complexity in creation within the natural world and the ease by which *tawḥīd* is demonstrated; that each and every animal is perfectly adapted for its environment with beauty and differentiation, yet all interconnected with the elements of the environment in balance (*mizan*) is a perfect example of unity in creation. This is also demonstrated in the natural world, for example through “keystone species”, a term introduced in 1969 by Robert Paine²¹³.

212. Ibid, 211. p. 482.

213. Estes J. A., Dayton, P. K., Kareiva, P., Levin, S. A., Lubchenco, J., Menge, B. A., Palumbi, S. R., Power, M. E., and Terborgh, J., (2016). “A keystone ecologist: Robert Treat Paine, 1933–2016”. *Ecology*, 97(11), 2016, pp. 2905–2909.

Paine highlighted the significance of these species whose loss would precipitate a chain reaction of further species extinctions, leading to a collapse of the ecosystem²¹⁴. The definition has enjoyed much popularity in the ecology and conservation debates since its introduction. It also fits within Islam's *tawhīdic* view of creation, unity in creation.

The definition of *tawhīd* therefore emphasises the following; seeing God's signature in every creation and life itself, the conviction that there is only one divine being who has complete ownership over all of creation and He alone manages its affairs, and thirdly, these convictions should raise ones level of faith from blind faith to faith embodied with reason and intellect. With such an understanding it should amount to the certainty of seeing God's presence in everything and in every event, thus being perpetually aware of God and that He is One and has no partnership. The fallacy of having any other deity is eloquently set forth in a parable in the Quran, "O mankind! A parable is set forth, so hearken unto it! Truly those upon whom you call apart from God will never create a fly, even if they gathered to do so. And if the fly should rob them of aught, they could not rescue it from it. Feeble are the seeker and the sought."²¹⁵. The unity in creation, a creation without any flaws or rifts, a creation that is intertwined with each element of creation from the minute to the vastness of the solar system, is only possible through a single divine entity. This holistic concept of creation is expounded in the Quran, and it is *tawhīd* which embodies this vision, unifying and linking one's spiritual goals of the *shahādāh* with creation²¹⁶. It is this conceptual appreciation of *tawhīd* which Muslims should strive for to enlighten them with the perpetual awareness that all of creation, including the environment, is within the power and governance of God.

214. Mills, L. S., I., Soulé, M. E., and Doak, D. F., (1993). "The Keystone-Species Concept in Ecology and Conservation." *BioScience* Vol. 43 No. 4. pp 219-224.

215. The Study Quran: 22:73.

216. The Study Quran: 50:6-11.

5.2.2 Celestial Connections of *Sālah* – 2nd Pillar of Islam

The canonical Islamic prayer, the *sālah*, is the most defining feature of the Islamic faith. Unlike the testimony of faith, the *shahadāh*, which is required only once in a lifetime, the formal standardised prayer is incumbent upon all Muslims, over the age of puberty, at five prescribed times during each day and every day. Except for allowances made to women who are in a state of impurity through menstruating there are no exceptions to the prayer. The Quran itself does not codify the prayer but stipulates that believers should be steadfast in prayer and pay the poor their due tax²¹⁷. The reference to the five prayers originated from the Prophet's miraculous journey to Jerusalem and then his ascension to heaven where God declared that 50 prayers a day would be required from his servants. After this event a discussion took place between Prophet Muhammad and Prophet Moses, who advised him to go back to God and have the terms reduced. Prophet Muhammad therefore bargained with God on the basis that this would be too burdensome for the people. God subsequently reduced the number to five, and as God's word is never changed, those who performed the prayer faithfully God would grant the reward of fifty prayers²¹⁸.

Through codification of Islamic law the *sālah* was fixed at five canonical times of the day; the dawn, mid-day, mid-afternoon, sunset and at night. The prayer is thus interwoven into the cycle of the Sun, coinciding with the temporal changes that are part of the earth's daily cycle as it moves through its various stations in relation to the Sun. A believer must punctuate the day with this formal method of worship. This requires an immense personal discipline and a constant physical, mental, and spiritual awareness. The nature of prayer, its structure, bodily postures and movements, are cyclical in nature, a constant reminder of humanity's position in Creation, as the *khilāfah* and slave of God. The symbolism of the Islamic prayer, its connection with the movement of the Sun, and how it enacts the birth of Adam and ritualises his position as the *khalīfah* and slave is provided by Blackhirst²¹⁹. He presents the Islamic prayer with an Islamic holistic outlook, framed within the concept of *tawhīd*.

217. The Study Quran: 22:41, 2:43, 9:11, 31:4, 58:13, 2:177, 73:20.

218. Hadith, Sunan al-Tirmidhī 213.

219. Rodney Blackhirst. "*Symbolism of Islamic Prayer*". The Matheson Trust. <https://www.themathesontrust.org/papers/islam/Symbolism%20of%20Islamic%20Prayer%20Rodney%20Blackhirst.pdf>. Accessed 10th March 2022.

The prayer is thus presented as a ritual which encapsulates all aspects of the human condition, from birth to death, its connection with the natural world as well as with Islam's spiritual realm. Islam's spirituality through its prayers is thus attuned to the daily cycle of the Sun, as it rises from the east and sets in the west, and it is also connected vertically with the heavens in the spiritual realm²²⁰. The prayers times are thus arranged according to the Sun's diurnal movement, with each prayer time crossing the four extremes of the Sun's daily course. These extremes are also marked by the equinoxes and solstices in the Sun's annual cycle²²³.

The first prayer at sunrise, the dawn prayer, coincides with the Sun's rising and opposite this is the dusk prayer after sun-set. Similarly, the noon prayer, when the Sun has passed its highest point, is opposite to the night prayer which starts after twilight has disappeared. The perpetual cycle of the Earth, Moon and Sun is thus reflected in the prayers. There is therefore not a moment on the Earth that a Muslim is not calling upon God, the end of the call to prayer, the *adhān*, in one location marks the start in another location in a constant perpetual cyclical motion.

The Sun itself is not an object of worship in Islam, and to avoid any impression of this, Islam has made it forbidden to offer prayers at the time of the Sun's rising or its setting²²¹. There are however special prayers during times when there is a Solar Eclipse. The Prophet makes a reference to a solar eclipse as being a sign of God, "The sun and the moon do not eclipse because of someone's death. So whenever you see these eclipses pray and invoke (Allah) till the eclipse is over"²²². On the basis of this hadith Muslims can offer two additional non-mandatory prayers, known as "*salat al kusooʻ*", during the time of a solar eclipse.

220. Ibid, 219.

221. Ibid, 219.

222. Hadith, Sahih al-Bukhari 1040.

223. Ibid, 219.

As all prayers are performed by facing the *Ka'bah* towards Mecca, a structure whose mystery has now started to perplex scientists, is also itself aligned astronomically. Recent studies have shown that the rectangular base of the *Ka'bah* is solstitially aligned towards summer sunrise and winter sunset, and the major axis is aligned towards the local rising point of the star Canopus²²⁴. Who originally built the *Ka'bah* is still uncertain, some commentators of the Quran mention it was first built by Adam himself. What is for certain, according to the Quran, that it was Abraham and his son Ishmail who raised the foundations of the House²²⁵. The *Ka'bah* also houses the black stone, which according to Islamic tradition, was given to Adam on his fall from paradise.

The act of prayer and praising God connects the humankind in unison with the rest of creation which are in a perpetual state of obedience, "Have you not considered that God is glorified by whosoever is in the heavens and on earth, and by the birds spreading their wings? Each indeed knows its prayer and its glorification, and God knows that which they do"²²⁶. All of creation worships and glorifies God²²⁷. The Muslim prayer is thus an extension of that perpetual cosmic recitation of God's glory in the human form. It is this vision of linking the prayer with creation which provides an alternative narrative of the concept of prayer.

The prayer also acknowledges and re-affirms the Islamic doctrine of the *khalifah* and the humankind's position as the slave of God. In Islamic theology these two interdependent concepts are by which the human condition is understood. The status of the *khalifah* gives the humankind the freedom of choice to exercise judgment and display those noble characteristics, but at the same time being the 'slave' of God keeps his arrogant tendencies in check.

The very first prayer of the ritual is the recitation of the first chapter of the Quran, *Surah Al-Fātiha*²²⁸, which starts by the praising of God and the latter part of the short chapter is a prayer for guidance. Unlike other prayers the *fātiha* is a collective prayer and by facing Mecca when performing the prayer one is symbolically facing God, not only representing himself but all of humanity and all of Creation as the *khalifah*²²⁹.

224. David A. King., (2019). "Astronomical Alignments in Medieval Islamic Religious Architecture". Annals of the New York Academy of Sciences. p.306.

225. The Study Quran, 2:127

226. The Study Quran: 24:41.

227. The Study Quran: 17:44, 38:18-19, 21:19-20, 22:18.

228. The Study Quran, 1:7.

229. Ibid, 219.

5.2.3 Ritual Cleanliness – The Wudu

The environmental dimensions of ablution, *wudu*, are not so obvious to many Muslims, but the stipulations placed on the cleanliness of water, the amount of water one should use, and the use of clean earth (dust, stone) have implicit environmental intent. The Prophet Muhammad in his saying, with regards to the use of water for *wudu*, is that one should not use excess water even if performing *wudu* with water from a flowing river²³⁰. Water holds a very important position in Islam, and is a blessing from God that gives and sustains life, as well as being the primary means of maintaining personal hygiene and purification for performing prayers. Water is also a key element in the production of food with current total annual usage around 3.8trillion cubic metres which is expected to triple by 2050²³¹. Water is the fundamental element for maintaining all life systems and 71% of the earth's surface is covered by it, but only 0.7% is actually available as fresh water for consumption by humans, animals and plants²³². The value of water as a life generating element is given in the following verse, "And We made every living thing from water"²³³. Other verses relating to water in a similar context appear sixty times throughout the Quran²³⁴. In one particular verse God describes plant diversity, which one witness after rain has nourished the ground²³⁵. The Quran also describes the source from which fresh water originates²³⁶. The practice of *wudu*, five times a day, provides a basis by which water and its environmental importance can be instilled in children from an early age. The Mosque *wudu* facility can provide the demonstrable aspect of the Islamic vision of the importance of this resource and its sustainable use.

230. Sunan Ibn Mājah 425.

231. "Global Food: Waste Not, Want Not". Institution of Mechanical Engineers Report 2nd November 2013. <https://www.imeche.org/policy-and-press/themes/environment/global-food>. Accessed 19th December 2020.

232. Matt Williams., (2014). "*What percent of Earth is water?*". <https://phys.org/news/2014-12-percent-earth.html>. Accessed 19th December 2020.

233. The Study Quran; 21:30.

234. Ibid, 202.

235. The Study Quran; 35:27.

236. The Study Quran; 39:21.

5.2.4 Celestial, Earthly and Spiritual Aspects of Ramadan – 3rd Pillar of Islam

Ramadan, the third pillar of Islam, has significant spiritual as well as environmental benefits. The latter understanding, however, is less articulated in the current Islamic educational landscape. Fasting is a practice that was enjoined on all Prophets of God, and their people as stated in the Quran²³⁷. The Islamic fasting is prescribed for Muslims for one whole (lunar) month in the year. The practice of fasting starts by first raising ones glance to the heavens to witness the birth of the new moon. A new moon occurs when the surface of the moon facing earth is pointing directly away from the sun²³⁸. At this position the moon is not reflecting any sunlight on to the earth. This also marks the start of a new lunar month and why Ramadan shifts every year, arriving 11 days earlier than the previous year.

The sighting of the new moon connects Ramadan with God's creation and the perpetual cycle of the heavenly bodies. For the pious the normal flow of diurnal and nocturnal life is reversed during Ramadan with longer prayers and devotion, thus demonstrating the very essence of Islam's lunar symbolism. The Moon itself is mentioned twenty eight times in the Quran with one chapter named after it, *al-Qamar* (the Moon). Ramadan, having no specific fixed dates, instils in the humankind the virtue of patience and to recognise the laws of nature which God has defined. It also forces people to come together to discuss, debate and learn about God's creation, to acknowledge His existence and to strengthen one's faith. In the treatment of the subject of moon sighting, Hamza Yusuf, emphasises how this aspect of reflection is lost because of the humankinds impatient mechanistic 'engineer's mind-set', in that everything must fit in a linear fashion²³⁹. He also questions Muslims connection with God's creation, "Are we in harmony with God's creation. Are we bypassing signs right before our eyes?"²⁴⁰. The moon impacts all life on earth and thus connects humanity with nature and the natural order of creation.

237. The Study Quran; 2:183.

238. Sutton, P., (2000). "A Scientific Overview of Eid Moon Sightings". School of Mathematics and Physics, University of Lincoln, UK. (<https://psuttonblog.wordpress.com/outreach/scientific-overview-of-eid-moon-sightings/>). Accessed 19th December 2020.

239. Shaykh Hamza Yusuf is an American Islamic Scholar who is one of the world's most respected and influential figures in the Western world. He serves as President of Zaytuna College in Berkeley, California (US). Fluent in classical Arabic, he has studied Islamic jurisprudence, and philosophy with some of the world's most respected Islamic teachers.. https://themuslim500.com/wp-content/uploads/2020/10/TheMuslim500-2021_Edition-low_res_20201028.pdf. Accessed 21st September 2021.

240. Yusuf, H., (2006). "Caesarean Moon-Births". Part II, p. 16.

The moon is a reminder of the power and majesty of God, and a perpetual reminder of the Quran which asks the humankind to ponder over creation²⁴¹. The effect of the lunar cycle and its phases is evident in the natural world where various life forms such as fish, birds, insects, mammals and plants whose life patterns are linked to the cycle of the moon²⁴². The changing seasons, weather patterns, ocean currents and tides are all intricately linked to the cycles of the moon. The livelihood of all humankind is therefore depended and intricately linked to all of these natural phenomena present in the world.

The regular cycles of the moon and sun also enables the measurement of time. Time itself is a mystery and the perception is that it ultimately destroys everything. The human perception of time is linear, relentlessly pushing forward, but the famous physicist Albert Einstein, proved otherwise. Einstein through his works on relativity, showed that time is an illusion; it is relative and will vary depending on the observer and the speed at which they are moving through space. The Quran also gives an indication of this through the verse, "And truly a day with your Lord is as a thousand years of that which you reckon"²⁴³. Time is indeed complex and a mystery to which the Quran confirms, "But they have no knowledge thereof. They do nought but conjecture"²⁴⁴. The Quran also confirms that mankind is in constant state of loss through the passage of time, "By the declining day, truly mankind is in loss,"²⁴⁵. Islam provides a theocentric vision of the concept of time, which it explains from the perspective of transcendent monotheism that is governed by a living and eternal God²⁴⁶. The concept of time has always been central to the Islamic culture of learning and occupied a distinct position in Islamic theology. For the humankind both the Moon, Sun and time are a reminder of our helplessness and inability to conquer nature, and that all destiny is in the Hand of God.

241. The Study Quran; 3:190.

242. N. S. Sheikh. "And the New Moon Rose Over Us": The Fiqh and Science of Islamic Moon-Sighting. Keele University. <http://www.zawiyah.org>. Accessed 20th December 2020.

243. The Study Quran; 22:47.

244. The Study Quran; 45:24.

245. The Study Quran; 103:1-2.

246. Bowering, G., (1997). "The Concept of Time in Islam". *Proceedings of the American Philosophical Society*, Vol. 141. No 1, pp. 55-66.

The very act of fasting during Ramadan has significant inherent environmental lessons and benefits. It provides an opportunity for deep introspection, when one should be more aware of the universal principles of mercy, compassion and respect for all of earth's inhabitants. The very action of reducing food consumption by the worldwide Muslim population, has the potential to combat against the worst effects of climate change. It is well documented that raising animals for food requires substantial usage of land, food, energy and water, which results in creating more greenhouse gases than all of the world's transportation systems combined²⁴⁷. By limiting animal based food consumption, during Ramadan but also carrying on the practice with other Prophetic voluntary fasting²⁴⁸, can make a significant positive impact on combating climate change. It is no surprising that a UN commissioned report on climate change is calling for a change in human diet to mitigate and adapt to climate change, the policy specifically makes a recommendation to reduce meat consumption²⁴⁹. The UN report states, whose key points are also summarised in Nature²⁵⁰, that dietary changes would free up several million square kilometres of land, reducing global CO₂ emissions by up to eight billion tonnes per year. The environmental effects of meat production, which range from fossil fuel usage, methane, effluent waste, water and land consumption, are so serious that scientists now consider that the consumption of meat is one of the prime factors contributing to the current sixth mass extinction²⁵¹. In the EU 71% of its farmland is used to feed livestock and around 63% of arable land is dedicated to feeding animals²⁵², causing significant environmental damage as well as adversely affecting public health.

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247. "Meat and the Environment". *People for the Ethical Treatment of Animals*. <https://www.peta.org/issues/animals-used-for-food/meat-environment>. Accessed 20th December 2020.
248. According to Prophet Muhammad Muslims are encouraged to voluntarily fast throughout the year at certain days and months: the fast of Ashura (tenth day of the month of Muharram); fasting for six days in Shawwal, the month after Ramadan; fasting three days of each month; and fasting on Mondays and Thursdays. <http://www.oxfordislamicstudies.com/article/opr/t125/e635>. Accessed 20th December 2020.
249. "An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems". *Climate Change and Land*. January 2020.
250. Quiren Schiermeier, "Eat less meat: UN climate-change report calls for change to human diet". *Nature* 12th August 2019. <https://www.nature.com/articles/d41586-019-02409-7>. Accessed 20th December 2020.
251. Virginia Morell. "Meat-eaters may speed worldwide species extinction, study warns". *Science*, AAAS. 11th August 2015. <https://www.sciencemag.org/news/2015/08/meat-eaters-may-speed-worldwide-species-extinction-study-warns>. Accessed 21st December 2020.
252. "Over 71% of EU farmland dedication to meat and dairy, new research". *Greenpeace European Unit*, 12th January 2019 <https://www.greenpeace.org/eu-unit/issues/nature-food/1807/71-eu-farmland-meat-dairy>. Accessed 21st December 2020.

In a recent report by the Lancet scientists are recommending that the consumption of red meat is reduced by at least 77% to maintain good public health²⁵³. I have briefly touched on the topic of meat consumption, but the evidence of its adverse effects, not only on an individual's health but also on the environment, is overwhelming. The Islamic fast however, holds one of the greatest opportunities to help combat the adverse effects of meat, and food consumption. The Prophet Muhammad fasted every two days in the week, Mondays and Thursdays, in addition to the obligatory fasts of Ramadan and other special fasts. Furthermore, he was not an advocate of daily meat consumption. On the contrary he warned his followers against constant consumption of meat as this would lead to addiction. Historically Muslims ate very little meat and were mostly vegetarian. The consumption of meat by early Muslims was limited to Friday's, by the wealthy, and for the poor, meat would be consumed on the two Eid days²⁵⁴. Today, however, meat eating is the new order of the day, with the majority of Muslims demanding meat as part of their daily diet. Muslims are now accustomed to eating meat during each *iftar* (breaking fast) time in Ramadan, a practice which needs to change. Another area of consumption which Muslims are now also playing a crucial role is the fast food industry. Many of the smaller fast food outlets all over the UK are owned by Muslims, which predominantly attracts the Muslim population by marketing as halal. The fast food industry is having a catastrophic catalytic effect on global warming²⁵⁵. Fast food is also now a regular occurrence during *iftar* times in Ramadan as well as more predominantly in daily diets. This is an area which needs urgent addressing. Ramadan together with the fasting and dietary practice of the Prophet, provides the best example to combat this problem in Muslim communities.

253. "Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems". *The Lancet Commissions*. Vol. 393, Issue 10170, 16th January 2019, pp. 447-492. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4). Accessed 21st December 2020.

254. Joseph Mayton., (2010). "Eating less meat is more Islamic". *The Guardian*. Thursday 26th August 2010. <https://www.theguardian.com/commentisfree/belief/2010/aug/26/meat-Islam-vegetarianism-ramadan>. Accessed 21st December 2020.

255. "Global investors turn up heat on fast food companies to tackle climate and water risks". *FAIRR*. 29th January 2019. <https://www.fairr.org/article/global-investors-turn-up-heat-on-fast-food-companies-to-tackle-climate-and-water-risks>. Accessed 21st December 2020.

5.2.5 Environmental Opportunities of *Zakāt* – 4th Pillar of Islam

Islam's mandatory charity, which is obligated upon all Muslim's, is the *zakāt* and is the third pillar of Islam²⁵⁶. It is a mandatory act of worship and it is different from the first two and last pillar of Islam in that it is specifically a social action, relating to society and those in need. The *zakāt* connects us with society and other human beings through its financial instrument stipulated and regulated by *Sharāh*. This is the external dimension of *zakāt* but its internal dimension purifies one's wealth and controls greed, avarice and indifference to others. *Zakāt* requires 2.5% of one's accumulated wealth to be donated for the benefit of the poor, destitute and others. It is considered to be one of the largest forms of wealth transfer system for the purpose of channelling funds to the poor. In the early Islamic civilisation the *zakāt* institution supported a vast infrastructure of endowments (*waqf*) throughout the Islamic world. Charitable endowments were also used to support the institutions themselves. This system made immense contributions in the reduction of poverty throughout the Islamic world. The system was very simplistic but it was a time when Islamic traders invented complex financial instruments such as the credit note, cheque and the tariff. The credit note later evolved to become what we now know as the bank note. It was also a time when international maritime trade agreements were made and much of the maritime laws we have today have their roots from the Islamic trade from this period. Islam's trade, and economic model stretched and influenced a vast range of societies and cultures throughout the world. The exemplary character of the traders is what made Islam attractive to many people, such as the region of Indonesia where today holds 12% of world's Muslim population followed by India with 11% and Bangladesh with 8%²⁵⁷.

256. Almsgiving is one of the five pillars of Islam. It is compulsory for Muslims with the financial means to give 2.5 percent of their net worth, or excess wealth, annually as *Zakah*. "For Muslims, *Zakah* connotes the path to purity, comprehension of material responsibility, and an enhanced sense of spirituality. *Zakah* is used for the needy, for propagation of the faith, to free slaves, to relieve debtors, to help travellers, and for the administration of *Zakah*, as well as other efforts approved by religious authorities. The primary forms of wealth subject to *Zakah* include gold, silver, livestock, agricultural produce, articles of trade, currency, shares and bonds, and other liquid assets".

"Zakah." In *The Oxford Dictionary of Islam*. , edited by John L. Esposito. Oxford Islamic Studies Online, <http://www.oxfordislamicstudies.com/article/opr/t125/e2556> (accessed 03-Jul-2021).

257. Jeff Diamant., (2019). "*The countries with the 10 largest Christian populations and the 10 largest Muslim populations*". *PEW Research Centre*, 1st April 2019. <https://www.pewresearch.org/fact-tank/2019/04/01/the-countries-with-the-10-largest-christian-populations-and-the-10-largest-muslim-populations/>. Accessed 3rd July 2021.

The mainstream concept of economic development are different from the objectives and priorities envisaged within the framework of an Islamic worldview, it is the latter whose development has been lacking. With Muslim nations having adopted Western economic models this has been at the detriment of the wellbeing of their own citizens. Therefore, Muslims are unable to face contemporary challenges, such as the environmental crisis, which is intrinsically connected with current economic models. In the West it is also becoming clear that with the growing global population, and extreme disparities between wealth and poverty, current economic models are not working. According to the Forbes²⁵⁸ magazine the world's 67 richest people own more than the world's poorest 3.5 billion; and this number is steadily going down further. The ever-growing share of the global wealth is being held by a few individuals and these include also a vast number of Muslims whose countries, having some of the largest Muslim populations, also have the highest poverty levels, Bangladesh 54%, Indonesia 16% and India 12%²⁵⁹.

Until very recently poverty had been associated with major causes of environmental degradation, both UN²⁶⁰ and UNEP²⁶¹ reports supported this view. Contrary to this view, recent studies are showing a different perspective on the problem. From the results of different case studies which has looked at land, soil and forest, it is shown that power, greed, market and institutional failures are the main reasons behind environmental degradation and not the poor themselves²⁶². Moreover, it is the production and distribution systems that are needed to serve the consumer driven materialistic life-styles of rich people, or rich nations, which are the primary factors driving environmental degradation and ultimately social injustice.

258. Kasia Moreno., (2014). "The 67 People As Wealthy As The World's Poorest 3.5 Billion". *Forbes*. 25th March 2014. <https://www.forbes.com/sites/forbesinsights/2014/03/25/the-67-people-as-wealthy-as-the-worlds-poorest-3-5-billion/>. Accessed 24th December 2020.

259. Hasan, Z., (2016). "Economic Development and Islam revisited". *INCEF The Global University of Islamic Finance Kuala Lumpur*. https://mpra.ub.uni-muenchen.de/73857/1/MPRA_paper_73857.pdf. Accessed 3rd July 2021.

260. "Report of World Commission on Environment and Developments report: Our Common Future". *United Nations*. <http://www.un-documents.net/wced-ocf.htm>. Accessed 3rd July 2021.

261. "Global Environmental Outlook 2000 (GEO-2000)". *United Nations Environment Programme (UNEP)*. <https://www.unenvironment.org/resources/global-environment-outlook-2000>. Accessed 3rd July 2021.

262. Rai, J., (2019). "Understanding poverty-environment relationship from sustainable development Perspectives". *J. Geogr. Environ. Earth Sci. Int.* 2019, pp. 1–19.

Islam's social vision is characterised by justice, and this includes economic justice. As the Quran says "Truly God commands justice, virtue, and giving to kinsfolk.."263 and without economic justice in the world there can be no justice. Through divine revelation the Islamic *zakāt* system presents itself as a remedy to this injustice that is not bound by time, place or any man-made laws, it is truly global and universal. A Muslim believer is obligated to pay the *zakāt* irrespective of where their money, precious metals, Bitcoin or jewellery is held or hidden, it makes no difference. *Zakāt* is a net wealth tax whose rule defines the manner by which it should be distributed. The distribution starts with those needy family members, followed by neighbours, and then those engaged in the defence of the community. Islam does not restrict trade, on the contrary it is encouraged and praised, but the aims of the *sharī'ah* is to limit one's accumulation of wealth. The *zakāt*, which is commonly taken as a flat rate of 2.5%, is much more complex as the *sharī'ah* includes the flexibility to increase the amount, to 20%, for other types of assets such as oil and other mineral based wealth264. In addition to mineral wealth *zakāt* is also obligatory on whatever the earth produces such as; fully grown grains for consumption and storage, wheat, barley, corn, rice, dates, raisin etc. This ruling is taken from the following Quranic verse, "O you who believe! Spend of the good things you have earned and of that which We have brought forth for you from the earth.."265. The *zakāt* institution provides considerable scope to not only remedy the disparity between the rich and poor but to control the way in which money is circulated and invested in the economy. It would eliminate those parasitical investment vehicles designed by the rich for the rich and force people to invest in profitable enterprises thus circulating money within the wider communities. The *zakāt* is in effect be a tax on wealth and provides the vehicle by which wealth would be re-distributed to the lower and disadvantaged sections of the community. The current global system where by the rich are getting richer and the poor are getting poorer ultimately threatens the entire global system which is at the heart of the environmental crisis.

263. The Study Quran; 16:90..

264. Manzilati, A., M. D. A. Wildana., (2019). "*Zakāt 2.0*". UB Press. p. 84.

265. The Study Quran; 2:267.

5.2.6 Cosmological Connections of Hajj – 5th Pillar of Islam

The Hajj in Islam is the pilgrimage to the holy city of Mecca. It is incumbent on all physically and financially able adult Muslims to perform the Hajj once in their lifetime. The rituals of Hajj are a re-enactment of the series of events which occurred during the lives of Abraham, Hagar and their son Ismail. The event takes place in a ten-day period, starting on the 1st and ending on the 10th *Dhu al-Hijjah*, the twelfth and last month of the Islamic lunar calendar. The first part of the ritual is the seven counter-clockwise circumambulations (*tawaf*) of the *Ka'bah*, imitating the angels who circumambulate God's throne.

The ritual of Hajj demonstrates Islam's universal ideal in the oneness of humanity through the purest concept of *tawhīd*. Through the acceptance of the oneness of God Muslims during Hajj transcend across space, culture and time symbolically, ritually and politically as a demonstration of the unity of mankind and the unity in all of creation. Muslims, by the grace of God, are privileged to be bearers and witness of the sacred trust and heirs of the purest monotheism, an honour which makes them bow towards the *Ka'bah* five times a day every day. The *Ka'bah* thus becomes the centre of a great vortex of perpetual prayers and circumambulations. This is a vision that can truly be appreciated when one sees the orbital patterns of the celestial bodies and galaxies, which according to the Quran declares the Glory of God in their own way, "The seven heavens, and the earth, and whatsoever is in them glorify Him. And there is no thing, save that it hymns His praise, though you do not understand their praise"²⁶⁶. This is one of the many verses of the Quran which indicates that all of creation worships God, those on earth as well as in the heavens.

The orbital motions of the celestial bodies and versus relating to space are some of the most fascinating verses in the Quran. When the Quran refers to the motion of the sun and moon (and all celestial bodies) it describes not only translatory motion but rotational as well. The sun, moon and all the other celestial bodies move in their own separate measurable orbits. Each one "*swims*" along in its own orbit and it is not permitted for the sun to catch up with the moon and vice versa, "It befits not the sun to overtake the moon, nor the night to outstrip the day. Each glides in an orbit"²⁶⁷.

266. The Study Quran; 17:44.

267. The Study Quran; 36:40.

The earth exhibits a similar motion around the sun in the same way as the other planets of the solar system. The sun exhibits the balancing forces to all of its orbiting planets whilst the whole system, with the sun at its centre, rotates with respect to the centre of the Milky Way galaxy. This journey of our solar system takes around 250million years²⁶⁸. The earth itself, rotating about its own axis, is also carried along this journey. The Milky Way galaxy also has its own centre of rotation at the “Galactic Centre”. From the largest to even the smallest elements, the electrons around the nuclei of the atoms, are perpetually in a state of circular motion. Everything rotates as if in a constant state of worship.

In a similar manner the circumbulation of the *Ka’bah* represents the heliocentric movement of the solar system and motion of electrons within atoms. The movement of the pilgrims around the *Ka’bah* each year during Hajj also symbolises the movement of the moon around the earth, the earth and the planets around the sun, the sun around the centre of the Milky Way galaxy and the galaxy around its Galactic Centre. The perfect circular movement of these majestic celestial bodies is symbolised in the Hajj in the performance of the *tawaf*. The aerial view of the *tawaf* of the *Ka’bah*, formed by the thousands of pilgrims, represents the solar system turning together with all the other solar systems and the billions of stars around the centre of the Milky Way galaxy. The Muslim’s at this moment are in unison with these majestic creations of God. It also represents a greater spiritual state, one in which the Muslim’s surrender to a greater divine pre-ordainment that is inherent in the universe and within all creation. The spirituality of Hajj therefore cleanses the human soul and reminds them of the reality of this world and the world to come, and that the real life begins at death. It is this spiritual perspective of life which should inspire all Muslim’s to do good in this life to the best of their ability and capacity for all of God’s creatures.

268. Zafar Ahsan., (2012). “*The Quran and Laws of Planetary Motion*”. Revelation and Science Vol. 02, No 01 (1433H/2012), pp. 43-50.

The Hajj, similar to the prayers, *sālah*, embodies the cyclical time, birth and re-birth, displayed in the movements of the celestial bodies. This is evident in the natural world where animals migrate across the planet so that they may live and carry on the next generation. The ritual of the Hajj also symbolises this migration in the human form, displaying the cosmic pattern of renewal and rebirth, a theme which is re-iterated many times in the Quran by its description of the setting, vanishing and re-appearance of the stars²⁶⁹. The ritual of Hajj connects mankind with creation at the cosmic level it is the place where heaven and earth is connected and where one can forget the illusion of the material world. The Hajj removes the veil of this illusionary world and enables one to experience a spiritual re-birth free of past sins.

Mecca, and likewise Medina, are also the place where the Prophet Muhammad transformed the function of the Hima, together with the Haram, to ensure the well-being of the whole community, including plants and animals. This was Islam's concept of environmental protection, instigated by the Prophet to ensure the sanctity of nature, and is a demonstration of a Muslim's obligation as the *khilāfah*, an aspect which is forgotten in the performance of the Hajj. Despite the benefits of Hajj on a personal level the environmental impacts are immense. The Hajj generates huge amounts of solid and liquid waste and is also a producer of high levels of greenhouse gases, estimated to be around 60.5kg per pilgrim per day²⁷⁰. The environmental impact of Hajj is now a significant topic of research, and many are highlighting the need for action environmental to improve environmental sustainability of Hajj²⁷¹. Many Muslim organisations are campaigning for a 'greener hajj', but ultimately it will depend on an individual's personal commitment and ethic.

269. The Study Quran; 53:1.

270. El-Hanandeh. Ali., (2013). "Quantifying the carbon footprint of religious tourism: the case of Hajj". Journal of Cleaner Production, Volume 52, pp. 53-60.

271. Abonomi, A., De Lacy, T, and Pyke, J., (2013) "Environmental Impact of the Hajj". International Journal of Religious Tourism and Pilgrimage: Vol. 10: Iss. 1, Article 12.

5.3 The Names and Attributes of God

The Quranic revelation has enabled humankind to have only a glimpse of the knowledge about God Himself. This knowledge is sufficient for the humankind to perceive Him within the boundaries defined by the concept of *tawḥīd* and by the other revealed attributes of God. An attribute is defined as a particular quality that is assigned to something or someone. The Quran contains ninety-nine names for God, which define His attributes, such as the Merciful (*al-Rahmān*) and Compassionate (*al-Rahīm*). Of all the world's religion Islam, through the Quran, provides the most unique knowledge about God through His names and attributes. It is also the only world religion which provides a most unique distinct name for God, *Allah*, revealed by God Himself. Unlike other names and attributes of God, which depict a specific aspect of God, the name *Allah*, is distinct and different. In Islamic tradition, *Allah*, is regarded as a proper name (*ism 'alam*), which signifies "God's Essence", but does not depict any particular quality of it²⁷². Both "God's Essence" and "Attributes of God", are theological terms used to describe God's unique characteristics. During Islam's earliest period questions relating to these two terms pre-occupied Islamic scholars, resulting in the variation by which Quranic text was interpreted. The terms constituted "one the axial themes of the scriptural exegesis and hermeneutics that influenced the unfolding of Islamic thought"²⁷³. According to Sufi tradition the name *Allah* is an *All-Gathering* name, which brings together all of the Divine names²⁷⁴. Each divine name represents a particular aspect of the *Essence*. The great Islamic theologian Al-Ghazālī in one of his works, *Al-Iqtisād fī al-i'tiqād* (moderation in belief), addresses the divine Essence of God as part of his argument on the nature of *Kalām* (the study of speech or words)²⁷⁵. He provides four main parts; The Divine Essence, The Attributes of God, The Acts of God (what he can and cannot do) and the Envoys of God. In this precise order Al-Ghazālī expresses his arguments on how to logically approach the vision of God.

272. Rustom, M., (2012). "*The Triumph of Mercy – Philosophy and Scripture in Mullah Sadra*". State University of New York Press. p. 62.

273. I-Bizri, N. (2008). "*God: Essence and attributes*". In T. Winter (Ed.), *The Cambridge Companion to Classical Islamic Theology* (Cambridge Companions to Religion, pp. 121-140). Cambridge: Cambridge University Press. doi:10.1017/CCOL9780521780582.007.

274. Ibid, 272.

275. Rizvi, S., (2017). "*Al-Ghazālī's moderation in belief. Al-Iqtisād fī al-i'tiqād*". *British Journal of Middle Eastern Studies*, 44:1, pp. 149-150, DOI: 10.1080/13530194.2016.1238593.

As God's *Essence* is everywhere, the names of God are also to be found in every creation of God. It is this aspect which makes all of creation, from the magnificence of the planets, the sky, mountains, oceans, deserts, landscapes, plants and every living thing an original work of art and serves as a sign 'āyāt' of God, to which the Quran repeatedly and eloquently testifies to, as "signs for the possessors of intellect"²⁷⁶.

The Quran presents *Allah* as its central figure in the most beautiful eloquent literary style. Nowhere is this more evident than in those verses which enables the humankind to perceive *Allah* within the concept of *tawhīd*. The verse of the Throne, *āyātul kursī*²⁷⁷, and the verses of Surah *Al-Ikhlās*²⁷⁸ (Sincerity), are two such examples where it exclusively deals with *tawhīd*. Allah in the Quran is presented as a dynamic, but also as a personal God, full of mystery, which the humankind can never perceive. The Quran depicts *Allah* as a God of both vengeance²⁷⁹ and mercy, but He transcends such simplistic classification. For example God's mercy is infinite, a concept which is beyond human comprehension. This hadith gives a only a glimpse of this concept that "Allah is more merciful to His slaves than a mother is to her child"²⁸⁰. God's mercy reaches out to all people and therefore His salvation is open to all, both sinners and believers. God's attributes of *al-Raḥmān*, *al-Raḥīm*, "the Compassionate, the Merciful", which are the first to appear in the list of the ninety-nine names of God, reflects the spirit of the Quran²⁸¹. It is this mercy that is evident in His creation and all life forms that is truly awe inspiring. Indeed God's creation of the natural world, according to the Quran, is an expression of His infinite mercy. The greatness of this attribute is affirmed by the manner by which God has presented this to the humankind. First and foremost through creation itself, His sending of the prophets, and through His forgiveness of sins²⁸². The fact that God calls on the believers to reflect on the blessings given by Him in creation²⁸³, is in itself an act of mercy. It is also one of many reasons why Muslims are obliged to respond to the plight of the environmental crisis and climate change.

276. The Study Quran; 3:189.

277. The Study Quran; 2:255.

278. The Study Quran; 112:1-4.

279. The Study Quran; 3:4.

280. Hadith in Sahih Al-Bukhari, Hadith 5999.

281. Reynolds, G. S., (2020). "Allah God in the Quran". Yale University Press. p.92.

282. Marshall, D., (1999). "God, Muhammad and the Unbelievers: A Quranic Study". Richmond, Curzon.

283. The Study Quran; 79:27-33.

The natural world is a demonstration of the infinite attributes of God's. For every attribute of God revealed to the humankind and demonstrated in His creation, He embodies the perfection of that attribute that describes Himself. As it is customary for Muslims take on His attributes for their names, they can never embody the perfection of that attribute. Nonetheless, one should strive and aspire to demonstrate, with sincerity and outward actions, the virtues of the attribute by which he or she is named. If Muslims do not have compassion and mercy for God's creation, a creation which never ceases to demonstrate His attribute of mercy, then how can the humankind expect to receive the same.

As God's names and attributes are manifested in all of His creation, the universe, the planets, the earth with its environment and its creatures, it is through reflection and contemplation of these that one would be able to appreciate the greatness of His attributes. It is this ability of the humankind, the faculty of reason, which gives the humankind the potential to attain knowledge of God through his names and attributes²⁸⁴. His creation and the natural environment thus serves as signs 'āyāt', for the humankind to come to know God. As this can only be attained through knowledge, learning and education, Islam therefore gives all forms of beneficial knowledge a very high status, as the Hadith prophet Muhammed confirms, "The ink of a scholar is more sacred than the blood of a martyr"²⁸⁵. It is therefore not surprising that the Islamic tradition during its formative period had the utmost respect for scholarship and thus the scholars occupied a noble status in Islamic tradition. Scholars understood that any action without knowledge in matters of faith was dangerous, as knowledge, first and foremost corrected one's intentions. This principle is universally applicable to any actions. The Quran specifically warns Muslims of speaking without knowledge²⁸⁶. This is why knowledge is considered to be a prerequisite to ones deeds and actions, as the Hadith states "Knowledge precedes expression and action"²⁸⁷. For a Muslim the purpose of any knowledge is to come to know the Creator, "Know, then, that there is no god but God.." ²⁸⁸, a verse which asks the humankind to first acquire knowledge to confirm one's faith.

284. Umm Abdurrahman Sakina Hirschfelder, (2010). "Who is God? His Names and Attributes and their Significance to the Individual". International Islamic Publishing House. p. 28.

285. Wani, Zahid Ashraf and Maqbool, Tabasum,, (2012). "The Islamic Era and Its Importance to Knowledge and the Development of Libraries". Library Philosophy and Practice (e-journal). 718. ISSN 1522-0222.

286. The Study Quran; 17:36.

287. Hadith in Sahih Al-Bukhari, Vol.6, Hadith No.474.

288. The Study Quran; 47:19.

The first source of knowledge concerning God is indeed the Quran and those which the Prophet Muhammad has communicated. Those who ponder over the noble verses of the Quran, and over the signs God given in His creation, and this includes the natural environment, can attain essential knowledge of God. This is the greatest knowledge, the knowledge of God, that any humankind can possess, which must ultimately shape our understanding of the world, our purpose in life and our ethical conduct. The significance of this knowledge cannot be underestimated by any imagination, as Ibn al-‘Arabi states, “The excellence and virtue of a piece of knowledge is according to its subject matter. The Creator is the Highest and most Excellent of subject matters and therefore the knowledge of His Names is the most excellent and highest knowledge”²⁸⁹. The importance of understanding the names and attributes of God, and seeing these attributes manifested in the natural world and all of creation, must form part of any Islamic Environmental Ethics educational framework. This knowledge can provide the inspiration by which Muslims can develop their demonstrable ethical and moral character towards all of creation, perfecting the worship of God with those Divine qualities that are associated with each of His attributes. As such, the divine names of God, not only being recited in the rituals of prayer and the reading of the Quran, but should form an ubiquitous element in every Muslims daily life actions. It should be the means by which one constantly connects with God and receives His infinite radiance. Through the recollection of the names and attributes of God Muslims would be able to comprehend, only to a certain degree as our knowledge is finite, the relationship between God and His creation as well as ourselves. It is then we can truly appreciate the onus placed upon the humankind in their position as the *khilāfah*.

289. Al-‘Arabi, Ibn, Ahkam al-Quran, vol. 2, p. 993. Cited in Umm Abdurrahman Sakina Hirschfelder., (2010). “*Who is God? His Names and Attributes and their Significance to the Individual*”. International Islamic Publishing House. p. 31.

God's names and attributes are presented in the Quran in a most unique literary style. In almost every instance His various attributes are mentioned, typically in dual attributive statements, such as "the Compassionate, the Merciful"²⁹⁰, "Knower of the Unseen and the seen"²⁹¹, "God is Hearing, Knowing"²⁹², and "God is Forgiving, Merciful"²⁹³. Collectively the Quran refers to these attributes as, God's "most beautiful names" *asmaa-al-husna*²⁹⁴, and some are revealed collectively in a most graceful and eloquent style that is typical of the literary distinctiveness of the Quran, "He is God, other than Whom there is no god, Knower of the Unseen and the seen. And He is the Compassionate, the Merciful. He is God, other than Whom there is no god, the Sovereign, the holy, Peace, the Faithful, the Protector, the Mighty, the Compeller, the Proud, Glory to Him above the partners they ascribe. He is God, the Creator, the Maker, the Fashioner; unto Him belong the Most Beautiful Names. Whatsoever is in the heavens and the earth glorifies Him, and He is the Mighty, the Wise"²⁹⁵. Of the ninety nine names and attributes of God mentioned in the Quran there are variations in the number of times these are repeated. The most repeated name is the single and most proper name for God in Islam, Allah, which is mentioned approximately 2698 times, followed by *Rabb* (Lord and Sustainer) nearly 900 times, *al-Rahman* (the Merciful) 170 times, *al-Raheem* (the Compassionate) 227 times and *al-Ghafoor* (the All-Forgiving) and *al-Ghaffar* (the Great Forgiver) some 97 times²⁹⁶. These divine names and attributes of God reveal a perplexity and mystery which start to reveal themselves when we look to ourselves, the whole of creation and the natural environment through a holistic lens. There is also a perplexing symmetry and mystery by which all of the names and attributes of God reveal themselves in the Quran, for nothing is revealed in the Quran without purpose. This requires careful study, contemplation and reflection to find their purpose so that the humankind may implement the essence of those qualities to develop ones character.

290. The Study Quran; 1:3.

291. The Study Quran; 64:14.

292. The Study Quran; 2:224.

293. The Study Quran; 2:226.

294. The Study Quran; 7:180, 17:110, 20:8 and 59:24.

295. The Study Quran; 59:22-24.

296. Cited in Jeffery Lang., (1997). *"Even Angels Dare to Ask: a journey to Islam in America"*. Amana Publications USA. p. 45.

Abu Hamid Al-Ghazali, wrote a comprehensive treatise on the names of God in Islamic tradition, “The Ninety Nine Beautiful Names of God”²⁹⁷. Al-Ghazālī provided an explication of each of the divine names from theological perspectives to reveal how they should resonate with Muslims. For example God’s name, *Al-Wudud* – the loving the kind – is one who wishes all creatures well and accordingly favours them and praises them²⁹⁸. According to his view this attribute informs us that God is benevolent towards all His creatures, though He is not in need of anything from them. The name is very close to the meaning of al-Rahman, *the Merciful*, which appears in dual attributive form with *Al-Wudud*, “Truly my Lord is Merciful, Loving”²⁹⁹ and *Al-Ghafoor* (The Forgiving), “And He is the Forgiving, the Loving”³⁰⁰ in the Quran. The demonstration of the Divine attribute of mercy requires one who has authority or power over those who are weak, needy and poor. As God has ultimate power over all of creation His demonstration of the attribute would be to an infinite level, one which the humankind would be unable to comprehend. In one of the famous Hadiths, God informs us that “Allah divided Mercy into one-hundred parts and He kept its ninety-nine parts with Him and sent down its one part on the earth”³⁰¹. It is because of this that all of God’s creatures are able to show mercy to each other. It is impossible to comprehend the greatness of this attribute, but the fact that this expression appears in the first verse of the Quran³⁰², and Muslims are required to recite “*In the Name of God Most Merciful, Most Gracious*” before reciting any of the Quran, or when doing any good works no matter how mundane, is testament to the greatness of the virtue of this attribute. These attributes are some of the most significant Divine qualities that the humankind should aspire to perfect and provides the basis of an Islamic Environmental Ethic. As Al-Ghazālī comments, “One is loving-kind among God’s servants who desires for God’s creatures whatever he desires for himself”, and accordingly their perfection only occurs “when not even, anger, hatred and the harm he might receive can keep him from altruism and goodness”³⁰³.

297. “*Al-Ghazali on The Ninety-Nine Beautiful Names of God*”. Islamic: Al-Maqṣad al-Asna fi-Sharh Asma Allah al-Husna. Translated by David B. Burrell, and Nazih Daher, Cambridge UK, Islamic Texts Society (2015). pp. 118-119.

298. Ibid, 297.

299. The Study Quran; 11:90.

300. The Study Quran; 85:14.

301. Hadith in Sahih Al-Bukhari, Hadith 6000.

302. The Study Quran; 1:1.

303. Ibid, 297.

Reflecting on these Divine attributes, what should become apparent is that Muslims, although wishing to receive God's favours and mercy, should also themselves demonstrate these qualities by giving and showing them to all of God's creatures. This must also extend to all those under their authority or power. It is these divine qualities which an education in Islamic Environmental Ethics must project on to Muslims. This will help to raise their ethical and moral principles and be connected with the Divine attributes, which will allow them to take pleasure in wanting for others what they want for themselves, even if it means their own personal sacrifice. Altruism, a selfless act which is praised by all societies, is one of Islam's condition of faith. The virtues of altruism are highlighted in the Quran, "They prefer others over themselves, even if they be impoverished"³⁰⁴ and many Hadiths, "None of you truly believes until he loves for his brother what he loves for himself"³⁰⁵ .

From the Quranic perspective God's mercy embraces His entire creation, and His sustaining and nourishing extends to all His creatures. Each creature is thus perfectly adapted for its environment, each with its particular food source and in perfect balance within the overall eco-system. The environment thus serves as the arena in which we can see these great names and attributes of God manifest themselves. The environment can be seen as the learning arena for the purpose of coming to know the Creator. To achieve this God has provided the humankind with the intellect and wisdom to navigate through life and to learn and grow through personal development shaped by life's challenges, blessings and adversities. Humankind's potential for learning was demonstrated in Adams opening scene in heaven, as discussed earlier, and as revealed and confirmed in the very first verse revealed to Prophet Muhammed, "Recite! They Lord is most noble, Who taught by the Pen, taught man that which he knew not"³⁰⁶. Indeed people of knowledge are also seen as God's mercy upon the humankind. However, humankind in their arrogance have become blind to the great blessings of creation and of the knowledge which God has provided. They attribute their knowledge and intellectual achievements entirely to themselves. So the Quran reminds us of this, "Nay, truly man is rebellious in that he considers himself beyond need. Truly unto they Lord is the return"³⁰⁷.

304. The Study Quran; 59:9.

305. Hadith in Sahih Al-Bukhari. Vol. 1, Book 2, Hadith 13.

306. The Study Quran; 96:3-5.

307. The Study Quran; 96:6-8.

The earthly arena is but a place of test, to learn by trial and error, both at the intellectual and spiritual levels. Both have consequences, but also present themselves with opportunities for the humankind to grow. Without the potential and capacity to commit wrongs and mistakes humankind cannot grow intellectually or spiritually, leading to stagnation of societies. So important is this concept that the Prophet Muhammad has said “By Him in Whose Hand is my life, if you were not to commit sin, God would sweep you out of existence and He would replace (you by) those people who would commit sin and seek forgiveness from God, and He would have pardoned them”³⁰⁸. The earthly trial is thus one of God’s divine scheme by which the humankind will be sorted in the hereafter. This provides a new vision of the environmental challenges that humanity is faced with. As challenging as it may be, but it also presents as an opportunity to learn and elevate the spirit of the humankind.

The names and attributes of God must thus manifest in our behaviour, in the way we view and treat all of creation and each other. The Prophet Muhammad in one of his sayings stated, “One percent of the mercy that God bestows on creation is manifested in human behaviour”³⁰⁹. This Hadith reveals that God has impressed within each humankind the greatness of His Mercy, albeit it is only a very small infinitesimal fraction of His infinite Mercy of what we actually demonstrate and feel. Nonetheless, this gives the humankind the ability to participate in this great gift of God by demonstrating this attribute ourselves to others and to all His creation. Thus the humankind are not only the recipient of divine Mercy but can also be givers of this great attribute. It is by this authority, that when we show mercy to others, that they are in effect receiving the mercy of God through us. This attribute of mercy that humankind have been gifted, must also be extend to all of God’s creation, as in Islam all living things are worthy of consideration and respect. All animals have been created with purpose and are thus considered as a special part of God’s creation.

308. Hadith in Sahih Muslim, Hadith 2749.

309. Hadith in Riyad as-Salihin, Hadith 420.

The history of Islamic civilisation offers many examples of the care and kindness that was afforded to animals. There are many references to animals in the Quran and each is obeying God's laws and praying and praising Him according to their own mode³¹⁰. The Quran also states that the earth is also assigned to His creatures, "The earth has He laid down for creatures"³¹¹, and therefore, this affords our special treatment for their welfare and for the environment in which they reside. This is the goal of a true Muslim to grow continually as a receiver, but also as a transmitter and giver, of God's great attributes to all His creation. The fact that God has given us this opportunity, one which He has not given to any of His other creatures, warrants special recognition and thanks on our part, for indeed it is a great blessing. It is through this concept that Islam provides a unique and a complete holistic approach in tackling the environmental crisis and enables the humankind to rise to their position as the *khilāfah* of the earth and honour the *amānah*.

310. The Study Quran; 14:44.

311. The Study Quran; 55:10.

5.4 The Covenantal Concepts

Islam's Covenantal concepts within the Quran provides the basis of Humanity's overall responsibility on earth by defining humankind's relationship with God. The Covenants are a central theme of the Quran, providing the lens through which humanity can identify and understand its relationship with God and His creation. Covenantal concepts in the Quran unfold in three phases of Humanity's history, which like other concepts found within Islam, are interwoven holistically with creation. This provides the basis for an Islamic environmental ethical model based on justice, balance and equality for all of God's creation, all of which are encapsulated by the covenantal concepts defined by the *khilāfah* and *amānah*. These two covenantal concepts provide the basis for the environmental responsibility placed upon each and every human being. In addition to the Quranic verses there are also Hadith which exemplify these concepts and further supports the importance of Humanity's responsibility on earth and to the natural world. The Prophet in one such narration said, "The world is beautiful and verdant, and verily God, be He exalted, has made you stewards in it, and sees how acquit yourselves"³¹². The importance for the caring of the environment, for its enhancement and preservation no matter what conditions prevail, cannot be more emphasised by the Prophet as stipulated by him in this narration, "If the Resurrection were established upon one of you while he has in his hand a sapling, then let him plant it"³¹³. The Hadith emphasise Humanity's responsibility and the importance of preserving and enhancing the natural environment no matter what condition prevails. As there is no greater, or a calamitous event for humanity than the Day of Judgement, and the fact that the Prophet chose to mention this great event with a seemingly simple action of planting a sapling, signifies the weight that is attached to the action. With a similar reasoning the environmental responsibility placed upon the humankind through the Quran's covenantal concepts must therefore also hold a greater weight and purpose for humanity.

312. Hadith related by Muslim from Abu Said Al-Khudri.

313. Hadith according Al-Albani from Musnad Ahmad 12491.

Covenantal concepts are also deeply rooted in both Jewish and Christian theological landscapes. In the past three decades there has been considerable academic and theological Jewish and Christian interest in the re-assessment of many of its central biblical concepts. The concept of the Covenant in the Old and New Testaments has emerged as one of the most important concepts to be re-visited in recent times to provide the skeletal framework for understanding the scriptures. Stimulated by these scholarly works Lohfink³¹⁴, seeing how the covenants connects these faiths, provides a re-assessment of many of the covenantal texts with renewed vision. Lohfink provides a number of fresh biblical insights, most notably his view that future Christian dialogue needs to focus on the Torah rather than the Covenant. He also believes, that like the Old and New Testaments, the Quran also has many texts pertaining to covenants, but unlike their Christian counterparts modern Islamic scholars have not provided any significant studies of these concepts in Islamic theology. This position has led to a vacuum in the understanding and articulation of an Islamic Covenant theology in the modern era.

This seemingly lack of engagement of the covenants contained within the Quran in the Islamic theological discussions may ultimately lead one to conclude that there is no Islamic Covenant theology. Scholars such as Lombard³¹⁵, Bowering³¹⁶, Weiss³¹⁷, Al-Qadi³¹⁸ and Abdulsater³¹⁹, have challenged this position and provided much insight into this vacuum. Lombard, like many of his contemporaries, argues that given the paucity of scholarly works regarding Islamic Covenant theology in the modern era, does not necessarily mean that the concept is not central to the Islamic faith nor indeed Islamic theology³²⁰.

314. Lohfink, N., (1991). *The Covenant Never Revoked: Biblical Reflections on Christian-Jewish Dialogue*. Paulist Press International, U.S.

315. Ibid, 9.

316. Bowering, G. "Covenant". EQ, Brill, Leiden, vol.1, pp. 467-467.

317. Weiss, Bernard G., (1990). "Covenant and Law in Islam" in Edwin R. Firmage, Bernard G. Weiss, and John W. Welch (eds), *Religion and Law: Biblical-Judaic and Islamic Perspectives*. Winona Lake: Eisenbrauns, pp. 49–84.

318. Al-Qadi, W. K., (2003). "The Primordial Covenant and Human History in the Qur'ān." *Proceedings of the American Philosophical Society* 147, no. 4: pp. 332-38. Accessed March 6, 2021. <http://www.jstor.org/stable/1558296>.

319. Abdulsater, H. A., (2020). "The Covenant Verse in Classical Imami Theology". Chapter 4 in *Light upon Light – Essays in Islamic Thought and History in Honor of Gerhard Bowering*, Edited by Jamal J. Elias and Bilal Orfali. Brill.

320. Ibid, 9.

These scholars show that historically early Islamic scholars, such as the classical works of al-Tabari (d. 310/923), al-Yaq'ubi (d. 284/897), and al-Masudi (d. 245/956), did treat the concept of the Covenant in their commentaries³²¹. Their work is starting to reveal that Covenant theology was fundamental to the Islamic faith and to the teaching of the Quran. In modern times this lack of study on the subject may be due to other factors, such as the impact of colonial rule of many Muslim lands, rather than about the Quran itself.

A Covenant in its basic meaning refers to an agreement between two parties³²², and is seen as a contractual relationship between God and the humankind as revealed in the Quran, "those who break God's Pact after accepting His Covenant, and sever what God has commanded to be joined, and work corruption upon the earth, it is they who are the losers"³²³. The relationship of this Covenant is reciprocal, in that there will be a mutual exchange of something that is expected from each. The Quran reflects this mutuality with approximately 100 references relating to covenants either between God and humankind or between humans³²⁴. However, this reciprocity is not the only means by which a Covenant is defined with God. Bowering believes that the Quran also imposes the divine Covenant through a promise, reflecting the absolute sovereignty of God³²⁵. The obligation imposed on humanity through the Covenant does not depend on any agreement from the people on whether or not they would return anything back. Therefore, there is no bargaining of or any negotiation of its terms³²⁶.

321. Ibid, 319.

322. Ibid, 9.

323. The Study Quran; 2:27.

324. Jaffer, T., (2017). "Is There Covenant Theology in Islam?". In Islamic Studies Today. Leiden, The Netherlands: Brill. doi: https://doi.org/10.1163/9789004337121_007. Accessed 3rd March 2021.

325. Bowering, G. "Covenant," Encyclopaedia of the Qur'ān, Brill Publishers, Leiden, vol. 1, pp. 464-467.

326. Anderson, J. N., (2018). "A Religion of the Covenant: The Centrality of Covenant Theology to the Islamic Faith". ST540: Christian Encounter with Islam. Pp. 1-19.

A significant work on the Covenant by Darnell³²⁷, shows that there are more than 700 verses of the Quran which are related to the Covenant idea, encapsulated within the three general principals of the faith; remembrance of God's favour, promise of reward, and the commandment's to be followed. His study on the theme of the Covenant in the Quran was one of the first major pieces of work on the subject in modern times, although it is now some 50 years since it was presented as a PhD thesis at the University of Michigan. Darnell examined all of the verses of the Quran which seemed to express a covenantal idea in the form of a bond, contract or agreement³²⁸. For example, in Surah al-Maida, the 5th chapter of the Quran, Darnell notes the mention of three covenants; that with the believers, that with the Christians and Children of Israel. This Surah, which was revealed in Medina, is also the Surah in which God stated the finality of His revelation, "This day I have perfected for you your religion, and completed My Blessing upon you, and have approved for you your religion, Submission (Islam),..."³²⁹. The chapter mostly deals with legislative, ritual and dietary matters before the proclamation of this statement, but as it highlights God's covenants with the people of the book the emphasis here seems to be one of reassurance to the believers, the followers of Muhammad, and to give them the conviction of the unity of revelation as well as in the unity of God.

The general message of the covenant with the believers seems to secure the spiritual autonomy of Islam and the Muslim community using signs which encompass commandments and promise. These signs, though in many cases are specifically related to the Children of Israel or the Muslim believers, but they are also related to divine favours, particularly those that are relevant to the beneficent workings of the natural order³³⁰. It is these signs, in conjunction with God's power, which warrants reverence and gratitude towards the Creator, thus preparing the believers for the reception of divine commandments. The believers are thus obligated to accept, believe and support God's Messengers.

327. Darnell, Jr. Robert Carter., (1970). *"The Idea of Divine Covenant in the Quran"*. PhD Thesis. University of Michigan.

328. Ibid, 327.

329. The Study Quran; 5:3.

330. Firmage, E. B., Bernard G. Weiss and J. W. Welch. *"Religion and law : Biblical-Judaic and Islamic perspectives."* Vetus Testamentum 41 (1991): p. 55.

There is no doubt that the covenantal concepts hold a special place within the Quran and likewise discussions and commentaries on these themes were quite prevalent amongst early Islamic scholars, particularly the covenant between God and human beings as noted by Lumbard³³¹. The significance of the covenants, both to the Quran and Islamic theology, is a subject that is seeing a revival through the works of Lumbard and other contemporary scholars of Islam. These scholarly studies are helping to revive and articulate the vision of the covenants and what it means for the humankind. As God is the Lord of all creation, and that humankind is given the faculty of reason, a free will and dominion ship over creation, then the question which naturally arises is “What Covenant or contractual relationship exists between humankind and creation”? The contractual relationship between God and humanity, which the covenants define, is considered to be central to the Quranic worldview³³². Many Quranic exegetes considered the covenants as being central to the Quran’s view of humanity, and hence, the subject was quite prevalent in the commentary traditions of the faith³³³. Covenantal verses of the Quran during Islam’s formative period attracted much attention of the scholars, who examined their texts very closely and with varying interpretations³³⁴. The covenants thus became the foundation of Islamic theology. The most significant of these was defined by one of the most important events in Humanity’s history, *The Day of Alastu*³³⁵ (Day of the Covenant). This covenantal verse is the most authoritative standard for the elucidation of the theme, and what is termed as the primordial covenant, it is also referred to as “the Verse of the Covenant”. A significant aspect of this event is that the response to God’s rhetorical question did not require a conscious effort, the answer in the affirmative came naturally. This natural inclination is termed the *fitrah*³³⁶ and is what predispositions the humankind to worship the One God.

331. Ibid, 9.

332. Ibid, 324.

333. Ibid, 9.

334. Ibid, 318.

335. The Day of Alastu refers to the event in Humanity’s history where God called each and every human soul that would occupy the earth to testify who their Lord is, “*And when thy Lord took from the Children of Adam, from their loins, their progeny and made them bear witness concerning themselves, ‘Am I not your Lord?’ They said, ‘Yea, we bear witness’,...*”, Quran; 7: pp. 172-3.

336. The classical views of the *fitrah* presents three major interpretations; *the predestinarian view, the neutral view and the positive view*. All are considered to be valid, but most importantly its concept is connected with the humankind’s creation, role and destiny. Mohamed, Y., (1996). “*Fitrah: Islamic Concept of Human Nature*.” Ta-Ha Publishers Ltd.

The attention of the scholars on “the Verse of the Covenant” presented a number of different, but quite significant, interpretations. One such area of difference was whether the Covenant was universal, concluded with the whole of humanity, or to a particular group of people such as the progeny of polytheist³³⁷. There were also other Quranic scholars who questioned whether the event actually happened or was it a metaphorical expression. Despite the differences in opinion covenantal versus of the Quran became a unique area of Muslim theological scholarship tradition. Unlike other areas of scholarship, theologians did not the treat the doctrine of the covenant as a separate systematic exposition and hence the importance of the subject became overshadowed by other subjects in Islamic theology³³⁸. Nevertheless, such was the importance of this verse that modern scholars recognised its significance in the understanding of the Quran itself and its vision of human history. The Covenant also reflects the fallibility and weakness inherent within the humankind and their relationship with God.

The other verse in the Quran which compliments “the Verse of the Covenant” within the overall covenantal theme is the *amānah*, the Trust³³⁹. This verse is also referred to as “the Verse of the Trust”. These two covenantal versus encapsulates humankind's relationship with God, firstly his monotheistic inclination, *fitrah*, and secondly, through a Master & servant distinction through obedience as implied by the Covenant of Trust. Humankind's commitment is required in both cases for their success in the hereafter, which ultimately will depend on the degree of willpower committed in each case during their lives on earth. This willpower must also include the effort that is required, in all its form, to honour the trust, *amānah*, by maintaining the balance that God has created in the natural world. In the case of humankind's obedience to God implied by the *amānah*, the offer of the trust was first made to the most majestic and imposing creations of God, the earth, the skies and the mountains. The humankind were made to witness the offer and the subsequent refusal from them to take on the trust out of fear. The acceptance of this trust no doubt demanded an extraordinary amount of willpower, despite humankind's size and fragility in comparison to the mountains and the skies. It also demonstrated an inherent arrogance and ignorance on the humankind's part, in that they dared to accept what these great and imposing creations of God rejected.

337. Ibid, 318.

338. Ibid. 9.

339. The Study Quran; 33:72.

The Verse of the Covenant and the Verse of the Trust thus presents the dualistic opposing vision of the nature of the humankind. The positive side enables the humankind to accept God as their Lord through reason and intellect, and to demonstrate those noble attributes of God themselves. The inherent negative side, however, is what causes the humankind to forget and rebel against the natural order, resulting in the environmental crisis.

The dual vision of the humankind's nature, both positive and negative, is mentioned throughout the Quran, but it is the ability to reason and learn, a faculty that God gave to Adam, and honouring him as God's *khalifah* on earth, which raises the humankind's status above all other creations. Even with this knowledge modern scholars are aware of the misleading conclusions that can be drawn from the lack of a systematic study on the subject, but this should not relegate the importance of the concept as it ultimately defines humanity's relationship with God.

Modern scholars, such as Rosalind Gwynne³⁴⁰, consider the Covenant as being "the logical key to the entire structure of the Quranic argument", and that "every argument in the Quran expresses or implies one or more of the covenantal provisions"³⁴¹. She argues that the lack of any systematic and isolated treatment of the covenantal concept does not diminish its importance. On the contrary she says, "So intrinsic is it to the message of the Quran, in fact, that the Covenant as a discrete concept does not have a clear profile in Islamic Scholarship"³⁴². The reason for the lack of isolated treatment of the covenantal concept, according to Wiess³⁴³, is that early scholars did not deem it necessary to write any comprehensive and systematic treatises on the subject. Gwynne also offers an alternative explanation, one based on hermeneutical or methodological reasons, noting that scholars were "more concerned with the immediate context and with the occasions of revelation"³⁴⁴. There is therefore an abundance of material that covers covenantal concepts in the Quran, but very little attempt has been made to present its implication for environmental ethics from a theological or pedagogical perspective.

340. Gwynne. R. W., (2004). *Logic, rhetoric, and legal reasoning in the Quran. God's arguments*. Routledge. pp. 1-121.

341. Ibid, 340, p. 1.

342. Ibid, 340, p. 4.

343. Ibid, 317, p. 50.

344. Ibid, 340.

As the concepts of the *khilāfah* and *amānah* are central to an Islamic rationale for environmental ethics, and since the entire creation ultimately belongs to God, then the *amānah* (the trust) is intrinsically linked to the primordial covenant, “the *fitrah*”, between humankind and God. Human beings were the only ones prepared to undertake the task of trusteeship willingly. The *khilāfah* thus entails fulfilment of the trust to ensure the security of the earth, its other inhabitants, the maintaining of the environment and ultimately leaving it acceptable for the next generation.

It is from the unfolding of the story of Adam and Eve, their breaking of their Covenant with God and their eventual abode on the earth that prepares the humankind for the reception of their Covenants from God. The covenantal themes in the Quran thus unfold in three phases; the primordial pre-temporal covenant, the covenant with the Prophets and thirdly the covenant with the people³⁴⁵. All covenants, however, are ultimately rooted to the primordial pre-temporal Covenant, the *fitrah*, acknowledging in the divine oneness of God.

According to Qadi³⁴⁶ the Primordial Covenant, the *fitrah*, is also a covenant of grace, as it is this enactment from God that affirms the potential inherent goodness that all humans are all capable of. The Covenant also provides a means to salvation for those who fall into error, as is given by the example of the acceptance of repentance from Adam and Eve by God after eating from the forbidden tree. God recognises the inherent flaws and weaknesses within the humankind, its limitations and forgetfulness, as without these limitations the concept of free will and the Covenant of the Trust and all other covenants have no real purpose as a test. It is because of these human deficiencies, first shown by Adam and Eve, that paves the way for the second phase of the covenants, those with the Prophets.

345. Ibid, 9.

346. Ibid, 318, p. 50.

Those who encounter accept and fulfil the obligations of the second Covenant from the Prophets, are those who will benefit from the first Covenant. Therefore, according to Quranic exegetes, the *fitrah* alone is not sufficient for one to be guided to salvation³⁴⁷, as any rebelliousness or lethargy on the humankind's part negates the very essence of the Covenant and one's individual commitment to God. More significantly salvation is completely negated if one forgets the Covenant, as it is deemed to renounce one's very commitment to monotheism, the belief in the One God. Islam's covenants are therefore regarded as an act of grace by God and a means for the humankind to be guided to salvation.

In the Islamic world view living by the vision enshrined by the Covenants represents the ideal balance and natural order for the humankind state. It is what connects the humankind with the divine, made possible by the mutual agreement, the Covenants, between God and all of humanity. Inanimate objects, as well as all other creatures, are in a constant state of worship by their very nature, and hence the universe and the natural world are in a perpetual state of equilibrium and balance. The humankind are the only anomaly and exception to this condition, as God has given them the free will and the ability, through their inherent weakness, to upset the natural order and balance, thus defying and showing ingratitude to God's grace.

The natural world and the environment with its eco-systems and bio-diversity can also be seen in this light of God's grace as it provides the signs, *āyāt*, for the humankind to affirm the existence of God. Furthermore, God's grace to humanity is also shown through his Prophets and the revelations they have brought, to remind the humankind of their Covenant with God. The Verse of the Covenant also reminds humanity that failure in the hereafter, on the basis of how we conduct ourselves on earth, is real and a possibility, "lest you should say on the Day of Resurrection,.."³⁴⁸. The fact that the humankind have caused corruption, *fasād*³⁴⁹, on an immense scale, resulting in the environmental crisis which goes against God's natural order, is not only an act of disobedience but also shows humankind's disrespect for the grace that God has shown humanity. The Covenants with the Prophets remind people of their obligations to God and to restore them to the path of *tawhīd* and thereby observing the first Covenant.

347. Ibid, 318, p. 34.

348. The Study Quran; 7:172.

349. Ibid, 1.

The third phase of the Covenant, for the humankind's life on this earth, is to recognise the divine Covenants and to live by them accordingly. It is the latter that provides the scope to attain God's Mercy through His divine grace and forgiveness, but only on the basis of the acceptance of the first Covenant, the *fitrah*, and fulfilling the obligations of the second and third Covenants. The Prophet Muhammad's life and his character is regarded as the exemplar for fulfilment of God's Covenants for Muslims.

The Verse of the Covenants provides the Quranic vision for humankind's responsibility and obligations on earth, within the framework of the fallible nature of the humankind. The Prophets, the revelation they bring and the exemplar they set, provide the guiding principles for all of humanity to remember and honour their Covenant with God. The ultimate aim of the humankind is to attain salvation in the hereafter, to a world where God becomes evident to all and reigns supreme, this is the central vision of the Covenants. The earthly abode is but a stepping stone to that ideal, it is a place of providing the evidence for the sorting of the humankind on the Day of Judgement. The earthly abode therefore allows the humankind, through their many blessings, hardship and adversities to use reason and intellect and grow spiritually and morally. It is also the place where the humankind are given the opportunity to be able to demonstrate the qualities of those divine attributes by honouring and fulfilling the obligations stipulated by the Covenants.

It is in this context that the Quran presents trials, tribulations and suffering as inevitable and essential for human intellectual, moral and spiritual development. These aspects of the earthly life, as hard as they may seem, have always been a contentious issue, one which has created a great divide between the theist and atheist. The Quranic position is that both the believer and the non-believer will experience them, "And We will indeed test you with something of fear and hunger, and loss of wealth, souls, and fruits; and give glad tidings to the patient"³⁵⁰.

350. The Study Quran; 2:155. See also 2:214.

Humankind therefore grows through suffering, struggling and striving against all forms of hardships and adversity both individually and collectively. This is part of the trial for the humankind but the reward for the steadfast believer will be great, “Or did you suppose that you would enter the Garden without there having come to you the like of that which came to those who passed away before you? Misfortune and hardship befell them, and they were so shaken that the Messenger and those who believed with him said, “When will God’s help come?” Yea, surely God’s Help is near”³⁵¹.

The environmental crisis, world pandemics and diseases are only some of the greatest challenges in humankind’s striving and struggle, but there are also other struggles in the humankind endeavour which are also having a profound impact. The way the humankind lives, which are now intricately linked on global scale to business and monetary models, transportation, food consumption, energy use and so on. As the humankind lives in an extractive economy there is only so much the earth can provide and the current models are clearly not sustainable. With the magnitude of the environmental crisis and climate change the tipping point has been reached, the natural order and balance to which the Quran refers, which is intrinsic to the order of God’s creation, has no doubt been upset, “Heaven has he raised and the Balance He has set, that you transgress not in the balance”³⁵². The environmental crisis is the evidence that the humankind have failed to honour their Covenantal obligations with God. However, God through His grace provides a way out of any predicament, as was demonstrated in Adam’s opening scene in heaven. The Quranic verse on environmental corruption ends with “that haply they might return”³⁵³, is a positive from God not passive or resigned. It shows that the Quran’s attitude to humankind suffering and adversity is part of the greater order of God’s plan for humanity. From a positive and dynamic perspective, God has provided through these means, for the humankind to develop within themselves and demonstrate, albeit at an infinitesimal level, those great attributes of God. It also unveils the human vision, to see God’s attributes at work within His creation. The environmental crisis, climate change, diseases and pandemics therefore presents humanity with the greatest collective challenge that humanity has ever faced. However, they also offer humanity with the greatest opportunity to honour and fulfil humanity’s Covenantal obligations.

351. The Study Quran; 2:214.

352. The Study Quran; 55:7-8.

353. Ibid, 1.

The Covenantal concepts in the Quran are outlined in Figure 7, showing their timeline. The entire divine-human relationship is thus represented within the context of the obligations imposed upon the humankind through the various Covenantal agreements. It is within this context that humankind's struggle and response to the environmental crisis will surely fulfil the aims and objectives of the Covenants, the Primordial Covenant, the *fitrah*, first and foremost and honouring the trust, *amānah*. It is by upholding these Covenantal obligations that one can be a true *khilāfah*, vicegerent of the earth.

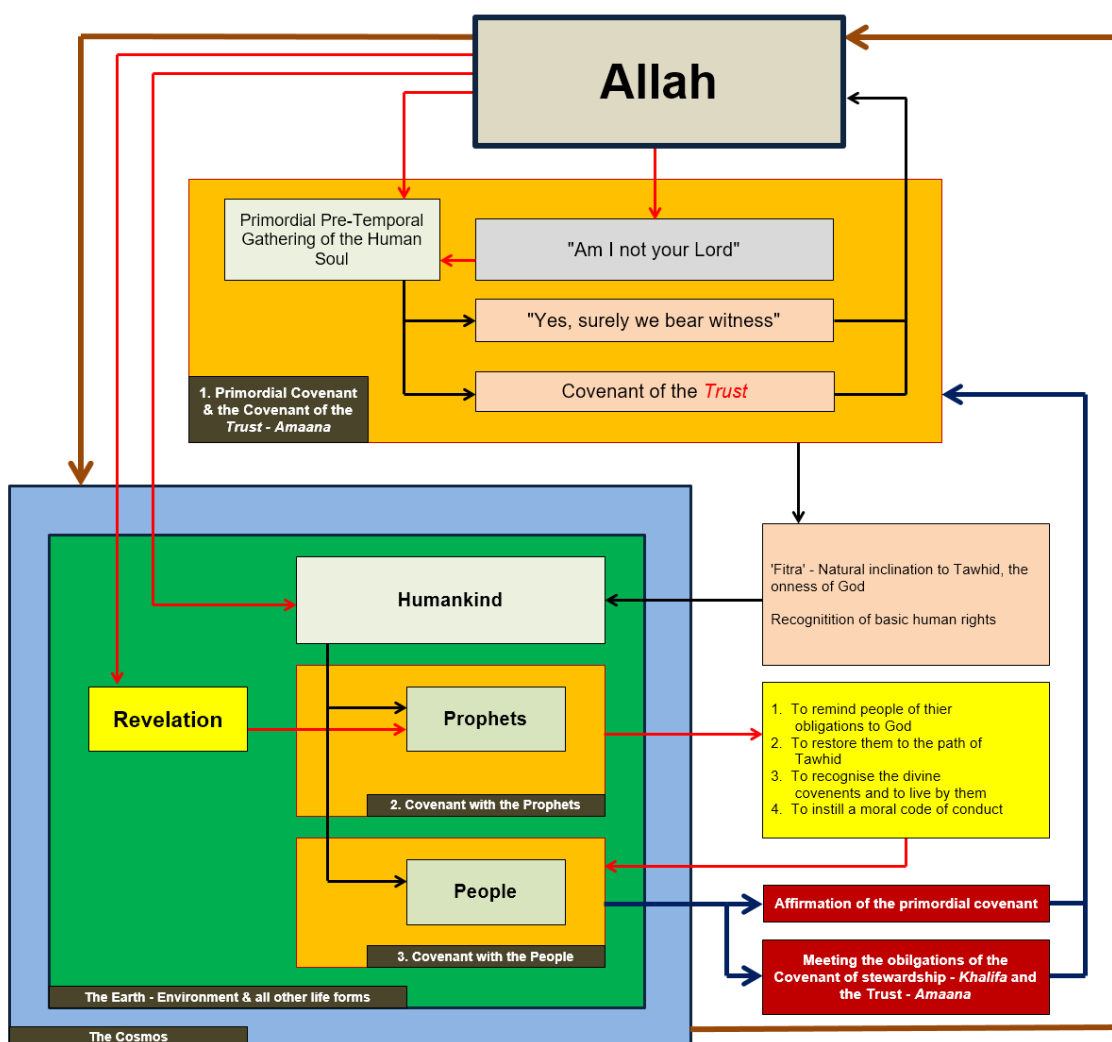


Figure 7. The covenantal concepts in the Quran (created by the author)

5.5 Creation and Environmental Components in the Quran

The Quran consists of 114 chapters which are further divided into 30 equal parts (*Juz*) comprising of a total of 6236 verses³⁵⁴. Amongst these chapters the Quran is replete with verses which pertain to the natural environment, its components and its various natural phenomena. As God does not reveal or create anything without purpose, “And We did not create Heaven and earth and whatsoever in between them in vain”³⁵⁵, then these verses warrants our special attention.

Verses relating to creation is one of the most unique themes of the Quran, which is replete with reminders of God’s love, mercy and care for His creation. His divine imprint is in creation in all its manifestations, the Quran calls upon the humankind to contemplate upon this attentively. The Quran uses the term ‘*āyāt*’, “signs” of God to highlight the miracles within creation that should remind us of God and of His knowledge, presence and of the many attributes and qualities which point to a single truth. The verses of the Quran in its entirety are also called *āyāt*, and like the miracles the verses are also taken to be signs of God which He has conveyed to humanity through Prophet Muhammad, revealing His Wisdom, Power and Mercy as well as many of His other qualities and attributes.

Humankind are urged to reflect upon the many verses contained in the Quran which describe the beauty of the natural world in awe and admiration. The earth itself is mentioned more than 400 times, whilst the sky and other similar references are made 300 times³⁵⁶. To emphasise the importance of creation, and to invite the humankind to reflect upon them, many chapters in the Quran are named after animals, plants, natural resources and phenomena, as identified in Table 1. The Quran emphasis that these are all created by God and to be of direct service and benefit to the humankind, “He made subservient unto you whatsoever is in the heavens and whatsoever is on earth – all together. Truly in that are signs for a people who reflect”³⁵⁷. By acknowledging God as the Creator and Master the servant distinction of the humankind, where one becomes a true servant of God, allows one to see the obligations placed upon them within the context of the role of the *khilāfah*. It then becomes possible to reflect and acknowledge that all things are thus made subservient to the humankind in trust, *amānah*.

354. Fazli, A. H., (2012). “*Number of Verses of the Quran (Index and Argument)*”. Int. Journal of Humanity’s and Social Science. Vol. 2 No. 19 [special Issue – October 2012]. pp. 264-267.

355. Jusoff, K., and Abu Samah, S., (2011). “*Environmental Sustainability: What Islam Propagates*”. World Applied Sciences Journal, 12: pp. 46–53.

356. The Study Quran.

357. The Study Quran; 45:13.

Table 1. Quran chapters named after animals, plants, and natural phenomena

Chapter Title	No.	Chapter Title	No.
The Cow	2	The Blood Clot	96
The Cattle	6	The Sand Dunes	46
The Thunder	13	The Mount	52
The Bee	16	The Star	53
Light	24	The Moon	54
The Ants	24	Iron	57
The Spider	29	Man	76
Smoke	44	The Cleaving Asunder	82
The Dawn	89	The Constellations	85
The Land	90	The Earthquake	99
The Sun	91	The Declining Day	103
The Night	92	The Elephant	105
The Morning Brightness	93	The Palm Fibre	111
Expansion	94	The Daybreak	113
The Fig	95	Mankind	114

The repetitiveness of some of the key words, verses and concepts in the Quran give an indication of the importance of the subject matter for humankind's reflection, actions and obligations. The Quran is considered to be the literal word of God, but most of the details in relation to Islamic law and doctrine actually come from the teaching of Prophet Muhammad which complement the teachings found in the Quran. The actions for Muslims that can be derived from the Quran requires the application of "*fiqh*", the rules of right action through understanding within the divine and philosophical context of the *Sharī'ah*. *Sharī'ah*, a concept that is generally misunderstood, is not a book of law, statutes or judicial precedents imposed by governments, but rather it is maintaining a way of life guided by the Quran and the life of the Prophet Muhammad.

Figure 8 shows some statistics of the verses which appear in the Quran related to creation in general. It also shows that that 1 in every 2 verses God, *Allah*, is mentioned. The actual number, if all the attributes of God had been used, would be significantly higher. The various components of the earth; sky, land, water, rivers, sea, mountains, iron and wind represent nearly 13% of the Quran's total verses. However, when all the verses of every element of creation mentioned in the Quran are considered together this represents 26% of the total verses, representing over a quarter of the Qur'an's verses.

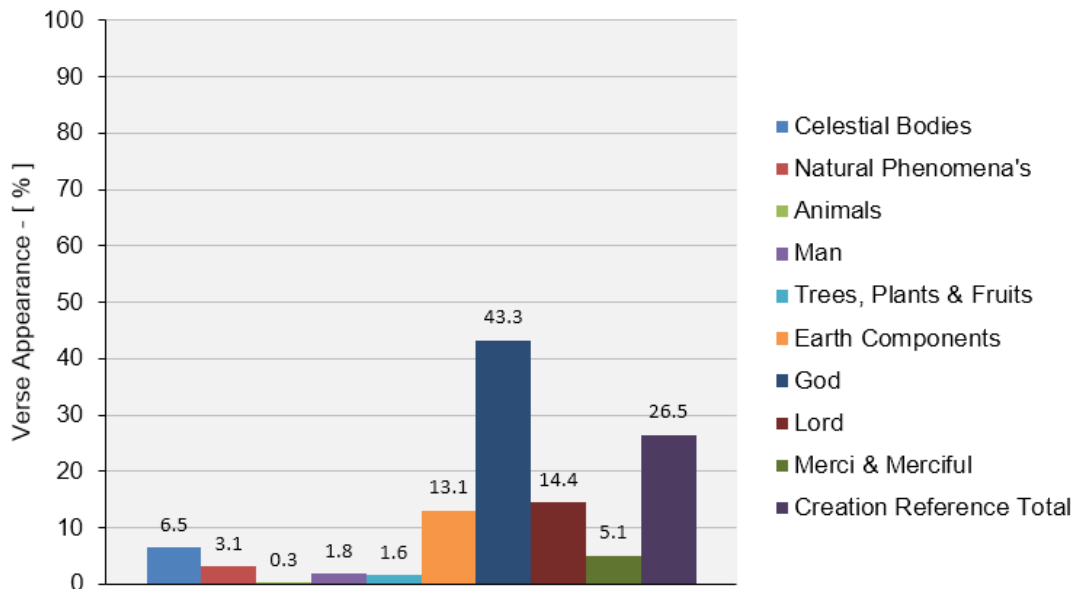


Figure 8. Quran verse statistics (created by the author)

Water in Islam has a very prominent position, it is considered as a divine gift and blessing and also symbolises profound wisdom, “the drink that quenches the soul’s thirst”³⁵⁸. Water through the mention of rain, fountains, clouds and rivers are mentioned throughout the Quran as a symbol of God’s benevolence to the humankind and to all of His creatures. Water in Islam, as well as in many other cultures, represents purity by which one attains cleanliness and spiritual purification. All life, whether in, on or above the earth, is dependent on water. We know today that water covers 71% of the earth’s surface³⁵⁹, and according to scientific understanding, life originated from water, a position which is in agreement with the Quran, “And God created every beast from water...,”³⁶⁰. According to scientific understanding the brain and heart are composed of 73% water, lungs are about 83%, skin contains 64%, muscles and kidneys contain 79%, and even the bones contain 31%³⁶¹.

358. Cherif Abderrahman., (2020). “*Water in Islamic Culture*”, EcoMENA Echoing Sustainability in MENA, February 29th. <https://www.ecomena.org/water-Islam/>. Accessed 13th March 2021.

359. Igor Shiklomanov’s chapter “*World fresh water resources*” in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World’s Fresh Water Resources* (Oxford University Press, New York).

360. The Study Quran; 24:45, see also 21:30, 25:54.

361. Mitchell, H., T. Hamilton, F. R. Steggerda and H. S. Bean., (1945). “*The chemical composition of the adult human body and its bearing on the biochemistry of growth.*” *Journal of Biological Chemistry* 158: pp. 625-637.

The Quran is not considered as a book of science but there are many verses mentioned throughout the Quran which deals with nature as a manifestation of God's creativity, as well as numerous scientific statements, such as that concerning water as a life originating element. No doubt these verses throughout Islamic history have been the subject of ongoing debate, particularly about how Quran and science relate to each other. Al-Ghazālī who was one of the first scholars who advocated the use of science to expand the meaning of some of the scientific verses of the Quran. He wrote that "all ideas and theories that thinkers found ambiguous, and that people disagree on, are implied in signs and indications in the Quran that only specialised, knowledgeable people can apprehend"³⁶². However, the use of science as a method to interpret the Quran was met with opposition and thus never gained full approval³⁶³.

What makes the Quran unique is the way it presents what one would consider scientific statements within a broader argument. It does not elaborate on the specifics, but forces the reader to ponder and reflect on the verses rather than to simply take a literal understanding. Many verses thus open themselves to a number of possibilities in their meaning without necessarily contradicting the context in which it is written or those of modern scientific knowledge. Take for example the Quran's verse which makes a reference to the origins of life, which it presents in the context of a much wider argument of creation as a sign of God, but very concisely, "And We made every living thing from water"³⁶⁴. Maurice Bucaille comments that the verse offers two possible meanings, both of which are in accordance with scientific understanding, "Life is in fact of aquatic origin and water is the major component of all living cells. Without water life is not possible"³⁶⁵. It is this style of the Quranic revelation which helps to inspire in the reader to engage with the Quran with more intellectual curiosity. There is no doubt that it is this literary style of the Quran that has helped to elevate those early Islamic scholars and thinkers to such heights to create the golden era of the Islamic civilisation.

362. Al-Ghazali. Abu Hamid., *Ihya' culum al-din* (Cairo: Mustafa al-Halabi Press, 1939) vol. 1, p. 296. Cited in Khir, Bustami Mohamed., (2000). "*The Qur'an and Science: The Debate on the Validity of Scientific Interpretations*". *Journal of Qur'anic Studies*, vol. 2, no. 2, 2000, pp. 19–35. JSTOR.

363. Khir, Bustami Mohamed., (2000). "*The Qur'an and Science: The Debate on the Validity of Scientific Interpretations*". *Journal of Qur'anic Studies*, vol. 2, no. 2, 2000, pp. 19–35. JSTOR.

364. *The Study Quran*; 21:30.

365. Bucaille, M., (2003). "*The Bible, the Qur'an, and Modern Science: The Holy Scriptures Examined in the Light of Modern Knowledge*". Tahrike Tarsile Qur'an. p. 135.

Throughout earth's history human civilisations have been built around and on the use of water. The significance and impact of the use of water in the Islamic civilisation on European culture is nowhere more evident than in Al-Andalus, Spain. It was under the leadership of Abd Al-Rahman, also known as "Falcon of Quaysh", who created an independent kingdom in Al-Andalus with Cordoba as the capital and ruled from 756-788³⁶⁶. Under his leadership he unified the Muslim, Christian and Jewish communities and established, industries, educational institutions and introduced new methods of agriculture. At the heart of this success was the scientific study of the land and the way water was managed for irrigation and general use, implementing many hydraulic projects using water wheels introduced in Syria. The Muslims of Spain introduced water rights and improved on many of the Roman built systems for managing water such as the canals, aqueducts, and underground water channels³⁶⁷. Water was considered fundamental to agriculture, and played a vital role in the communities leaving a legacy, which even today demonstrates the true value and power of water as evidenced by Spain's Islamic architecture and gardens with its water systems. It presents such a powerful statement on how Islam values water that it naturally provokes curiosity, as one researcher stated after seeing al-Andalus, "I was determined to know the roots of water's value to Islam"³⁶⁸. Islamic influence in Spain no doubt has, and continues to have, a profound impact on Spanish culture. The importance of water, as emphasised by the Quran and confirmed by modern science, that it is indeed a precious gift belonging to all, and therefore must be managed with the highest degree of responsibility. Also, God asserts in the Quran that His Throne is above water³⁶⁹ which gives it a unique divine perspective of the quality of water.

366. Allen, M. P., (2008). *Cultural Flourishing in Tenth Century Muslim Spain Among Muslims, Jews and Christians*. MA Thesis, Faculty of The School of Continuing Studies and of the

Graduate School of Arts and Sciences. Georgetown University, Washington, US. p. 29.

367. Glick, T., (2005). *Islamic and Christian Spain in the Early Middle Ages*. Brill. pp. 253-260.

368. Lacy, Natalie., (2004). *La Cultura del Agua en al-Andalus = The Culture of Water in al-Andalus*. Independent Study Project (ISP) Collection. 506.

https://digitalcollections.sit.edu/isp_collection/506. Accessed 4th September 2021.

369. The Study Quran; 11:17.

In the Islamic world view there are specific rules concerning access to and use of water. Muslim jurists classify water as being either public or private. In between these two ranges jurists define the legal status based on the origins of water and the degree of human needs³⁷⁰. These different categories are; sea water, river water, shared water and water contained in vessels. Sea water is regarded as being freely accessible by everyone like air and sunlight. River water, however, is feely available so long as its use does not affect the rights of others. In today's environmental context and understanding of the complex interrelatedness of bio-diversity and eco-systems, these must also be considered when assessing the impact of the use of water, whether by individuals or businesses. Shared water is generally limited to groups who have the right to access and each has the right to drink from it. Shared water for irrigation purposes is restricted as it is seen as belonging to the group or individuals. Containment of water in storage tanks or other vessels, although it is seen as property but can be seized if there is a water shortage³⁷¹.

As Islam asserts that life is maintained by the use of natural resources and balancing those uses without excess and wastage then this understanding provides a basis for an Islamic theory of environmental ethics concerning sustainability. Nowhere is this more emphasised than the Prophet Muhammad's attitude towards water conservation and protecting it from misuse and pollution. In regards to pollution Islam's environmental principle can be obtained directly from the Prophet Muhammad's statement where he curses a person who soils three places, a roadway, a trees shaded area and the riverbank. Many of the verses of the Quran runs parallel to the concept of environmentalism in regards to maintaining the balance that God has set³⁷². In this regard God's wrath upon humankind are also emphasised when this balance is not maintained as a consequence of the corruption of the land and sea³⁷³. The environmental pollution and human suffering which result from this can be seen as both a form of punishment as well as an opportunity for change - a wake-up call.

370. Ben-Hamouche. M., (2008). *"Islamic Law for Water and Land Management and its Impact on Urban Morphology"*. 2nd International Conference on Built Environment in Developing Countries (ICBEDC 2008).

371. Ibid, 25. p. 30.

372. The Study Quran; 55:8.

373. Ibid, 1.

The elements of nature are fourfold, Wind, Air, Water, Earth and Fire. The Quran mentions all these elements in various verses, always in a holistic sense within a wider context of creation which emphasizes God's creativity as a sign, *āyāt*, for the humankind. Each functions in a precise orderly system, to enable humankind's existence. The Quran mentions air in 24 verses across 18 chapters. Like water air is also essential for all life forms, including also marine life in rivers and oceans. Indeed the health of any river systems depends on the delicate balance of oxygen and other elements in the water. Air has many other important functions which are not so apparent. For example it is one of the means by which flowers are pollinated. Rain clouds are moved around the earth by winds. The world's weather phenomena are all intricately connected with all of these natural elements in perfect unity and balance. Science has only just begun to understand the intricacies and the interconnectedness of these elements with keeping the world's eco-systems in balance. Science tends to isolate and deal with the specific, but for creation as a whole, everything functions as one single system, as depicted in Figure 9, perfectly balanced. It is this balance that the Quran reminds humanity of and the consequences of disruption to its order. Remove any one item then the system collapses. Pollution, greenhouse gases are just two examples which have caused imbalance to the natural order of these elements and this has led to the current crisis of climate change and other environmental concerns. All of these have the potential to impact on the humankind on global scale. The survival and wellbeing of the humankind is therefore dependent on the system functioning in perfect balance, but the system itself is not dependent on the humankind and therefore not shown in Figure 9.

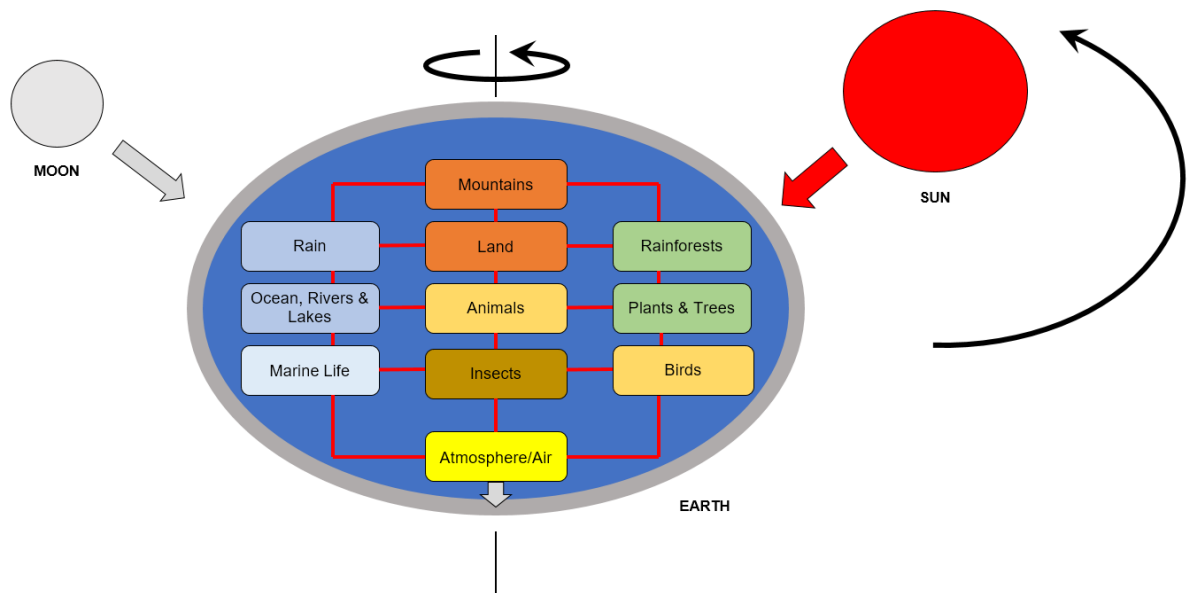


Figure 9. Earth, Sun & Moon system (created by the author)

Of all the elements of the earth water has many peculiarities, even defying the laws of physics that describe the behaviour of all other forms of liquid. For example its density decreases (it expands) as it freezes, which is in total opposite to all other fluids. It is this peculiarity which allows ice to float and without which life in earth would not exist as both the oceans around the Arctic and Antarctica would freeze, completely plunging most of the world into a constant ice age. The weather and seasons, critical for all life forms, would also not exist in the same way as we see them today. Water also has the ability to establish hydrogen bonds, which gives water its unique solvent capabilities, and by which the complementary strands of DNA (Deoxyribonucleic Acid) are held together. The DNA, packaged as a coil, is represented by the famous double helix. It was discovered by James Watson and Francis Crick³⁷⁴ and contains the hereditary information for cells, a biological information database. Water has the right level of viscosity, enabling blood flow around the body of all animals. Water is truly a remarkable element and a gift. It is only upon pondering on every aspect of water, whether from a spiritual or scientific context, one can appreciate its importance for humanity and all life forms. This is why our rivers and oceans need to be preserved and the balance of all elements maintained through a sustainable way of life, something which the Prophet Muhammad and early Muslim civilisations gave great importance to.

374. Watson, J. D. & Crick, F. H., (1953). "Molecular structure of nucleic acids; a structure for deoxyribose nucleic acid". Nature 171. pp. 737–738.

It is no surprising that many of the messages of the Quran accords with the general understanding of the importance of sustainability. For example the gift of fruits are mentioned for our use and enjoyment but with the added emphasis that God does not like those who waste by excess³⁷⁵. The Prophet Muhammad recognised the importance of natural resources and how these should be protected and not over exploited. To protect land, wildlife and forests, the prophet established protected zones; what today may be classed conservation or protected areas. These areas, which the prophet created, became inviolable zones which were known as *harām*³⁷⁶ and *himā*³⁷⁷. The natural resources within these areas were not allowed to be used or consumed. The *harāms* were established around wells and other water sources to protect the overexploitation of ground water. *Himā*, a protected area, were established to protect wildlife and forests by placing restrictions on them for grazing and wood cutting. The practice of *himā* became one of the oldest practices for conservation in Islamic culture.

375. The Study Quran; 7:31.

376. Ibid, 72.

377. Ibid, 71.

5.6 Islamic Environmental Law: Legal Concepts and Perspectives

The two primary and transmitted sources of Islamic Law are the Quran and the Sunnah³⁷⁸, which together provide jurists the means to derive Islamic legal rulings based on revelation and reason. However, there are also secondary sources, such as the consensus of opinion of scholars (*Ijma*), which jurists use in the case where the primary sources are silent on a particular matter. As verses relating to the environment in the Quran are of a very general nature³⁷⁹, then any legal rulings need to combat contemporary environmental issues will fall into this category. However, some of the key Quranic concepts, together with Islam's historical examples and interpretation of the Sunnah, do provide the means to articulate an Islamic environmental ethic. This requires significant interpretational skills of the Quranic texts, knowledge of the life of the prophet Muhammad, his disciples (*Sahaba's*) and knowledge of the works of early key Islamic scholars and how they articulated Islamic legal concepts. Using the same principles Islamic environmental ethics can be conceptualised by articulating some of the key concepts contained within the Quran as discussed. *Tawhīd* is the primary concept and by which all others, the covenants, God's attributes and signs, can be framed within a holistic vision. This conceptual framework is illustrated in Figure 10, and shows not only complexity of the task, but also the holistic vision that must be applied whilst still maintaining Islam's traditional normative education, its methods and principles as well as introducing those experts who are knowledgeable in the relevant environmental sciences. The latter is where the traditional Islamic education is lacking.

Within the scope of *sharī'ah* both the normative legal instruments and the institutional mechanisms can be applied in formulating environmental laws and policies to help address contemporary environmental issues and constrain those business practices detrimental to the balance of the natural environment and its eco-systems.

378. Alwazna, R. Y., (2016). "Islamic Law: Its Sources, Interpretation and the Translation of It into Laws Written in English". *Int. J. Semiot Law*. 29: pp. 251-260. DOI 10.1007/s11196-016-9473-x.

379. *Ibid*, 25.

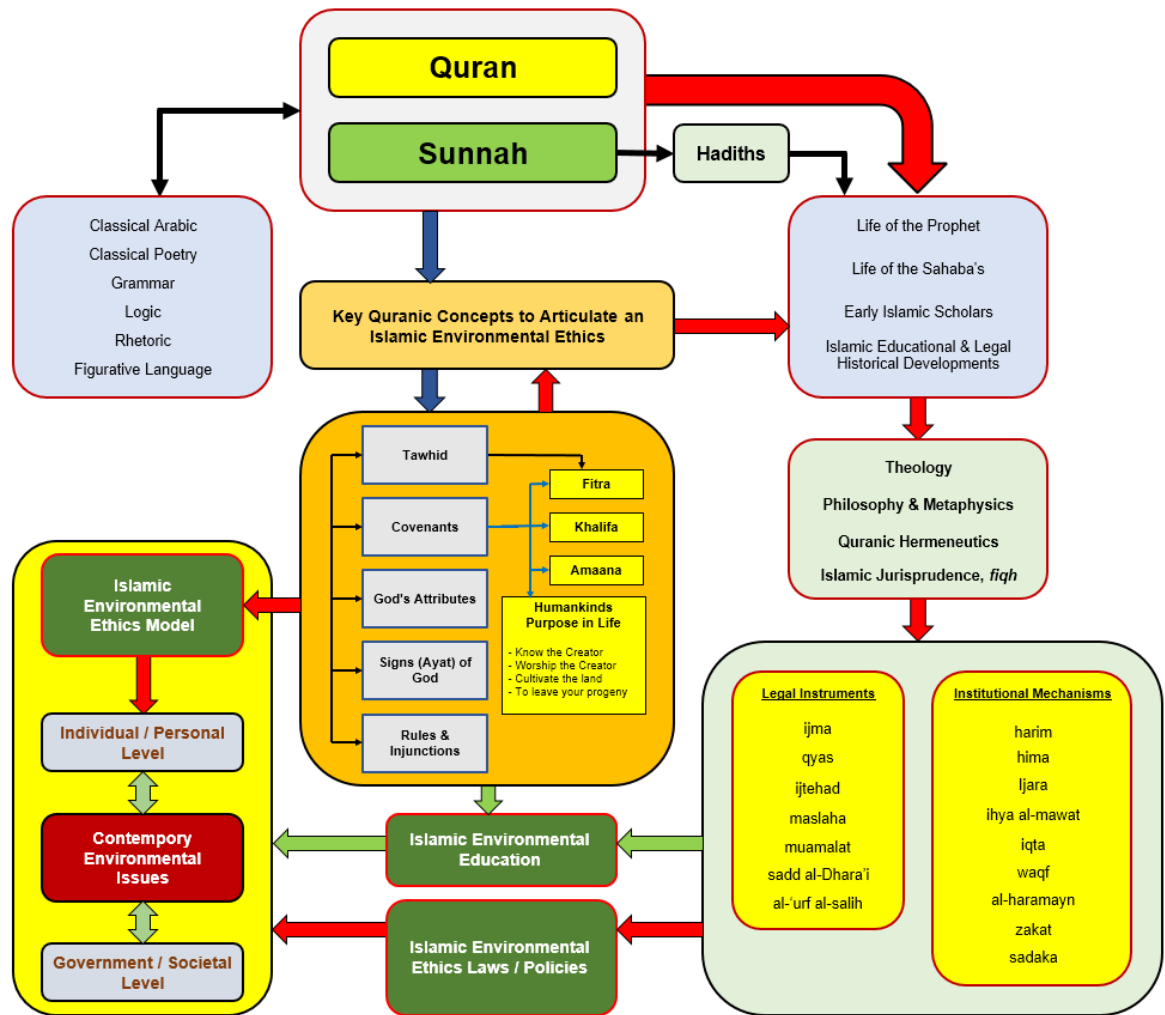


Figure 10. Islamic environmental ethics conceptualization (created by the author)

There are also secondary sources of Islamic law which can be used to support the conceptualization of an Islamic environmental ethic, such as *al-'urf al-salih*, *sadd adh-dharā'* and *qawa'id fihiyyah*. *Al-'urf al-salih*, which means “customary wholesome practice” allows the inclusion in the *sharī'ah* of any customary practices of a society which can help to support the aims of the *sharī'ah* to protect the natural environment³⁸⁰. *Sadd adh-dharā'*, which means “closing the gate to evil” can be introduced into *sharī'ah* where any societal “legitimate” action will actually result in environmental harm or any other detrimental outcome³⁸¹.

380. Caradonna, J. L., (editor) (2017). “*Routledge Handbook of the History of Sustainability*”. outledge International Handbooks.

381. Salleh, A. D., Kashim, M. I. A. M., Adnan, N. I. M., Ghani, N. A. R. N. A., & Jamsari, E. A., (2019). “*Theory and Application of Sadd al-Dhara'i' (Blocking the Means) in Shafi'iyya School*”. International Journal of Academic Research in Business and Social Sciences, 9(1), pp. 724–737.

Qawa'id fiqhiyyah, is the general legislative process in defining legal maxims which are derived from the Quran and Sunnah and from a comparative study of similar rulings. The technique had existed from the time of the Prophet Muhammad and throughout all of Islamic history to the present day. This legal instrument provides a dynamic scope to address issues relevant to the current social environment, such as the environmental crisis. It therefore provides, within its scope, to include non-legal sciences such as philosophy, history, sociology, and anthropology³⁸². As the Quran continuously warns against transgressing the balance in creation then these Islamic legal methods provides scope to uphold *Sharī'ah*'s objective and requirements for protecting the natural environment.

382. Alfauzi, Ro'is. (2020). "*The Dynamics of Qawaid Fiqhiyyah: The Construction and Application in Islamic Law*". *Al-Bayyinah*. 4. pp. 225-242. 10.35673/al-bayyinah.v4i2.815.

6 An Islamic Approach to Environmental Protection & Consequences for its Neglect

6.1 An Islamic Environmental Ethics Model

In the preceding sections I had discussed and presented Islam's environmental teachings from a theological perspective as well as showing how the prayers and rituals are also cyclically connected with the natural world. I have shown that Islam presents humanity, and all of creation, in all-encompassing unity through the oneness of God, the bedrock of Islam's principle of *tawhīd*. The many references to creation in the Quran, together with its environmental teachings, does indeed affirm that Islam is the Religion of Nature, or *Din al-Fitra*. All of creation and humanity are part of the whole, in perfect balance. It is human action which has disrupted this balance. In this Anthropocene age and the current state of the natural environment the need for human change in behaviour and attitude is becoming ever more topical each day³⁸³. By assessing the global environmental issues through an Islamic theological lens provides a different worldview and purpose for Muslims and humanity alike.

By providing a theological assessment of the Islamic concepts of creation, the fall narrative, *khilāfah*, *amānah*, attributes of God and the Covenantal concepts I have shown that these have the potential to provide an Islamic approach for the protection of the natural environment. First and foremost it allows one to see the sanctity of nature and seeing God everywhere, not physically, but the manifestations of His Divine attributes. Using the theological concepts presented in this study an Islamic environmental ethical framework can be derived for the protection of the natural environment. By recognising the potential of every creation, its value and purpose, helps to provide that framework. The framework can thus be underpinned by the Islamic theological perspective of the natural world, which helps to recognise that all of God's creation is an intrinsic part of God's plan for humans to achieve their, potential, value and purpose. As the Islamic prayer and its rituals provide the connection with creation in a cyclical and perpetual cycle of birth and re-birth this must also extend outwardly to positive environmental action, so that protecting the environment becomes as natural as the prayers and rituals themselves.

383. Zuleka Keskin, Mehmet Ozalp., (2020). "An Islamic Approach to Environmental Protection and Ecologically Sustainable Peace". J. Camilleri and D. Guess (eds.), Towards a Just and Ecology Sustainable Peace, https://doi.org/10.1007/978-981-15-5021-8_6. Accessed 14th March 2022.

Creation displays the infinite beauty in Gods creativity, which is also in a state of worship in its own way as prescribed by God³⁸⁴. The Quran refers to every species as a community (*Ummah*)³⁸⁵, and the same word is also used to refer to the human community³⁸⁶. Therefore, every creation has a right to exist peacefully. Islam's concept of accountably, justice and balance can thus help to establish that ecological peace. Figure 11 shows an Islamic environmental ethics model, derived from Islam's theological concepts, by which the protection of the natural world can be introduced into Islam's normative concept of worship.

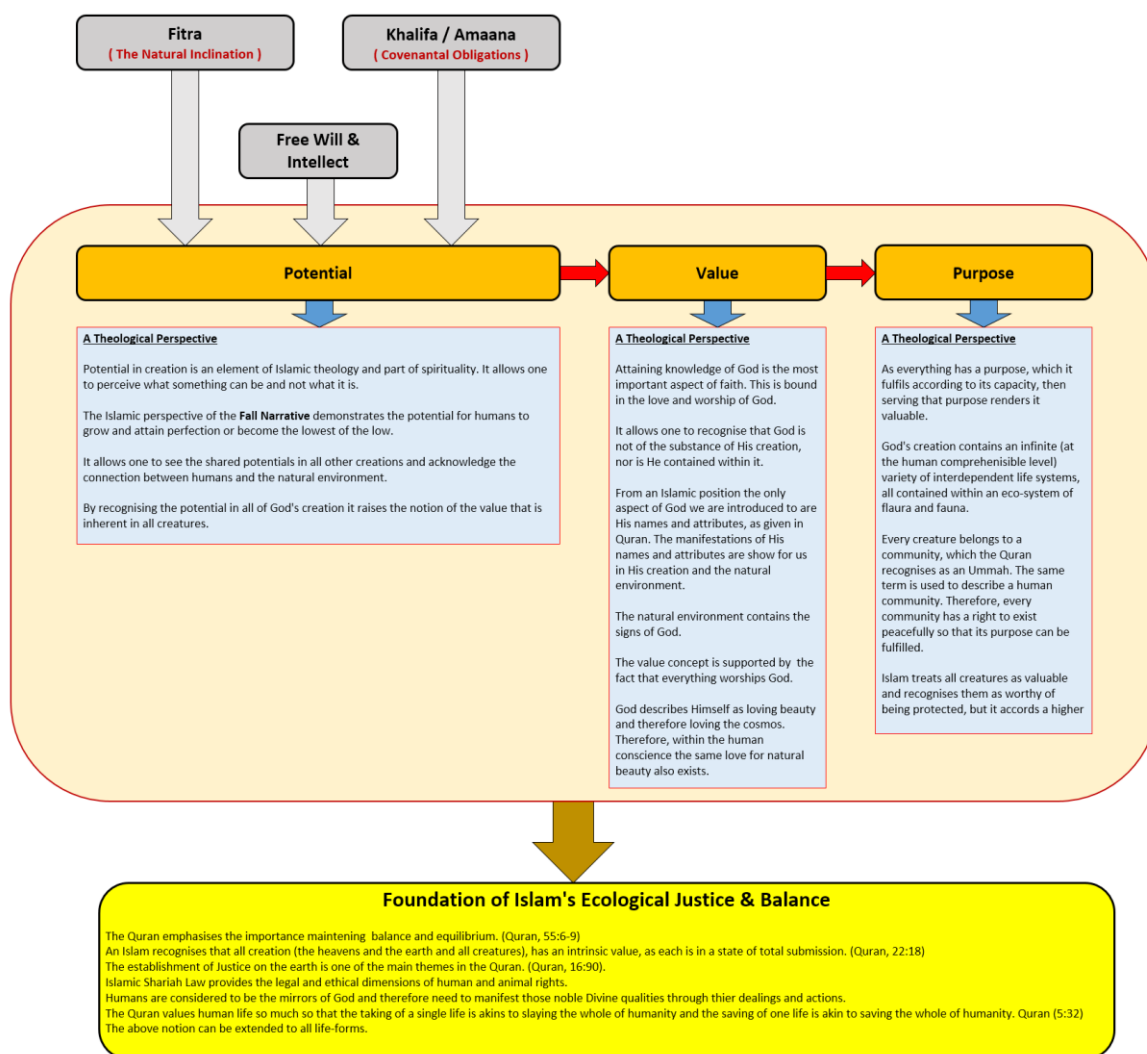


Figure 11. An Islamic environmental ethics model for environmental protection (created by the author)

384. The Study Quran, 22:18.

385. The Study Quran, 6:38.

386. The Study Quran, 21:92.

6.2 The Prophets Ethical Character for Environmental Inspiration

The environmental ethics model presented in Figure 11 can be implemented in one's life by way of example from the Prophet Muhammad's life who is the exemplar in moral and ethical character and is the embodiment of the spiritual ideals given in the Quran. His sayings and actions embodies the practical ethical orientation towards the natural world. Both the Quran and hadith give Muslims hope, with no justification for despair or despondency no matter what condition an individual is in, and by extension, the condition of the natural environmental. This is exemplified by numerous examples from hadiths which demonstrate God's mercy through simple acts of ethical and moral behaviour towards His creation. The following hadiths, taken from the works of Reza Shah Kazemi³⁸⁷ and other sources, demonstrate God's mercy and equally His justice for all creation.

- A prostitute was passing by a well where she saw a dog at the point of death from thirst. She fetched water from the well and quenched the dog's thirst. According to the Prophet, her sins were forgiven. (Ṣaḥīḥ al-Bukhārī 3321).
- A woman was punished due to a cat she had imprisoned and starved until it died, so she entered the Hellfire. (Ṣaḥīḥ al-Bukhārī 3482)
- 'Whoever kills a sparrow or anything bigger than that without a just cause, Allah will hold him accountable on the Day of Judgment'. (Sunan an-Nasa'i 4446)
- 'Whoever cuts down a lote tree, Allah will cast him headlong into the Fire'. (Abu Dawud, Sunan, no.5241)
- The Prophet forbade all forms of blood sport. (Muslim, Vol. 3, Hadith No. 1958)
- There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it, but is regarded as a charitable gift for him. (Ṣaḥīḥ al-Bukhari 2320)

It is not possible to list all of the hadiths which have an environmental ethical message but the ones listed above are the most well-known hadiths. The example of the severe consequences for the one who the cuts down a Lote (*Sidr*) tree provides much relevancy in today's environmental/climate change context, where un-imaginable number of trees throughout the world are being cut-down. It is well established today that the Lote tree provides many benefits for humans, but equally all trees provide benefit for humans, they are "the lungs of the earth", producing oxygen as well as filtering the air and absorbing pollutants.

387. Reza Shah Kazemi., (2011). "Seeing God Everywhere – Qu'ranic Perspectives on the Sanctity of Virgin Nature". A Journal of Tradition and Modernity, no. 27, June, pp.15-38.

6.3 The Consequences for Humans from a Quranic Perspective

When one reads the Quran, particularly those verses which deal with the end times, one becomes aware of the environmental signs and realises how helpless and insignificant humanity is in the greater cosmos. But the Quran also gives the possibility to restore the situation on the part of humanity through a sense of personal responsibility. There are many verses which describe various environmental catastrophes that have befallen humanity in the past, but I will elaborate briefly on the reading of one of the chapters, *Surah al-Takwir*³⁸⁸ (The Enfolding). This chapter is a description of the impending doomsday scenario for humanity and each of the verses describes an aspect of the contemporary ecological and social crisis humanity is facing. Those verses relating an end-of-time scenario which maps the current environmental and ecological crisis are shown in Table 2.

Table 2. Surah al-Takwir (The Enfolding) – Humanity’s End of Time Scenario

(1) When the sun is enfolded	It is scientific fact that one day the Sun and their stars will run their course and die, like the many other stars in the solar system.
(2) and when the stars fade away;	
(3) when the mountains are set in motion,	Today humans have the technology to move the mountains, and one has to see Mecca to appreciate this verse where many of the hills surrounding the area have disappeared.
(4) and when the pregnant camels are abandoned;	In ancient times a pregnant camel was considered a most valuable asset and this is now replaced with cars and other technological modes of transport.
(5) when the wild beasts are gathered,	This is an accurate description of the mass movement and slaughter of animals and those in the zoos.
(6) and when the seas are made to swell over;	Scientists predict that climate change will now cause sea levels to rise.
(7) when the souls are coupled.	This takes us from the temporal to the life to come.
(8) and when the female infant buried alive is asked for what sin she was slain;	On the day of judgement this one particular girl will be questioned and the culprit will be held accountable for their action. But the same is happening on global scale today but through different means, the result however, is the same.

The remaining verses reaches a climax for humanity with the lighting of hell fire and by bringing paradise close, and it is then that each soul will be aware of what it has accomplished in this life and what it neglected.

388. The Study Quran, 81:1-29.

As I have discussed earlier the Quran does not give specific details when the end of humanity will come, what it does give is sparse details on the portents that will indicate that the end is near. Amongst the greatest of signs of the approaching hour is the disintegration of society and its economic norms³⁸⁹. Unlike the Quran the Hadith traditions, however, furnishes a much more detailed description of world events that signify its imminence. In many cases these descriptions also align themselves with the apocalyptic descriptions found in the Judeo-Christian scriptures³⁹⁰. The descriptions are generally grouped together into two camps; those that are considered to be minor signs and those that are major signs. Amongst the many signs environmental changes are also predicted in the Hadith tradition. For example, scarcity of rainfall, the drying up of lakes and rivers, increased starvation and poverty have all been predicted³⁹¹. With the current environmental crisis it can be argued that these events are already in progress. For Muslims there should be no cause for concern or despair, as one of the most important statements that the Prophet has made concerning the end of the world is that the hour will not come for as long as there is someone on earth saying “*Allāh, Allāh*”³⁹². This hadith is connected to one's spirituality, but also indirectly with the societal and environmental crisis humanity is facing. The solution to humanity's crisis is also given in the statement, the practice of the ‘remembrance of God’, the invocation of His divine Name. The entire cosmos and the natural world are sustained by their constant state of submission to the will of God. According to this hadith it can also be argued that the entire creation is sustained so that the humankind can remember God and fulfil their obligations. In another hadith the Prophet mentions the end of time by giving example of the planting of a tree, an action that should be continued even if the last day were established whilst the tree was still in one's hand³⁹³. Even in this seemingly insignificant task God has given significant weight to this good action and whose consequences are beyond human imagination. Therefore, the measure of every good action is of great spiritual significance, and not because of its worldly magnitude.

389. The Study Quran; 80:34-37, 81:4, 70:10-14.

390 Barbara Freyer Stowasser. “*The End is Near: Minor and Major Signs of the Hour in Islamic Texts and Contexts*”. Georgetown University, USA. <https://www.files.ethz.ch/isn/46623/MESV6-3.pdf>. Accessed 8th April 2022.

391 The Economic Condition of the World During the Advent of Imam al-Mahdi (‘atfs). <https://www.al-islam.org/overview-mahdis-atfs-government-najmuddin-tabasi/economic-condition-world-during-advent-imam-al>. Accessed 8th May 2022.

392. Muslim, *Ṣaḥīḥ*, no.148.

393. Musnad Aḥmad 12902.

I started this work with the Quranic verse from *Surah al-Rum* (The Romans)³⁹⁴, which gives a perspective on the environmental crisis and the sad state of humanity, but the Quran also gives humanity hope to put things right, “Truly God will not change the condition of a people until they change the condition of their own souls”³⁹⁵. Humanity has thus come full circle similar to the lesson to be drawn from the fall narrative, Adam and Eve’s expulsion from the Garden and their subsequent forgiveness.

394. Ibid, 1.

395. The Study Quran, 13:11.

7 A Pedagogical Model for an Islamic Environmental Education

Muslims represent 5.6% of England's population, a rise of 16% in five years from 2.7million in 2011 to 3.1million in 2016³⁹⁶. The region of England and Wales which has the highest Muslim population is London, with 1.2million Muslims, followed by West Midlands and the North West with 471,000 and 419,000 respectively³⁹⁷. Muslims also come from a wide variety of cultural and ethnic backgrounds, but the majority, about 75%, are from South Asian origin³⁹⁸. Despite the differences in their cultural background, personal and sectarian differences, Islam is what unifies all of these different Muslim communities. This is further strengthened through the *madrasah*³⁹⁹ education system, one of the primary means by which Islamic education is delivered to Britain's Muslim communities. This educational system can exist in the home, within mosques, and as independent Islamic educational institutions, including boarding schools. Typically, British Muslim children attend a *madrasah* for most of their pre-adult lives for up to two hours in the evenings, after school, and at weekends⁴⁰⁰. The largest group of *madrasah*'s, 94% of them are attached to mosques in England and Wales⁴⁰¹.

The primary purpose of the institution is to impart the basic beliefs of Islam, its ritual worship, moral values, Quran recitation as well as the teaching of Arabic and Islamic history to Muslim children. The educational programs are provided in tandem to secular education but is explicitly oriented towards the study of Islamic religious sciences. The *madrasah* syllabus in the UK has evolved to cover the primary Islamic religious sciences, which are shown in Table 3. These form the basis of Islamic education in *madrasah* education based in mosques.

396. "England's Muslim population passes three million for the first time". Mend, Muslim engagement and development. Tuesday, January 28th 2020. <https://www.mend.org.uk/englands-muslim-population-passes-three-million-for-the-first-time/>. Accessed 29th April 2022.

397. Clark, D., (2022). "Estimated Muslim population of England and Wales, by region". <https://www.statista.com/statistics/868696/muslim-population-in-england-and-wales/>. Accessed 29th April 2022.

398. Lawson, I., (2005). "Leading Schools in the UK: A challenge for us all". National College for School Leadership. <https://dera.ioe.ac.uk/5315/1/download%3fid=17257&filename=leading-islamic-schools-in-the-uk-full-report.pdf>. Accessed 29th April 2022.

399. The *madrasah* education system, established in the 10th century, is one of the most enduring Islamic institution. It functions as a theological seminary and law school, with a curriculum which centres on the teaching from the Quran and Hadith. Mohamed, N. (2012). "Revitalising an Eco-Justice Ethic of Islam by way of Environmental: Implications for Islamic Education". PhD dissertation, Stellenbosch University, p221.

400. Cherti, M., and Bradley, L., (2011). "Inside Madrassas – Understanding and Engaging with British-Muslim Faith Supplementary Schools". Institute for Public Policy Research (IPPR).

401. Charity Commission., (2009). "Parliamentary briefing: Survey of Mosques in England and Wales". https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/315594/p_brief_mosques.pdf

Table 3 Typical Madrassah Syllabus – Religious Sciences

Religious Sciences	Objectives
<i>Fiqh</i>	Islamic jurisprudence; rules and practices
<i>Aqīdah / Tawhīd</i>	Islamic beliefs
<i>Sīrah / Aḥādīth</i>	The life of the Prophet and his embodiment of the Quranic teachings
<i>Islamic History</i>	Lives of the Prophets & major events of importance
<i>Ādāb / Akhlāq</i>	Islamic manners and etiquette / Virtue and morality
<i>Arabic</i>	Learning of the Arabic language
<i>Quran</i>	Recitation and <i>tajweed</i> (rules of recitation)

Unlike in the secular educational system the UK *madrasah* education within mosques are set up independently and do not conform to a unified system, but this is not necessary as this educational model has functioned for centuries throughout the Islamic world. However, a number of UK Islamic educational academies have grown in recent years to provide standardised curriculum, syllabuses, and text books. Safar Publications and an-Nasiha Publications, seem to be two of the most popular academies providing Islamic teaching resources. As a result of these institutions, teaching materials, textbooks, and equipment have improved in the Islamic educational landscape, but many mosques are still ill-equipped with limited resources. The quality and rigour of teaching can also vary significantly depending on the educational background of the Imam or the teacher. The teaching generally follows a rigid structure, broadly based on the syllabus given in Table 3.

The current *madrasah* educational system stems from the belief that only Islamic knowledge is considered to be worthwhile⁴⁰². The teaching does not allow for any critical thinking on the students part, neither are they given any opportunity to engage in critical discussion. Due to all of these issues, the curriculum is not as broad as it ought to be and there are no environmental teachings within the curriculum. The UK Islamic educational institutions also suffer from the lack of specialist training in Islamic religious sciences⁴⁰³.

401. The *madrasah* education system, established in the 10th century, is one of the most enduring Islamic institution. It functions as a theological seminary and law school, with a curriculum which centres on the teaching from the Quran and Hadith. Mohamed, N. (2012). "*Revitalising an Eco-Justice Ethic of Islam by way of Environmental: Implications for Islamic Education*". PhD dissertation, Stellenbosch University, p221.

402. Waghid, Y., (2010). "*Towards a Philosophy of Islamic Education*". In International Encyclopedia of Education, Philosophy of Education, eds. B. McGraw, E. Baker and P. Petersen, 241-246. Oxford: Elsevier.

403. Meer, N., and Breen, D., "*Muslim Schools in Britain: between mobilisation and incorporation*". pp. 1-27. <https://core.ac.uk/download/pdf/286343134.pdf>. Accessed 1st May 2022.

The lack of adequate training can affect young people in how they engage with the wider community, hindering them from becoming sufficiently educated to enable them to serve in their communities as potential religious leaders⁴⁰⁴. The problem can be further compounded by having religious instructors who do not have fluency in English, and who are not familiar with the contemporary lives and issues faced by British Muslims. There is therefore an urgent need for more British trained theologians who have the knowledge and skills to be able to engage, with a contemporary resonance, with the life experiences of British Muslims.

The UK has at least 18 major Islamic intellectual institutions who have helped to create a generation of Islamic scholars⁴⁰⁵. One of the more recent Islamic institution, the Cambridge Muslim College, is amongst a number of UK Muslim institutions which provides training to young Islamic scholars. The college is providing vital training to help young Islamic scholars to augment their existing traditional Islamic education with the intellectual and pastoral skills so that they are able to engage with and serve the wider British community. The college presents the Islamic tradition “as a viable pathway for addressing the challenges of the modern world”⁴⁰⁶. Their mission is to “develop and disseminate Muslim thought leadership through world-class education, training and research based on a dialogue between Islamic tradition and the circumstances of the modern world”⁴⁰⁷. The college achieves this through various education programmes at degree level, diploma’s, research, on-line learning and lectures supported by local and world class Islamic scholars. The Cambridge Muslim College, together with the other Islamic institutions, which I have identified in Table 4, are helping to fill the gap between those traditional Islamic institutions, and the needs of the modern contemporary world.

404. Hewer, C., (2001). “*Schools for Muslims*”. Oxford Review of Education , 27, pp. 515–527.

405. “*Cambridge Muslim College*” Promotional video by Shaykh Abdual Hakim Murad. <https://www.youtube.com/watch?v=is8QeocY5AU>. Accessed 4th May 2022.

406. Cambridge Muslim College Website. <https://www.cambridgemuslimcollege.ac.uk/about/mission/>. Accessed 1st May 2022.

407. Ibid, 406.

Table 4 provides a brief background of some of the other and more well-known Islamic institutions which are providing various courses and training within the Muslim community. I have highlighted some of the key subject areas these institutions are engaged with where I believe an Islamic environmental education could well be incorporated within the existing framework. This does not mean a complete representation of the UK Islamic educational landscape, as this is beyond the scope of this work, but it is intended to show how Islamic environmental education could be incorporated within the existing educational framework.

The intent of an environmental education within a *Madrassa* setting must seek to engage, first and foremost, the theological concepts and perspectives which frame Islam's ecological message and responsibility as highlighted in this work. This requires an understanding of both the religious and modern scientific perspectives of the environmental crisis. To be included within a formal element of *maktab*⁴⁰⁸ education it is essential that educators have a good understanding of the Islamic educational system, Islam's various theological perspectives on creation, and an awareness of the contemporary environmental issues. It is unlikely that any one person would be knowledgeable in all areas.

At the basic level the challenge is therefore the incorporation of Islamic environmental teachings into existing curriculums in the *maktab*. At the advanced level the aim would be to introduce Islam's environmental teachings and concepts as an independent subject. Table 5 shows how Islam's environmental component and concepts could be integrated into the teaching of existing Islamic religious sciences. This would not require any additional resources and could be integrated within the existing educational framework with minimal cost.

408. The *maktab* is an elementary Islamic school, providing foundational Islamic knowledge.

Table 4 UK Islamic Institutions Catering for Advanced Level Learning

<p>Ebrahim College https://ebrahimcollege.org.uk/</p>	<p>Traditional Islamic Studies Names and Attributes of Allah Science, Modernity & the Existence of God The Exquisite Pearl – Purification of the Heart.</p> <p>No evidence of specific environmental components but could introduced to complement its existing curriculum.</p>
<p>The Islamic College www.islamic-college.ac.uk</p>	<p>Can science replace God? Contemporary Issues in Islamic Thought Moral Philosophy and Islamic Ethics Fundamental Modern Questions and Challenges The God Debate</p> <p>No evidence of specific environmental components but could introduced as an additional module.</p>
<p>The Muslim College www.muslimcollege.ac.uk</p>	<p>BA and MA Islamic Studies Major themes in the Quran</p> <p>No evidence of specific environmental components or concepts but could be introduced to complement the study of Quranic themes already being provided.</p>
<p>Tayyibun Institute www.tayyibun.com</p>	<p>Traditional Islamic Studies</p> <p>No evidence of specific environmental components but could be introduced to complement its existing curriculum.</p>
<p>Markfield Institute of Higher Education (MIHE) www.mihe.ac.uk</p>	<p>Provides degree level Islamic study to BA, MA, MSc and PhD. It also provides collaborative research in various Islamic disciplines with other UK and European and academic institutions.</p> <p>The institute provides an MA in Islam & Sustainable Development.</p>
<p>Cambridge Muslim College www.cambridgemuslimcollege.ac.uk</p>	<p>BA, Diploma and Research Online publications Short courses Continuing Education Free On-line lectures</p> <p>Shaykh Abdal Hakim Murad (Timothy Winter), Cambridge University academic and the Dean of Cambridge Muslim College, has delivered a number of on-line lectures on “What does Islam say about the environment” and “The Islamic Understanding of the Environment”⁴⁰⁹ which gives much credibility and importance of the subject to the Muslim community. Many of his on-line lectures also provides an Islamic perspective on the environmental crisis.</p>

409. “*What does Islam say about the Environment*”. Lecture delivered at the LSE Faith Centre by Shaykh Abdal Hakim Murad. <https://www.youtube.com/watch?v=ZmvmWCLNj3w>.

Table 5 Environmental Education to Complement Existing Syllabus

Religious Sciences	Learning Objectives
<i>Fiqh</i>	<p><u>Islamic jurisprudence; rules and practices</u></p> <p>To present the environmental and celestial connections of the Islamic rituals; the <i>sālah</i>, wudu, <i>ramadan</i>, <i>hajj</i> and <i>zakat</i>.</p> <p>To present, through action, Islam’s ethical principles of mercy, balance, moderation and justice in daily practices and social interactions with all of God’s creation.</p> <p>To engage with contemporary environmental issues such as climate change, environmental pollution, human rights and animal rights.</p>
<i>Aqīdah / Tawhīd</i>	<p><u>Islamic beliefs</u></p> <p>To present Islam’s eco-cosmology as an intrinsic part of the faith which defines the humankind’s dualistic relationship with God and His creation, as envisaged by the concept of <i>Tawhīd</i> at a holistic level.</p> <p>To present the <i>Tawhīdic</i> view of creation as an integral element of <i>Aqīdah</i>.</p>
<i>Sīrah / Aḥādīth</i>	<p><u>The biography of the Prophet and his embodiment of the Quranic teachings.</u></p> <p>To present the model of the Prophet as the ideal role model for living a simple modest life but showing respect and concern for all of God’s creation.</p> <p>To reflect on the Prophets life to show that environmental care is an intrinsic part of the Islamic faith.</p>
<i>Islamic History</i>	<p><u>Lives of the Prophets & major events of importance</u></p> <p>To present Islam’s engagement, from the life of the Prophet to his companions and with later generations, to show how they dealt with environmental issues.</p> <p>To present the Islamic gardens in Spain and their knowledge of the natural environment, with particular references to the management of water and how they had inspired today’s stately gardens.</p> <p>To present the Islam’s concept of environmental protection using the <i>harām</i> and <i>himā</i>.</p> <p>To reflect on Muslim’s and Islamic organisations throughout history, and in the contemporary period, and show how they have contributed in promoting the environmental credentials of Islam through education, action and activism.</p>

<p><i>Ādāb / Akhlāq</i></p>	<p><u>Islamic manners and etiquette / Virtue and morality</u></p> <p>To present Islam as a religion which extends its ethical and moral considerations to all of God's creation.</p> <p>To show from the Prophet's life how he demonstrated these qualities to people, animals and plants.</p> <p>To encourage Muslims to engage with contemporary environmental issues through actions, such as recycling, food waste reduction and sustainable living practices, all of which can help to demonstrate Islam's ethical and moral values towards the natural world.</p>
<p><i>Arabic</i></p>	<p><u>Learning of the Arabic language</u></p> <p>To learn the Arabic terms for those elements of creation, celestial, animals, plants and natural phenomenon's mentioned in the Quran.</p>
<p><i>Quran</i></p>	<p><u>Recitation and <i>tajweed</i> (rules of recitation)</u></p> <p>To extend the study of the Quran to include the various references to natural phenomena and those verses which contain references to the natural world, creation and other animals.</p> <p>To link these with contemporary scientific knowledge to show their relevancy.</p> <p>To present the natural world and all other animals as part of the whole unified <i>Tawhīdic</i> view of creation.</p>

To incorporate a more advanced level study on the specific subject of Islamic Environmental Ethics will require a new separate syllabus but would still need to be within the framework of the existing educational system. A general environmental educational model is shown in Figure 12. I have further expanded this in Figure 13 to show environmental teachings based on the key Quranic concepts which I have discussed in this work and presented them as objectives which could be implemented to augment existing curriculum's as component under *aqidah*. As God's names and attributes, and references to creation in the Quran are significant themes, then Figure 14 shows the learning objectives which could be introduced as additional subjects in Quran study to raise awareness of Islam's environmental message. I have put the two together as God's names and attributes are manifested in His creation, therefore the two complement each other. In Figure 15 I have presented learning objectives based on some of the other Islamic events and concepts which could fall within the framework of *ādāb* and *akhlāq*. Included within this framework are objectives derived from Parrot's work on the ethics of reciprocity in Islamic traditions as this provides a moral and ethical position of humans which can be extended to all of God's creatures⁴¹⁰.

The model presented would not entail a revision of the current curriculum but could easily be introduced to augment the teaching of Islamic religious sciences within the current educational framework. It will however, require existing Islamic teachers to be knowledgeable in the subject matters and contemporary environmental issues. This may require additional training. The main benefits of the proposed curriculum, and the work presented in this study, shows that Islam is inseparable from the natural world and environmental care is an integral part of its faith.

410. Parrot, J., (2018). "*The Golden Rule in Islam: Ethics of Reciprocity in Islamic Traditions*". MRes Thesis, University of Wales Trinity St David (UWTSD), UK.

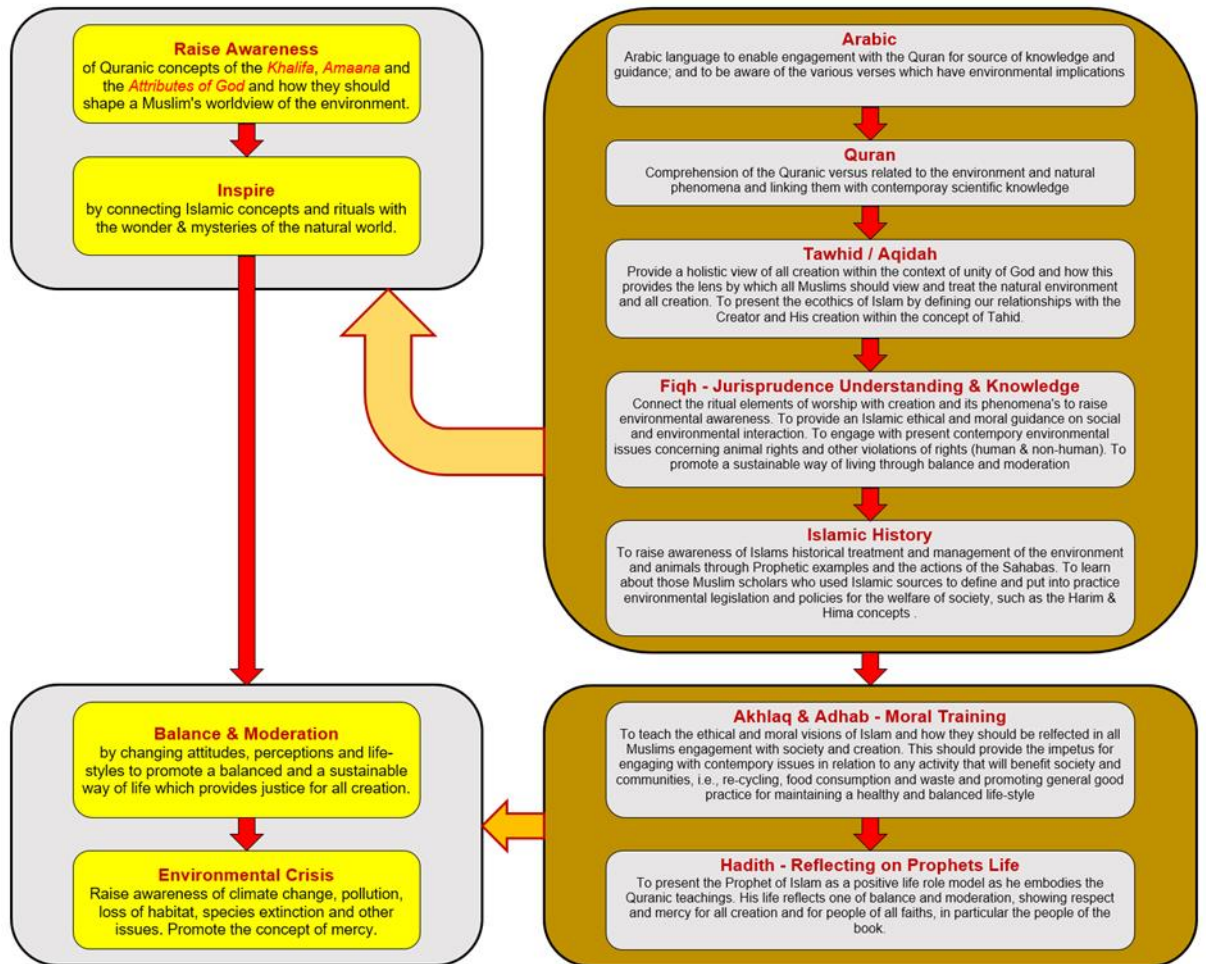


Figure 12. Islamic environmental education model (created by the author)

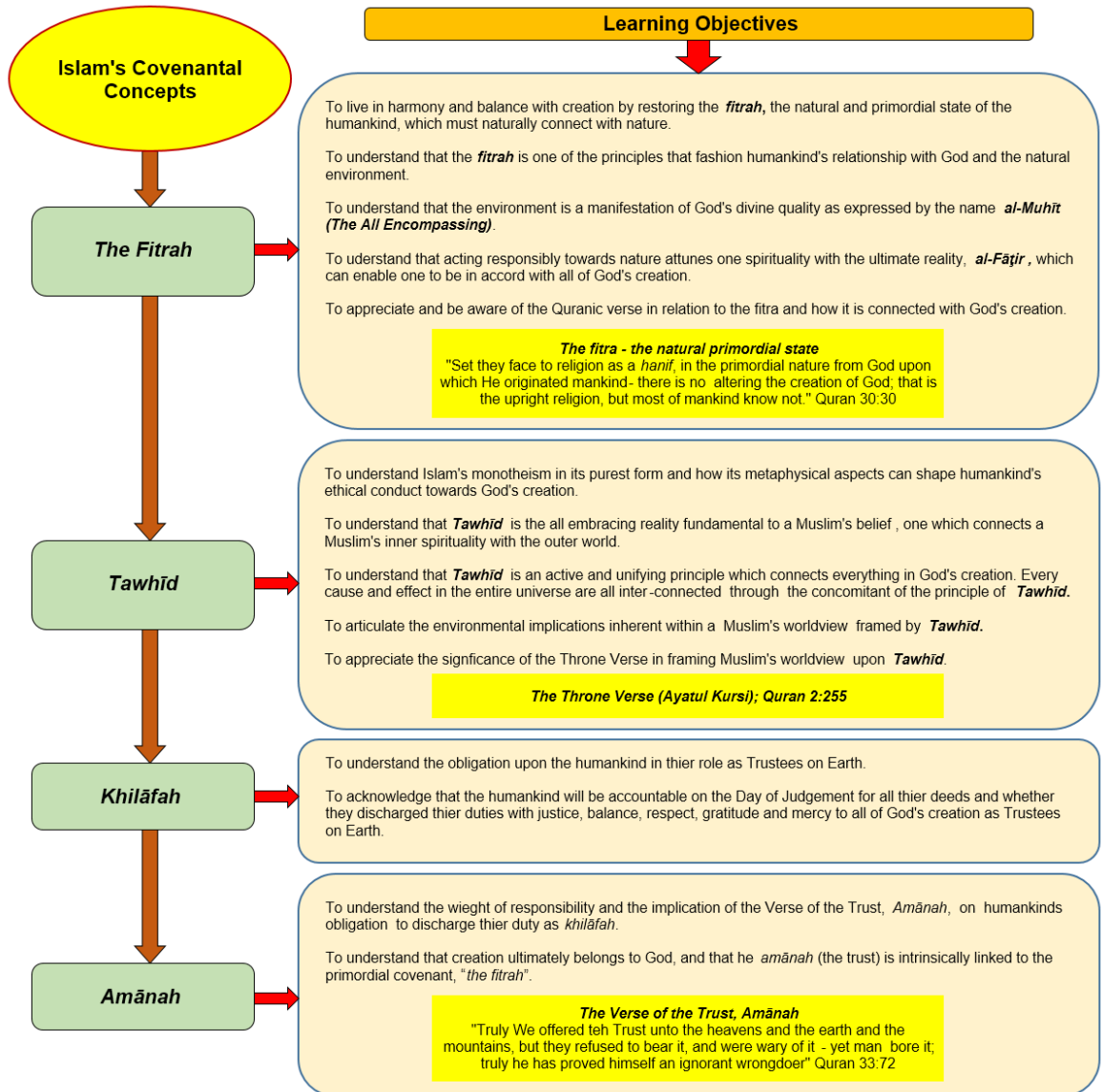


Figure 13 Env. curriculum based on key Quranic concepts – *aqīdah* (created by the author)

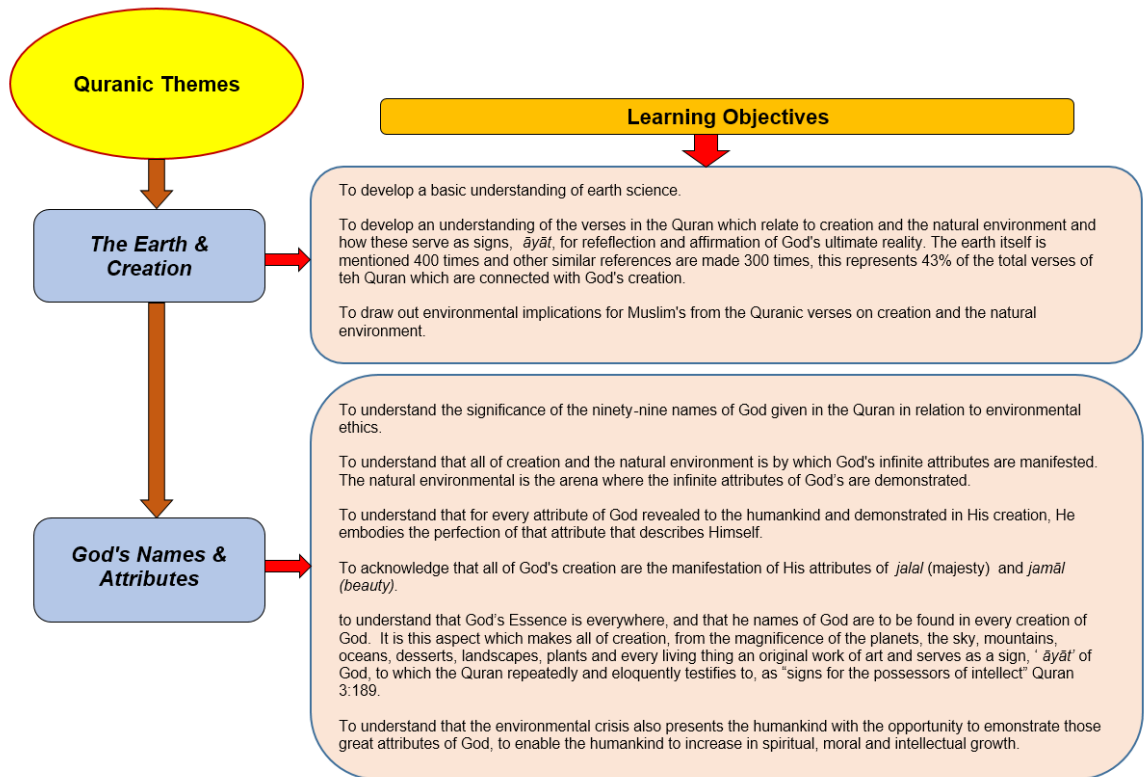


Figure 14 Env. curriculum based on God's creation, Names & Attributes
(created by the author)

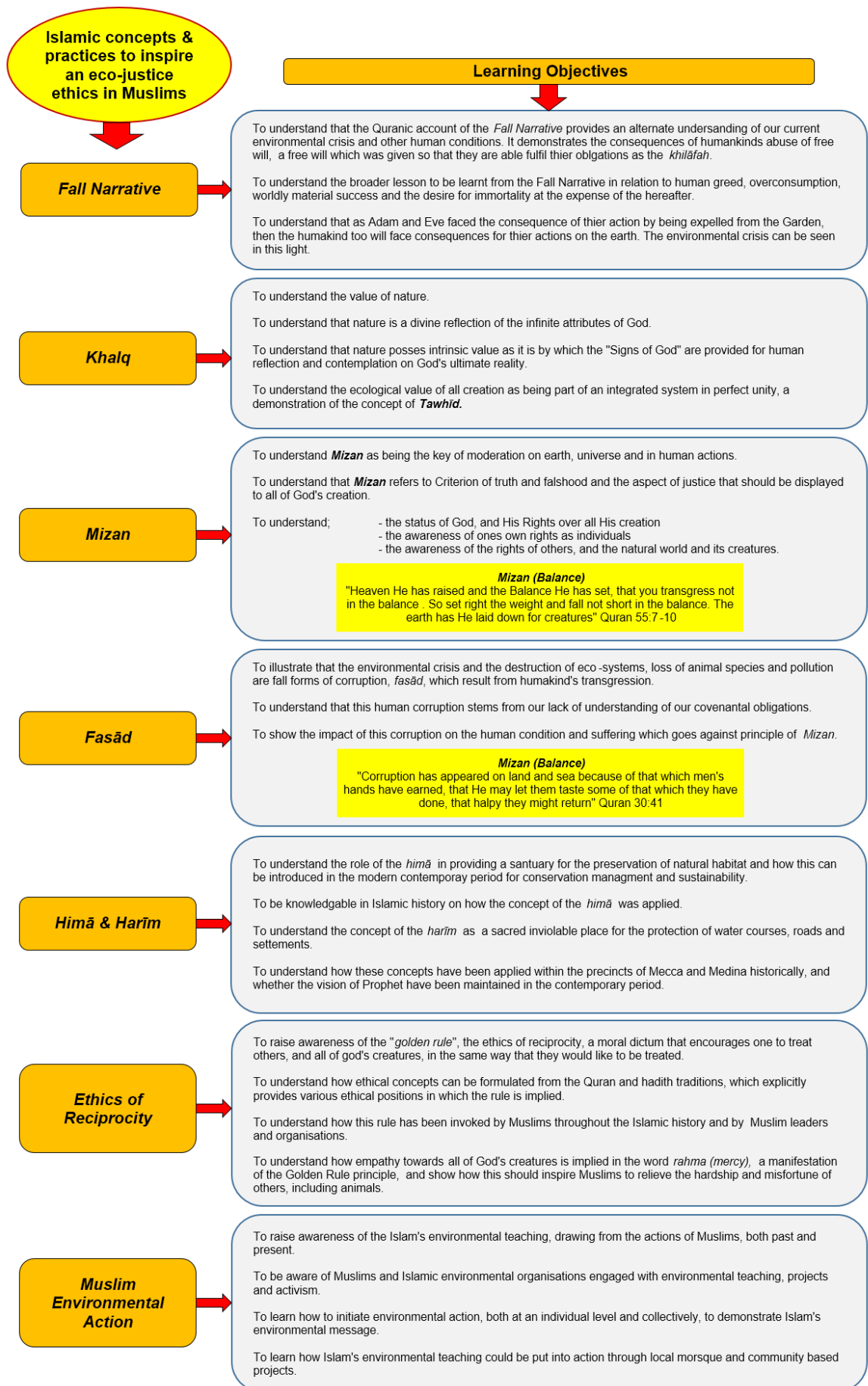


Figure 15 Env. curriculum to help inspire Muslim action – *ādāb* and *akhlāq* (created by the author)

8 Environmental Awareness and Activism

Islam is intrinsically connected with the natural environment, as I have demonstrated using some of its concepts and rituals, its environmental implication however, is still largely unknown within the Muslim communities. This is indeed surprising considering that in the last 50 years the Islamic environmental movement and awareness has been steadily rising. This has led to a number of voluntary organisations, established between 2005-2010 by British Muslims, who are concerned about environmental issues and who want to promote Islam's environmental message⁴¹¹. Overall however, the engagement in the wider Muslim community is actually quite low, with many taking no interest or only a very passive engagement with environmental issues. Much of the engagement of Muslims in Britain, during the period 1970-2010, have been involved primarily in the development of community organisations and institutions, particularly in the establishment of mosques, Islamic schools, provision for halal meat, 'Islamic' merchandise shops, and charities⁴¹². However, with regards to contemporary environmental issues there is still a real lack of awareness amongst key Muslim stakeholders overall, such as Imams, local mosque committees as well as the traditional Islamic scholars within these communities. There are other historical reasons for this, but this discussion is outside the scope of this work. As a result, projects concerning environmental awareness, relative to other educational initiatives, has been given little or no priority in these communities⁴¹³. Many Muslims are actively engaged in various environmental initiatives, and some may even hold membership of environmental organisations, but there is no available data as to how many are actively engaged. What is apparent is that Muslims overall, and indeed people from ethnic minority groups, are under-represented in the professional fields concerned in the management of the environment⁴¹⁴.

411. Gilliat-Ray, S., and Bryant, M., (2011). "Are British Muslims 'Green'? An Overview of Environmental Activism among Muslims in Britain". *Journal for the Study of Religion, Nature and Culture* 5.3, pp. 284-306.

412. Gilliat-Ray, S., (2010). "Muslims in Britain: An Introduction". Cambridge: Cambridge University Press.

413. DeHanas, D. N., (2010). "Broadcasting Green: Grassroots Environmentalism on Muslim Women's Radio". *Sociological Review* 57 (suppl2): pp. 141-55.
<http://dx.doi.org/10.1111/j.1467-954X.2010.01890.x>.

414. Rishbeth, C., (2001). "Ethnic Minority Groups and Design of Public Open Space: An Inclusive Landscape?", *Landscape Research* 26.4: pp. 351-66.
<http://dx.doi.org/10.1080/01426390120090148>.

The lack of understanding of Islam's environmental obligations within Muslim communities stems from the fact that environmental education, secular or religious, are virtually absent from its normative Islamic educational curriculum. As shown in this work there is indeed a tremendous responsibility placed upon on the whole Muslim community to recognise and honour Islam's environmental obligations. This also presents itself as an opportunity for individuals and communities to address this shortcoming. As a result of the efforts of a number of Islamic academics and concerned Muslims, some of whose work I have discussed, change within communities and mosques has started to materialise. It is the larger and more well-funded mosques that have taken the initiative and lead in this respect. For example the East London Mosque have and continues to engage in various community based environmental projects, such as a roof top garden and bee hives above the Maryam Centre. In 2019, a theme 'Islam and the Environment' in partnership with Keep Britain Tidy's 'Great British Spring Clean' was launched. The scheme attracted over 250 mosques in participating in cleaning local streets throughout the country⁴¹⁵.

The Muslim Council of Britain (MCB), an umbrella organisation established in 1997 for the Muslim community, has published a Friday sermon template for mosques, which emphasises the importance of looking after the local community and caring for the planet. It is also supporting various environmental initiatives with support from Islamic Foundation for Ecology and Environmental Sciences (IFEES), who together, have organised workshops on how to run an eco-friendly mosque, introduced plastic free *Iftars* during Ramadan as well as highlighting the urgency of the climate change crisis. Their website makes available on-line lectures, guidelines and information on forthcoming events on sustainability and climate change. The efforts led by the MCB has enabled for the first time, for a Friday sermon delivered at the East London mosque on 1st March 2019, devoted to the environment, '*Duty to the Environment*'.

415. The Muslims are...going green. MEND, Muslim engagement & development. <https://www.mend.org.uk/muslims-going-green/>. Accessed 5th September 2021.

The Islamic Foundation for Ecology and Environmental Science (IFEES), founded in 1993 by the well-known Muslim environmentalist Fazlun Khalid, is one of the well-established UK organisations, and one which is active internationally. A good overview of this and other UK organisations is provided by Hancock⁴¹⁶, who discusses their structure and the nature of their work within the broader topic of Islamic environmentalism. Other well established British charities who are also actively promoting various environmental initiatives also include; Islamic Relief and Muslim Hands. Islamic Relief are actively working on poverty eradication through sustainable environment and natural resource management. They will be joining the United Nations Environment Programme as a permanent NGO (Non-Government Organisation) representative⁴¹⁷. It is also one of the founding members of the Muslim Climate Action (MCA) network. This organisation, launched in 2015, is made up of a network of Islamic faith inspired UK based NGO's who are collaborating to tackle climate change. Islamic Relief have also helped to initiate the first Islamic Declaration on Climate Change, which has been adopted by the highest Muslim authority in 12 countries across four continents⁴¹⁸. Other UK based organisations who are actively involved in various environmental and sustainability initiatives are summarised in Table 6.

416. Hancock, R., (2015). "*Islamic' Environmentalism in Britain*", in *Muslims and Political Participation in Britain*, p119-139. Edited by Timothy Pearce. 1st Edition, Routledge.

417. United Nations Environment Programme (UNEP). <https://www.unep.org/>.

418. Islamic Relief Website . <https://www.islamic-relief.org/islamic-relief-pledges-to-be-carbon-neutral-by-2021/>. Accessed 7th September 2021.

Table 6 UK Islamic organisations promoting environmental awareness

<p>Muslim Council of Britain (MCB) www.mcb.org.uk</p>	<p>This is UK umbrella organisation for UK mosques and the wider Muslim community. In addition to its core objectives the organisation has a team of volunteers working to promote environmental sustainability within British Muslim communities.</p>
<p>Islamic Relief www.islamic-relief.org.uk</p>	<p>The charity organisation has introduced an environmental policy which commits the organisation to promote lower our carbon emissions, including by reducing consumption and using sustainable products and services. The organisation has joined the United Nations Environment Programme Committee of Permanent Representatives as a Non-Government Organisation (NGO) member</p>
<p>Muslim Hands www.muslimhands.org.uk</p>	<p>The charity organisation is operating projects throughout the world in partnership with communities to deliver effective support that works in harmony with the surrounding environment, to enable local people to find sustainable solutions to the problems that they face.</p>
<p>Islamic Foundation for Ecology and Environmental Sciences (IFEES) www.ifees.org.uk</p>	<p>Established in the mid-80s Fazlun Khalid is the director of IFEES and a consultant for WWF. Khalid believes that protecting the environment is a form of worship, and that humans have a basic right to the benefits of a healthy planet. The organisation is dedicated to the maintenance of the Earth as a healthy habitat for all creatures. The organisations effort is directed towards creating awareness of the environmental issues as well as directing research and the production of teaching materials and training aids.</p> <p>UK-based, but projects are international</p>
<p>Muslim Agency for Development Education (MADE) in Europe</p>	<p>Introduced a The Green Up! Toolkit, A guide and award scheme for mosques and Islamic Groups.</p> <p>The group no longer seems to be active</p>
<p>Wisdom in Nature (WiN) www.wisdominnature.org</p>	<p>A voluntary Islamic environmental group established in 2009 and founded by Muzammal Hussain. The group organises events, talks, workshops and training in the field of sustainability and Islamic ecology. Through its five strand activism model; Earth and Community, Deep Democracy, Whole Economics, Climate Justice and Engaged Surrender, provides a framework for dialogue, reflection and action. Recent events include;</p> <ul style="list-style-type: none"> Restoring the <i>fitrah</i> through Woodland Connection and

	<p>Immersive Dialogue.</p> <ul style="list-style-type: none"> • <i>Khalq, Adl, Wadud</i>: Climate Change: A New Story • Exploring Charles Eisenstein's writing through Islamic & Personal lenses. • Around the 'Campfire': Story and Song for the Closing of the Year. • Story medicine: A taster of the power of traditional storytelling- A creative gathering on cultural repair & earth stewardship. <p>The organisation is currently still active</p>
<p>Reading Islamic Trustees for the Environment (RITE) www.rite.btik.com</p>	<p>This local community group was formed in 2009, to coincide with World Environment Day, with a vision to bring wider appreciation of Allah's creation, the environment. The group works within the local community to raise awareness of environmental issues.</p> <p>The group no longer seems to be active</p>
<p>London Islamic Network for the Environment (LINE)</p>	<p>Established in 2004 by Muzammal Hussain the group was regionally focused to provide social events to raise awareness of environmental issues as well as engaging in activism to support wider national events.</p> <p>The group has since changed its name to WiN, also headed by Hussain.</p> <p>The group is no-longer active</p>
<p>Sheffield Islamic Network for the Environment (SHINE) www.shineonline.org.uk/</p>	<p>A local environmental group working at grassroots level. The group was established around 2005 and engaged in the national 'Big Clean' campaign in April 2009.</p> <p>The group no-longer seems to be active</p>
<p>Welsh Environmental Link Creating Opportunities for Muslim Engagement (WELCOME)</p>	<p>The group was started in 2009, mainly working with other voluntary groups to promote Islam's environmental message. The group has supported nature trips and activities to help Muslims engage with the environment.</p> <p>The group no-longer seems to be active</p>
<p>Midlands Islamic Network for the Environment (MINE)</p>	<p>The group was active between 2007 and 2008 and contributed to local inter-religious environmental initiatives, such as tree planting, climate activism. It also supported local events organised by Friends of the Earth.</p> <p>The group no-longer seems to be active</p>
<p>Muslim Climate Action (MCA)</p>	<p>Launched in September 2015 at the House of Commons the</p>

	organisation is a coalition UK Muslim organisations who are concerned about climate change.
Islamic Help www.islamichelp.org.uk	The organisation started in 2003 by a small group volunteers. Today they work in more than 20 countries helping local people with various environmental sustainability projects. In June 2021 it received UNEP status for its efforts toward tackling climate change.
Willowbrook Farm www.willowbrookfarm.co.uk	Willowbrook Farm is located in Oxford and was setup by Dr Lutfi Radwan and his wife, initially to provide healthy food and to create space where they could live in harmony with nature. The project has grown significantly and now offers camping facilities, day visits and tours to highlight the role of being an earth steward or <i>khilāfah</i> to the wider community.
XR Muslims https://rebellion.global/groups/xr-muslims/ https://extinctionrebellion.uk Event/Ka'bah-of-truth	Muslim's are actively participating as part of the worldwide "extinction rebellion" movements to persuade governments to act justly on the Climate and Ecological Emergency. The website shows the groups participants range from a wide range of people of different cultural backgrounds.

Within UK mosques by far it is the use of plastics that has attracted much of the attention and efforts. This is no doubt helped by the visual impact of the magnitude of the plastic waste generated during the month of Ramadan in mosques throughout the UK. Many mosques have therefore implemented initiatives to combat plastic use. Table 3 provides a summary of some of the initiatives taken by UK mosques. The real jewel in the UK Muslim community, in promoting environmental awareness, is the Cambridge Central Mosque. It is considered to be the first UK and European eco-friendly and purpose built mosque⁴¹⁹. The architecture of the mosque has prioritised environmental concerns, giving it a near zero carbon footprint by utilising the use of solar panels, water harvesting, state of the art heating and cooling. Other mosques, such as the five in Rochdale, shown in Table 7, have been active in planting flowers, trees and providing habitat for wildlife on a rooftop garden⁴²⁰.

419. Hartely-Parkinson, R., (2019). "UK get Europe's first eco-friendly mosque". METRO, Friday 6th December 2019.

<https://metro.co.uk/2019/12/06/cambridge-central-mosque-opened-cat-stevens-first-eco-friendly-mosque-europe-11280339/>. Accessed 7th September 2021.

420. "Judges visit five Rochdale mosques for Masjids in Bloom initiative". ROCHDALE ONLINE, 4th August 2021.

Table 7 UK Mosque environmental initiatives

East London Mosque (London)	1 st March 2019. Friday Sermon delivered by Sheikh Mohammed Mahmoud, Senior Imam with the topic 'Duty to the Environment'. The mosque has installed water-filling stations and is encouraging its worshippers to use re-usable bottles. The mosque is also home to several beehives on the roof top of the Maryam Centre, looked after by a husband and wife team. In 2018 the BBC reported that about 400,000 bees live in the beehives.
Cambridge Central Mosque (Cambridge)	This is Europe's first eco-friendly mosque, and purposely built mosque employing the latest technology to ensure a near-zero carbon footprint. The building makes use of solar panels, grey water harvesting and state of the art heating and cooling, which are only some of its features. The mosque has also banned the use of plastics
York Mosque & Islamic Centre	Introduced re-usable cups, plates, cutlery and branded water bottles, as part of no single-use plastics policy at its daily <i>iftar</i> meals.
Cheadle Mosque (Greater Manchester)	No longer distribute plastic single-use (non-reusable) bottles from the site.
Balham & Tooting Islamic Centre (London)	Introduced re-usable plastic bottles
Rumis Cave and the Rabbani Project (London)	Introduced "A Green Deen Ethical Iftar" on 25 th May 2019.
Dar Ul-Isra (Cardiff)	The mosque has gone plastic-free with re-usable water bottles and compostable food containers.
Green Lane Masjid (Birmingham)	In Ramadan 2019 the mosque introduced the banning of plastic bottles. Typically, the mosque distributes 800-1000 plastic bottles every evening in Ramadan.
Neeli Mosque (Rochdale)	Olive tree planted inside of the mosque which has started to produce fruits. An array of hanging flower baskets adorns the building.
Golden Mosque (Rochdale)	The mosque accommodates a rooftop garden helping to retain rain water and reduce flash flooding. The garden also insulates the roof and provides a habitat for wildlife.
Jalalia Mosque (Rochdale)	The mosque has an array of hanging flower baskets and is working with the local community and organisation to make the local area cleaner and safer.
Central Masjid (Rochdale)	The mosque has planted a variety of plants including pear trees, grape vines, strawberry, and cranberry growing in the grounds as well as hanging baskets adorning the perimeter.
Bilal Masjid (Rochdale)	The mosque has planted a number of olive trees, climber jasmines, trailing geraniums, and other flowers. The planter were made by the inmates of the local prison, HMP Buckley Hall.

The Cambridge Central Mosque has indeed set the standard for British mosques, but it is not the first ecological mosque as is widely published. The UK's first ecological mosque was built in 2003 in Manchester. The mosque was replaced by the central mosque which employed solar panels, recycled wood, stone, floor heating and other energy saving measures in its construction⁴²¹. There are also other mosques in mainland Europe which are also eco-friendly. One in particular, the Muslim community in Norderstedt, Germany, have installed wind turbines in the minarets of their mosque⁴²². The Cambridge mosque is no doubt the most modern, and an important feature of the mosque's architecture, is that it has recognised the importance of maintaining the traditional Cambridge landscape by using those materials which complement its surrounding. It is truly a landmark building, providing the strongest imperative, by its presence, to protect the environment and to acknowledge that the environment is a Divine gift, as Abdal Hakim Murad⁴²³ notes, "Islamic civilization has been based on the rejection of waste as an underestimation of God's blessing, and so in the construction of the new mosque here in Cambridge, we were very much at the forefront of the local environmental movement"⁴²⁴. The Cambridge Central Mosque provides the vision, and a unique opportunity for British Muslims, to engage with, support and demonstrate Islam's environmental credentials.

Mosques must project this vision to the wider Muslim and non-Muslim communities by collaborating and forging alliances for the greater benefit of the whole community. The larger well-funded and well connected UK mosques are in a much stronger position to demonstrate this vision, and many through various Muslim organisations are already doing this. In smaller local mosques more work needs to be done to raise awareness at the leadership level. Imams also need to be aware of current environmental concerns, and be knowledgeable in Islam's environmental teachings. These need to be incorporated into existing teaching curriculums to enable this vision to be instilled into the next generation of Muslims.

421. Arslan, H. D., (2019). "*Ecological Design Approaches in Mosque Architecture*". International Journal of Scientific & Engineering Research, Volume 10, Issue 12, December 2019. ISSN 2229-5518.

422. Ibid, 421.

423. Abdal Hakim Murad (Timothy Winters), is an English academic, theologian and Islamic Scholar. He is the Director of Studies (Theology and Religious Studies) at Wolfson College and the Shaykh Zayed Lecturer of Islamic Studies in the Faculty of Divinity at University of Cambridge. He is also the founder and Dean of the Cambridge Muslim College and founder and Chair of the Cambridge Central Mosque.

424. Cambridge Mosque Website. <https://cambridgecentralmosque.org/environment/>. Accessed 30th June 2021.

Much of Islam's environmental credentials and initiatives are being promoted through external organisations. Despite their growth, which has helped the emergence of a generation of new Muslims who are more connected with current environmental issues, the actual behaviour of Muslims overall do not reflect the stewardship that Islam promotes⁴²⁵. In many cases the behaviour of Muslims, when considering their obligations to the environment, are at complete odds with the aims of the *Sharī'ah*, and this has resulted in untold damage to the environment and ecosystems caused by ill-conceived projects, particularly those in many Muslim countries. The problems are no doubt exacerbated by governments, who on the one hand have a duty to meet the technological needs of society, for example energy supply, but do not have the right level of environmental legislation or a religious mandate. Examples of ill-conceived projects include; the Dubai Palm and World Islands, Aswan High Dam of Egypt, Rampal power station in the Sundarbans region of Bangladesh, and the Mecca Clock Tower.

The Dubai Palm Island project, in the process of its creation, has killed coral, destroyed turtle nesting sites, and has upset the marine ecology of the Persian Gulf⁴²⁶. The Dubai World Islands have had also similar untold environmental damage to coral reefs and their associated mangrove and sea grass habitats⁴²⁷. Similarly, the Aswan High Dam of Egypt, which was completed in 1970, has received considerable attention with respect to its impact on the environment, such as soil erosion and loss of soil fertility in the Egyptian Delta region⁴²⁸. In Bangladesh with the building of Rampal power station the world's largest mangrove forest and world heritage site, the Sundarbans, as well as the lives of many indigenous communities, are now at risk⁴²⁹.

425. Ibid, 412.

426. National Geographic, Dubai The World's Hottest Property. January 2007.

427. Butler, T., (2005). "*Dubai's artificial islands have high environmental cost*". Mongabay, News & Inspiration for Nature's Front Line. <https://news.mongabay.com/2005/08/dubais-artificial-islands-have-high-environmental-cost/>. Accessed 8th September 2021.

428. White, G. F., (1988). "*The Environmental Effects of the High Dam at Aswan*". Environment: Science and Policy for Sustainable Development, 30:7, 4-40, DOI: 10.1080/00139157.1988.9930898.

429. Md Nazrul Islam & Md Al-Amin., (2019). "*The Rampal Power Plant, Ecological Disasters and Environmental Resistance in Bangladesh*". International Journal of Environmental Studies, 76:6, pp. 922-939, DOI:10.1080/00207233.2019.1662183.

Islam's holiest site, Mecca has not been safe from ill-conceived projects. The Royal Mecca Clock Tower, one of the world's tallest skyscrapers at over 400m, is considered as an 'architectural monstrosity'⁴³⁰. Even more perplexing is how it was allowed to be built within the precincts of the *Ka'bah*, the *House of God*. The magnitude of the structure has taken away the spiritual ambience of the place. This is in stark contrast to the way Cambridge Central Mosque was built, with environmental and sustainability at the core of its design and architecture, and all of this was done by complementing the existing architectural style of the area. The whole structure adds to the communal spirit of the area rather than creating a divide. The hajj on the other hand, which is meant to eliminate any class distinction, has now done the opposite, dividing pilgrims along class lines as a result of the Royal Mecca Clock Tower and its adjacent buildings.

These examples illustrates the urgency why Islamic Environmental Ethics must be developed as a distinct discipline and integrated within the framework of Islam's normative educational system to promote environmental awareness, activism and a change of lifestyle. Muslims need to be aware of both the scientific knowledge as well as Islam's environmental vision to be at the forefront in society to promote good environmental practice and challenge those which will harm the natural environment. Education therefore is the first step in this endeavour. No doubt there will be other socio economic and cultural challenges, as well as religious dogmatism, which can make promoting Islam's environmental message difficult.

430. Winerman, A., (2011). "*Developing Mecca: A Case Study of the Royal Makkah Clock Tower*" (May 19, 2011). Available at SSRN: <https://ssrn.com/abstract=1846593> or <http://dx.doi.org/10.2139/ssrn.1846593>.

9 Conclusion

9.1 Summary

Amid the enormity of the environmental crisis and the effects of climate change, there is now a growing imperative to re-discover humanity's connection with the natural world. There is also the realisation that humanity is but one global family, interconnected through global trade, commerce and the world's educational institutions. In this global arena, Islam, with nearly 2 billion followers spread throughout the world's continent, is now emerging as a key player to help combat the environmental crisis.

Islam provides a complete a holistic theo-centric view of the natural world, one which connects the humankind with the Divine, mandated through its covenantal concepts. This vision has been articulated in this thesis and provides a basis for an Islamic Environmental Ethics model. It defines humankind's relation with the natural world based on justice, balance and seeing the unity in all of creation as signature of a Divine Creator. The model is based on Islam's theo-centric world view encapsulated by the covenantal concepts of *tawḥīd*⁴³¹, *khilāfah*⁴³² and *amānah*⁴³³, as well as the environmental perspectives of God's names and attributes. These concepts are reinforced through a spiritual conscience and outward action by Islam's rituals and the Sunna. But the primary message articulated in the Quran is to know God, through reason and His signs, as well as to acknowledge that ultimately everything belongs to God and that humans will be answerable for all that they do on earth on the day of judgement. This vision is framed by the concept of *tawḥīd*, the oneness of God, something which all humankind individually testified to in the Primordial Covenant, the *fitrah*⁴³⁴.

431. Ibid, 8.

432. The Study Quran, 2:30.

433. The Study Quran, 33:72.

434. Ibid, 146.

The concepts of Potential, Value and Purpose derived from the Quran's theological perspective provides a framework to develop an Islamic Environmental Ethics educational curriculum. This can provide a basis of reference and inspire Muslims, with moral authority, to confront the current global environmental crisis. It also presents an opportunity for Muslims to engage in contemporary environmental, scientific and religious debates to help forge alliances for the common good of humanity and the environment. This will help to create a human-nature partnership and enable Muslims to recognise nature as signs of God, as articulated in the Quran. This vision, which has immense potential to bring to the lives of ordinary Muslims a commitment to social and environmental justice, has yet to be incorporated into the mainstream normative Islamic educational landscape. By drawing upon recent Islamic and other academic works on the subject, this work has shown that an Islamic Environmental Ethics can indeed be presented as a distinct discipline, theologically and doctrinally, complimenting modern secular scientific empirical wisdom.

9.2 Recommendations

Muslims need to be able to critically think concerning the interrelationship between scientific theories and Islamic environmental ethics to help them actively engage in contemporary scientific issues and debates. To understand the different perspectives and arguments, requires a much broader scientific and theological engagement from Muslims to appreciate the many different views.

Muslims need to bring about a paradigm shift between science and religion, recognising the importance and the contributions that each can make. Education must form the mechanism by which the two can be converged. It must encompass Islam's broader environmental message encapsulated by the Quranic concept of *tawḥīd* and the ethics of reciprocity, "the golden rule"⁴³⁵, which Parrott has provided an excellent perspective from Islamic traditions. Though not discussed in detail, this work is relevant to environmental ethics as it requires one to treat others in the same way that they would like to be treated, an ethical position that could be extended to the natural world and all creatures. I have therefore included this as an element within an Islamic environmental education syllabus.

435. Ibid, 410.

The recent publication of the Intergovernmental Panel on Climate Change (IPCC) report highlights the current state of the climate crisis, how it is changing and how humans are affecting this change⁴³⁶. The report looks at different climate scenarios using climate model projections to gain knowledge of the climate response and the range of possible outcomes. The report is aimed at governmental level policymakers to ultimately effect change in human actions to help tackle the climate crisis. Ultimately, however, for any progress it will require a change in the humankind's outlook of the natural world and its relationship with it. All of these visions align well with the aims of an Islamic world view encapsulated by the obligations derived from Islamic Environmental Ethics, which can fulfil *Sharāh*'s objective and requirements for protecting the natural environment. The IPCC report presents an opportunity for Muslims to engage and present Islamic Environmental Ethics as a viable model to effect human change.

Traditionally, Islamic scholarship has been dominated by men, but this work has shown some significant contributions from female scholars in this discipline of environmental ethics, for example the works of Najma Mohammed⁴³⁷, Ursula Kowanda-Yassin⁴³⁸, Anna Gade⁴³⁹ and Rosemary Hancock⁴⁴⁰. Also within communities females are generally more active in initiating environmental activities, and best suited to engage with younger children and other females. Culturally this would more accommodating in many ethnic communities. This is an area that needs further investigation to help promote more female scholarship and participation, particularly from the Bangladeshi community, where many parents do not have the means to navigate through the difficulties of translating the aspirations of their children into education or employment prospects in general⁴⁴¹.

436. IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press.

437. Ibid, 89.

438. Ibid, 147.

439. Ibid, 203.

440. Ibid, 88.

441. Stevenson, J., Demack, S., Stiell, B., Abdi, M., Clarkson, L., Ghaffard, F., and Hassan, S., (2017). "The Social Mobility Challenges Faced by Young Muslims". Report commissioned by the Social Mobility Commission, September 2017. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642220/Young_Muslims_SMC.pdf. Accessed 20th September 2021.

As the UK's Muslim population is not homogenous but made of different ethnicities and cultures, each with their own perspective on many aspects of the Islamic faith, then the approach to the teaching of Environmental Ethics may need to be tailored to reflect this.

Islamic education must also broaden its curriculum and integrate modern science into its normative teaching as there is "huge need for improved scientific literacy in the Arab-Muslim world"⁴⁴². The works of Guessoum in this respect will provide a valuable insight how this could be achieved.

442. Ibid, 64.

9.3 Contribution of this Study

This work makes contribution with the aims and objectives of a number of UK educational, governmental and United Nations environmental initiatives, which are briefly presented here.

- The United Nations Environment Programme (UNEP) launched the Faith for Earth Initiative in 2017. Its mission is to engage with all faith based partners to achieve the UN's sustainable development goals by encouraging dialogue between all cultures. As part of this initiative the UNEP will be launching the *Al-Mizan: A Covenant for the Earth* project later this year to bring together Islamic institutions from around the world to combat pollution, climate change and other environmental threats⁴⁴³. The UK's Islamic Foundation for Ecology and Environmental Sciences (IFEES) is also a partner of this project. Its aim is to present an Islamic outlook of the environment to help strengthen local, regional and international environmental initiatives to combat the environmental crisis facing humanity. To this end it aims to encourage Islamic scholars and Muslim institutions to help in this endeavour by highlighting Islam's inherent environmental message. This work has provided a vital contribution, providing a framework for teaching the subject of Islamic Environmental Ethics in a wider context, within UK Islamic teaching institutions. The work has no doubt responded to UNEP's call and meets the aims and objectives of the *Al-Mizan* project.
- This work also sits within the aims and scope of the UK's government 25 year environmental plan⁴⁴⁴. The plan's policy framework provides six key areas for the development of policies to help protect and enhance the environment and meet the key aims and objectives of the plan. The plan encourages individuals on how they can make a positive contribution by being aware of the environmental impact of their daily day-to-day decisions. Islamic Environmental Ethics has the potential to make a significant contribution as its aims and objectives can be mapped and shown to align with the policy framework of this plan.

443. "*Al-Mizan: A Covenant for the Earth*". United Nations Environment Programme (UNEP). <https://www.unep.org/al-mizan-covenant-earth>. Accessed 8th September 2021.

444. HM Government., (2018). "*A Green Future: Our 25 Year Plan to Improve the Environment*".

- This research also sits within the scope of the “British Imams going green” project led by Gleave and Pettinato at the University of Exeter. The research is currently on going, both are working with two of UK’s leading Muslim institutions, Cambridge Muslim College and the *Ilm Wal Huda* (Blackburn) to develop environmental awareness amongst British Imams to act as role models within Muslim communities. The work aims to develop the knowledge framework for Imams to gain the skills necessary to achieve this vision and help promote dialogue between climate science/strategies for climate action⁴⁴⁵. This work contributes to this vision by providing a general baseline framework which has the potential to be develop further to meet the aims and objectives of their research.

445. Institute of Arab and Islamic Studies. Centre for the Study of Islam (CSI). University of Exeter, Exeter, UK.

9.4 Closing Summary

In this work I have shown how the discipline of environmental ethics has evolved in both the Christian and Islamic landscapes. I have also shown that there is a growing realisation that science and religion must coalesce to respond to the environmental crisis. This work also affirms that Islam is at the heart of this response, but there must be a paradigm shift in environmental education within the Muslim community. This education must present the secular sciences as well as Islam's environmental teachings and obligations as I have presented in this work. Both world views must be presented, as Islam's conception of environmental ethics is different from that of the secular world view. I have shown that Islam integrates environmental ethics at a deep spiritual level framed by the principle of *Tawhīd*, which enables one to see the beauty and unity in all of God's creation holistically, something which is divorced from a scientific worldview.

Muslims and non-Muslims alike, who are divorced from their faiths must realise that science is not the only source of knowledge to provide a perspective on the mystery of creation, but there is an alternate, one which has preoccupied humankind thought since time immemorial, as Jastrow eloquently states, "At this moment it seems as though science will never be able to raise the curtain on the mystery of creation. For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries"⁴⁴⁶.

The voice and efforts of concerned Muslims are rising, but this effort must also be directed towards transforming the current Islamic educational system, which is absent or lacking from any of Islam's environmental teachings and its concepts. This work provides only but a small step in this endeavour, but can inspire Muslims to demonstrate the transformative force of the Islamic faith to enable Muslims to display, inwardly and outwardly, Islam's eco-justice ethics, as "Indeed God loves those who are just"⁴⁴⁷. Ultimately, however, "God alters not what is in a people until they alter what is in themselves"⁴⁴⁸.

446. Jastrow, R., (2000). *God and the Astronomers*. Readers Library. p. 116.

447. The Study Quran, 5:42.

448. The Study Quran, 13:11.

10 Bibliography

A. B. A. Ba-Kader, A. L. T. El-Shirazy Al-Sabbah, M. Al-Sayyed Al-Glenid and M. Y. S. Izzie Dien. Basic Paper on the Islamic Principles for the conservation of the natural environment. International Union for Conservation of Nature and Natural Resources (IUCN) Environmental Policy and Law Paper No. 20 1983..

Abdel-Haleem, M., (2004). "Islam, Religion of the Environment: the Need for Re-Education and Retraining". In: Marie, Mamdouth and Sherif, Adel Omar, (eds.), The environment and judiciaries of the Arab world: proceedings of the Arab Chief Justices' Conference and Symposium on the Training of Judges and Other Legal Stakeholders in Environmental Law and Sustainable Development, Cairo, Egypt, May 29-31, 2004. Cairo: Supreme Constitutional Court of Egypt, pp 68-83.

Abdul-Matin, I., (2012). "*Green Deen, What Islam Teaches About Protecting The Planet*". Kube Publishing.

Abonomi, A., De Lacy, T, and Pyke, J., (2013) "*Environmental Impact of the Hajj*". International Journal of Religious Tourism and Pilgrimage: Vol. 10: Iss. 1, Article 12.

Abu-Hola, I., (2009). "*An Islamic Perspective on Environmental Literacy*". Education 130(2): 195-211.

Allen, M. P., (2008). "*Cultural Flourishing in Tenth Century Muslim Spain Among Muslims, Jews and Christians*". MA Thesis, Faculty of The School of Continuing Studies and of the Graduate School of Arts and Sciences. Georgetown University, Washington, US.

Alan R. Templeton, Robert J. Robertson, Jennifer Brisson, Jared Strasburg. "*Disrupting evolutionary processes: The effect of habitat fragmentation on collared lizards in the Missouri Ozarks*". Proceedings of the National Academy of Sciences May 2001, 98 (10) 5426-5432; DOI: 10.1073/pnas.091093098.

Alfauzi, Ro'is. (2020). "*The Dynamics of Qawaid Fiqhiyyah: The Construction and Application in Islamic LAW*". Al-Bayyinah. 4. pp. 225-242. 10.35673/al-bayyinah.v4i2.815.

Alwazna, R. Y., (2016). "*Islamic Law: Its Sources, Interpretation and the Translation of It into Laws Written in English*". Int. J. Semiot Law. 29: pp. 251-260. DOI 10.1007/s11196-016-9473-x.

Al-'Arabi, Ibn, Ahkam al-Quran, vol. 2, p. 993. Cited in Umm Abdurrahman Sakina Hirschfelder, (2010). "*Who is God? His Names and Attributes and their Significance to the Individual*". International Islamic Publishing House.

"Albert Einstein." In Oxford Essential Quotations, edited by Ratcliffe, Susan. : Oxford University Press, <https://www.oxfordreference.com/view/10.1093/acref/9780191826719.001.0001/q-oro-ed4-00003988>. Albert Einstein's article in Science, Philosophy and Religion, A Symposium, The Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc., New York, 1941.

Al-Ghazali, Abu Hamid., *Ihya' culum al-din* (Cairo: Mustafa al-Halabi Press, 1939) vol. 1, p. 296. Cited in Khir, Bustami Mohamed,, (2000). "*The Qur'an and Science: The Debate on the Validity of Scientific Interpretations*". *Journal of Qur'anic Studies*, vol. 2, no. 2, 2000, pp. 19–35. JSTOR.

Al-Hayani, F. A., (2005). "*Islam and Science: Contradiction or Concordance*". *Zygon*, 40 (3), 565-576.

Al-Jahiz., (1995). "*Change or Creation? God's Design in the Universe*". Translated and Introduced by M. A. S. Haleem. School of Oriental and African Studies, University of London. Garnet Publishing Ltd.

Al-Mizan: A Covenant for the Earth. United Nations Environment Programme (UNEP). <https://www.unep.org/al-mizan-covenant-earth>. Accessed 8th September 2021

Al-Naki, K., (2004). "*How do we communicate environmental ethics? Reflections on environmental ethics from a Kuwaiti perspective*". *International Research in Geographical and Environmental Education*, 13 (2), 128-142.

Al-Qadi, W. K., (2003). "*The Primordial Covenant and Human History in the Qur'ān*". *Proceedings of the American Philosophical Society* 147, no. 4: 332-38. Accessed March 6, 2021. <http://www.jstor.org/stable/1558296>.

Al Qaradawi, Yousuf. 2001. "*Ri'āyat al-Bī'a fi Sharī'at al Islam*". Dār al-hur-q.

Ahmad, A., (1997). "*Islam and the Environmental Crisis*". London: Ta-ha Publishers.

Amr T. M. Saeb, Dhekra Al-Naqeb., (2016). "*The Impact of Evolutionary Driving Forces on Human Complex Diseases: A Population Genetics Approach*", *Scientifica*, vol. 2016, Article ID 2079704, 10 pages.

Anna M. Gade., (2019). "*Muslim Environmentalisms Religious and Social Foundations*". Columbia University Press, New York, 2019.

Arensberg, A., (2005). "*A Guidebook for Environmental Conservationists in the Muslim World: How to Use Islam to Increase a Project's Effectiveness*". Honours dissertation, University of Florida (Environmental Studies).

Arslan, H. D., (2019). "*Ecological Design Approaches in Mosque Architecture*". *International Journal of Scientific & Engineering Research*, Volume 10, Issue 12, December 2019. ISSN 2229-5518.

Ashley, M., (2006). "*Finding the Right Kind of Awe and Wonder: The Metaphysical Potential of Religion to Ground an Environmental Ethic*". *Canadian Journal of Environmental Education* 11: 88-99.

Asutay, M., (2007). "*A Political Economy Approach to Islamic Economics: Systematic Understanding for an Alternative Economic System*". *Kyoto Bulletin of Islamic Area Studies*, 1-2 (2007), pp. 3-18.

- Ayala, Francisco J. and Pannenberg, Wolfhart., (1997). "Creation and the Theory of Evolution". Boardman Lectureship in Christian Ethics. 6. <https://repository.upenn.edu/boardman/6>.
- Badri, Malik, Jeremy Henzell-Thomas, and Abdul-Wahid Lu'Lu'a. "The Qur'an and the Contemplation of God's Creation." In *Contemplation: An Islamic Psychospiritual Study*, New., 53–63. International Institute of Islamic Thought, 2000. <https://doi.org/10.2307/j.ctvk8w1xc.9>.
- Bahmani, F., Amini, M., Tabei, S. Z., & Abbasi, M. B., (2018). "The Concepts of Hope and Fear in the Islamic Thought: Implications for Spiritual Health". *Journal of religion and health*, 57(1), 57–71. <https://doi.org/10.1007/s10943-016-0336-2>.
- Bakar, O., (1984). "The Nature and Extent of Criticism of Evolutionary Theory." In Osman Bakar, ed. *Critique of Evolutionary Theory: A Collection of Essays*. Kuala Lumpur: The Islamic Academy Science and Nurin Enterprise, 123-152.
- Ben-Hamouche. M., (2008). "Islamic Law for Water and Land Management and its Impact on Urban Morphology". 2nd International Conference on Built Environment in Developing Countries (ICBEDC 2008). P.
- Beringer, A., (2006). "Reclaiming a Sacred Cosmology: Sayyed Hossein Nasr, the Perennial Philosophy, and Sustainability Education". *Canadian Journal of Education*, 11, pp 26-42.
- Berry, T., (1988). "The dream of the earth". San Francisco: Sierra Club Books.
- Berry, T., (1999). "The great work: Our way into the future". New York: Bell Tower.
- Berry, T., (2009). "The sacred universe". Columbia University Press ME Tucker (ed). New York, NY.
- Bowering, G. "Covenant" *Encyclopaedia of the Qur'an*, Brill Publishers, Leiden, vol. 1, pp. 464-467.
- Bowering, G., (1997). "The Concept of Time in Islam". *Proceedings of the American Philosophical Society*, Vol. 141. No 1, pp55-66.
- Brennan, A., & Lo, Y, S., (2002). "Environmental Ethics". In: *The Stanford Encyclopaedia of Philosophy*.
- Bucaille, M., (2003). "The Bible, the Qur'an, and Modern Science: The Holy Scriptures Examined in the Light of Modern Knowledge". *Tahrike Tarsile Qur'an*. p. 135.
- Bunt, G. R., (2009). "I-Muslims: Rewiring the House of Islam". C Hurst & Co Publishers Ltd.
- Bunt, G. R., (2018). "Hashtag Islam: How Cyber-Islamic Environments Are Transforming Religious Authority". Pentagon Press.
- Burrell, D. B., and Daher, N., (1992). "The Ninety-Nine Beautiful Names of God". The Islamic Texts Society.

- Butler, T., (2005). “*Dubai’s artificial islands have high environmental cost*”. Mongabay, News & Inspiration for Nature’s Front Line. <https://news.mongabay.com/2005/08/dubais-artificial-islands-have-high-environmental-cost/>. Accessed 8th September 2021.
- Capra, M., (1996). “*The Web of Life: A New Scientific Understanding of Living Systems*”. Anchor Books, Doubleday, New York.
- Caradonna, J. L., (editor) (2017). *Routledge Handbook of the History of Sustainability*. Routledge International Handbooks.
- Carson, R., (1962). “*Silent Spring*”, Boston: Houghton Mifflin.
- Cassara, A., (2007). “*How Much of the World’s Resource Consumption Occurs in Rich Countries?*”. Earth Trends August 31st, 2007. <https://archive.globalpolicy.org/social-and-economic-policy/the-environment/general-analysis-on-the-environment/45393-how-much-of-the-worlds-resource-consumption-occurs-in-rich-countries.html>. Accessed 24th April 2021.
- Catton, W., & Dunlap, R., (1980). “*A new ecological paradigm for post-exuberant sociology*”. *American Behavioural Scientist*, 20(1), 15-47.
- Charity Commission., (2009). “*Parliamentary briefing: Survey of Mosques in England and Wales*”. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/315594/p_brief_mosques.pdf
- Cherif Abderrahman. “*Water in Islamic Culture*”, EcoMENA Echoing Sustainability in MENA, February 29th 2020. <https://www.ecomena.org/water-Islam/>. Accessed 13th March 2021.
- Chelsea Gohd. “*Astronomers re-evaluate the age of the universe*”. *Science & Astronomy*. January 8th 2021. <https://www.space.com/universe-age-14-billion-years-old>. Accessed 20th June 2021.
- Cherti, M., and Bradley, L., (2011). “*Inside Madrassas – Understanding and Engaging with British-Muslim Faith Supplementary Schools*”. Institute for Public Policy Research (IPPR).
- Clark, D., (2022). “*Estimated Muslim population of England and Wales, by region*”. <https://www.statista.com/statistics/868696/muslim-population-in-england-and-wales/>. Accessed 29th April 2022.
- Cochrane, A., (2008). “*Environmental Ethics*”, London School of Economics and Political Science, <http://eprints.lse.ac.uk/21190/>.
- Dalhat, Y., (2015). “*The Concept of al-AQL (Reason) in Islam*”. *International Journal of Humanities and Social Science*. Vol. 5, No. 9(1): September 2015.
- Dajani, R., (2012). “*Evolution and Islam’s Quantum Question*”, *Zygon*®, 10.1111/j.1467-744.2012.01259x, 47, 2, (343-353).
- Dajani, R., (2016). “*Evolution and Islam. Is There a Contradiction?*” In *Muslim*

World Science Initiative: Islam and Science: Muslim Response to Science's Big Questions, Islamabad, February 12-13, 2015, 142-151.

Damian Carrington, "Coronavirus: 'Nature is sending us a message', says UN environment chief". The Guardian. 25th March 2020.
<https://www.theguardian.com/world/2020/mar/25/coronavirus-nature-is-sending-us-a-message-says-un-environment-chief>. Accessed 8th October 2020.

Darnell, Jr., Robert Carter., (1970). *The Idea of Divine Covenant in the Quran*. PhD dissertation. University of Michigan.

David A. King., (2019). "Astronomical Alignments in Medieval Islamic Religious Architecture". Annals of the New York Academy of Sciences.

David Quammen. *The Tangled Tree: A Radical New History of Life*. William Collins, 2018.

David Solomon. "Tawaqquf and Acceptance of Human Evolution". Nature & Science Evolution, Yaqeen Institute for Islamic Research, 31st August 2018.
<https://yaqeeninstitute.org/dr-david-solomon-jalajel/tawaqquf-and-acceptance-of-human-evolution/#ftnt22>. Accessed 9th August 2020.

DeHanas, D. N., (2010). "Broadcasting Green: Grassroots Environmentalism on Muslim Women's Radio". Sociological Review 57 (suppl2): pp. 141-55.
<http://dx.doi.org/10.1111/j.1467-954X.2010.01890.x>.
Denton, M., (1997). *Evolution: A Theory in Crisis*. Adler & Adler.

Devall, B., & Sessions, G., (2007). "Deep Ecology – Living as if Nature Mattered". Gibbs Smith. Utah, USA.

Eaton, H., (2012). "Mapping eco-theologies: deliberation on difference", Theology 116(1), 23-27.

Ehrlich, P., (1968). "The Population Bomb", New York: Ballantine Books.

Egri, C, P., (1997). "Spiritual Connections With The Natural Environment - Pathways for Global Change". Organisation and Environment; Dec. 1997; 10,4.

El-Hanandeh. Ali., (2013). "Quantifying the carbon footprint of religious tourism: the case of Hajj". Journal of Cleaner Production, Volume 52, pp. 53-60.

Ellingson, S., Woodley, V.A., & Paik, A., (2012). "The structure of religious environmentalism: Movement organisations, inter-organizational networks, and collective action". Journal for the Scientific Study of Religion 51(2), 266-285.

Falagas, M.E., Zarkadoulia, E.A. and Samonis, G., (2006). "Arab science in the golden age (750–1258 C.E.) and today". The FASEB Journal, 20: 1581-1586.
<https://doi.org/10.1096/fj.06-0803ufm>.

Fallon, S., (2012). "Milton's Strange God: Theology and Narrative Form in 'Paradise Lost'" *ELH*, vol. 79, no. 1, The Johns Hopkins University Press, 2012, pp. 33–57,
<http://www.jstor.org/stable/41337578>.

- Faruqi, Y. M., (2007). "Islamic view of nature and values: Could these be the answer to building bridges between modern science and Islamic science". International Education Journal, 2007, 8(2), 461-469.
- Fazli, A. H., (2012), "Number of Verses of the Quran (Index and Argument)". Int. Journal of Humanities and Social Science. Vol. 2 No. 19 [special Issue – October 2012]. p264-267.
- Firmage, E. B., Bernard G. Weiss and J. W. Welch. "Religion and law : Biblical-Judaic and Islamic perspectives" *Vetus Testamentum* 41 (1991): p55.
- Fitchen. J. M.. (1987). "Cultural Aspects of Environmental Problems: Individualism and Chemical Contamination of Groundwater". *Science, Technology, & Human Values*. 1987;12(2):1-12. doi:10.1177/016224398701200201.
- Foltz, R. C., (2003). "Worldviews, religion, and the environment". Belmont, CA: Wadsworth/Thomson.
- Fox, M., (1991). "Creation spirituality: Liberating gifts for the people of the earth". New York: Harper Collins Publishers.
- G. Ceballos, P. R, Ehrlich, A. D. Barnnosky, A. Garcia, R. M. Pringle, T. M. Palmer. "Accelerated modern human-induced species losses: Entering the sixth mass extinction". *Science Advances* 19 Jun 2015: Vol. 1, no. 5, e1400253.
- Gade, A. M., (2019). "Muslim Environmentalism – Religious and Social Foundations". Columbia University Press New York.
- Gari, Lutfallah., (2006). "A History of the *Himā* Conservation System". *Environment and History* 12, no. 2: 213-28.
- Gilliat-Ray, S., (2010). "Muslims in Britain: An Introduction". Cambridge: Cambridge University Press.
- Gilliat-Ray, S., and Bryant, M., (2011). "Are British Muslims 'Green'? An Overview of Environmental Activism among Muslims in Britain". *Journal for the Study of Religion, Nature and Culture* 5.3 284-306.
- Glick. T., (2005). "Islamic and Christian Spain in the Early Middle Ages". Brill. pp. 253-260.
- Godan. R., (2014). "Nature of Man in Islam". *The International Journal of Religion and Spirituality in Society* Volume 4, 2014, www.religioninsociety.com, ISSN 2154-8633. Pp. 1-2; see also the Surah al-Baqara 30-33, Surah Hijr 26-40, and Surah al-Furqan 54-55.
- Gottlieb, R. S., (2006). "A Greener Faith, Religious Environmentalism and Our Planet's Future". University Press Scholarship Online.
- Gough, N., (2002). "Thinking/Acting Locally/Globally: Western Science and Environmental Education in a Global Knowledge Economy". *International Journal of Science Education* 24(11): 1217-1237.

- Greenley, A., (1993). "Religion and attitudes towards the environment". *J. Sci Study Relig.* 1993:32:19-29.
- Gue, L., (2004). "The case for ethical inquiry in science and technology policy". *EcoAction Journal*, 2: 53-69.
- Guessom, N., (2008). "The Quran, Science and the (Related) Contemporary Muslim Discourse". *Zygon*, 43(2): 411-431. P429.
- Guessoum, N. "The Young Muslim's Guide".
- Guessoum, N., (2018). "The Young Muslim's Guide to Modern Science" . Beacon Books.
- Guth, J. L., Green, J. C., Kellstedt, L. & Smidt C.E., (1995). "Faith and the Environment: Religious Beliefs and Attitudes on Environmental Policy". *American Journal of Political Science* 39(2):364.
- Gwynne. R. W., (2004). "Logic, rhetoric, and legal reasoning in the Qur'ān - God's arguments". Routledge.
- Hacket, C., and McClendon, D., "Christians remain world's largest religious group, but they are declining in Europe". PEW Research Centre, April 5th 2017.
- Haddad, M. (2006). "An Islamic approach towards environmental education". *Canadian Journal of Environmental Education*, 11, 57-73.
- Hallaq, W. B., (2005). *The Origins and Evolution of Islamic Law* .Cambridge University Press (UK).
- Hamidulla, M., (1993). "The Emergence of Islam". Islamic Research Institute, Pakistan.
- Hancock, R., (2015). "'Islamic' Environmentalism in Britain, in Muslims and Political Participation in Britain", p119-139. Edited by Timothy Pearce. 1st Edition, Routledge.
- Hancock, R., (2019). "Islamic Environmentalism, Activism in the United States and Great Britain". Routledge Taylor and Francis.
- Hancock, R., (2019). "Ecology in Islam". Oxford Research Encyclopedia of Religion.
- Hancock, R., (2020). "Muslim Environmentalists, Activism, and Religious Duty". In: Peucker M., Kayikci M. (eds) *Muslim Volunteering in the West. New Directions in Islam*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-26057-6_7.
- Harrison, Peter. "Subduing the Earth: Genesis 1, Early Modern Science, and the Exploitation of Nature". *The Journal of Religion*, vol. 79, no. 1, University of Chicago Press, 1999, pp. 86–109, <http://www.jstor.org/stable/1207043>.
- Harland, M., (2015). "10 Years To Save The Planet? With Professor Tim O' Riordan". Permaculture, Thursday 5th February 2015. Accessed 18th August 2018.

Harris, R. R., (1989). "ON MAJESTY AND BEAUTY - *The Kitâb Al-Jalâl Wa-l Jamâl of Muhyiddin Ibn 'Arabi*". J. of the Muhyiddin Ibn 'Arabi Society, Volume VIII, 1989, pp. 5-32.

Hartely-Parkinson, R., (2019). "UK get Europe's first eco-friendly mosque". METRO, Friday 6th December 2019.
<https://metro.co.uk/2019/12/06/cambridge-central-mosque-opened-cat-stevens-first-eco-friendly-mosque-europe-11280339/>. Accessed 7th September 2021.

Hasan, Z., (2016). "Economic Development and Islam revisited". INCEF The Global University of Islamic Finance Kuala Lumpur.
https://mpa.ub.uni-muenchen.de/73857/1/MPRA_paper_73857.pdf. Accessed 3rd July 2021.

Hewer, C., (2001). "Schools for Muslims". Oxford Review of Education , 27, pp. 515–527.

Hitzhusen, G. E., (2006). "Religion and Environmental Education: Building on Common Ground". Canadian Journal of Environmental Education 11: 9-25.
Hoffman A, J., & Sandelands, L. E., (2005). "Getting Right with Nature". Organisation & Environment. Vol. 18 No. 2. June 2005 141-162.

HM Government, (2018). "A Green Future: Our 25 Year Plan to Improve the Environment".
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf.

Holmes Rolston III, (2020). "A New Environmental Ethics: The Next Millennium for Life on Earth". 2nd Edition, Routledge.

Hope, A. L. B., and Jones, C. R., (2014). "The impact of religious faith on attitudes to environmental issues and Carbon Capture and Storage (CCS) technologies: A mixed methods study". Technology in Society 38 (2014) 48-59.

Hortsmann, A and Reuter, T. A., (2009). "The Post Modern Shift". Asian Journal of Social Science 37: 853-56. Introduction to a special issue on "Refluxive Transformation and Religious Revitalisation: Perspective from Southeast Asia.

Hoyle, F., (1960). "The Nature of the Universe". Harper, New York.

Hoyle, F. & Wickramasinghe, C., (1981). "Evolution from Space". J.M. Dent and Sons, London.

Hull, F., (ed.) (1993). "Earth & spirit: the spiritual dimension of the environmental crisis". New York: Continuum.

Hummel, D., & Daasaa, H., (2019). "Walking Gently on the Earth: An Interview with Nana Firman on Islamic Environmental Ethics". The Journal of Islamic Faith and Practice, Volume 2, Issue 2.

Hussain, A., (2004). "Islamic Education: Why is There a Need for it?" Journal of Beliefs & Values 25(3): 317-323.

Hussein, S. N. (1968). *"The encounter of man and nature: The spiritual crisis of modern man"*. George Allen & Unwin Ltd.

Huxley, A., (1947). *"The Perennial Philosophy"*. Chatto & Windus, London.

Ibn 'Abd al-Wahhab, Muhammad, *Three Essays on Tawheed* (North American Trust Publications, 1979), p. 12.

Igor Shiklomanov's chapter "*World fresh water resources*" in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World's Fresh Water Resources* (Oxford University Press, New York).

I-Bizri, N., (2008). *"God: Essence and attributes"*. In T. Winter (Ed.), *The Cambridge Companion to Classical Islamic Theology* (Cambridge Companions to Religion, pp. 121-140). Cambridge: Cambridge University Press.
doi:10.1017/CCOL9780521780582.007

IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press.

Iqbal, M., (2012). *"Reconstruction of Religious Thought in Islam"*. Stanford. MO. Stanford University Press. p66.

Institute of Arab and Islamic Studies. Centre for the Study of Islam (CSI). University of Exeter, Exeter, UK.

Izzi Dien, M. Y., (1997). *"Islam and the environment: Theory and practice"*. *Journal of Belief and Values*, 18(1), 47-57.

Izzi Dien, M. Y., (2000). *"The Environmental Dimensions of Islam"*. Lutterworth Press, Cambridge UK.

Jaffer, T., (2017). *"Is There Covenant Theology in Islam?"*. In *Islamic Studies Today*. Leiden, The Netherlands: Brill. doi:
https://doi.org/10.1163/9789004337121_007. Accessed 3rd March 2021.

Jalajel, D. S., (2009). *"Islam & Biological Evolution – Exploring Classical Sunni Sources and Methodologies"*. MA Thesis, Department of Foreign Languages, University of the Western Cape 19th September 2009.

James, N. Anderson., (2018). *"A Religion of the Covenant: The Centrality of Covenant Theology to the Islamic Faith"*. ST540: Christian Encounter with Islam. p1-19.

Jamieson, D., (2003). *"A Companion to Environmental Philosophy"*. Wiley-Blackwell. p 204-217.

Jastrow, R., (1980). *"God and the Astronomers"*. Grand Central Publications, USA.

Jeff Diamant. "The countries with the 10 largest Christian populations and the 10 largest Muslim populations". PEW Research Centre, 1st April 2019. <https://www.pewresearch.org/fact-tank/2019/04/01/the-countries-with-the-10-largest-christian-populations-and-the-10-largest-muslim-populations/>. Accessed 3rd July 2021.

Jenkins, W. J., (2009). "Religion and ecology: A review essay on the field". Journal of the American Academy of Religion 77(1), 187-197.

Jenkins, W., (2005). "Islamic Law and Environmental Ethics: How Jurisprudence (Usul Al-Fiqh) Mobilizes Practical Reform". Worldviews 9(3): 338-364.

Jeremy L. Caradonna (editor), (2017). "Routledge Handbook of the History of Sustainability". Routledge International Handbooks.

Jim Al-Khalili. "It's time to herald the Arabic science that prefigured Darwin and Newton". The Gaurdian, 30th January 2008. <https://www.theguardian.com/commentisfree/2008/jan/30/religion.world>. Accessed 8th June 2021.

Johnson, W. L., and Johnson, A. M., (2001). "The Theory of Evolution: An Educational Perspective". US Department of Education, Office of Educational Research and Improvement. Educational Resources Information Center (ERIC). John Cobb, preface to The Christian Future and the Fate of Earth, by Thomas Berry, eds. Mary Evelyn Tucker and John Grim (Maryknoll, NY: Orbis Books, 2009), xi.

Joint Appeal by Religion and Science for the Environment "DECLARATION OF THE 'MISSION TO WASHINGTON'". Washington, DC, May 12, 1992 <https://www.bnl.gov/envsci/schwartz/jointappeal.html>. Accessed 31st March 2021.

Joseph Mayton. "Eating less meat is more Islamic". The Guardian. Thursday 26th August 2010. <https://www.theguardian.com/commentisfree/belief/2010/aug/26/meat-Islam-vegetarianism-ramadan>. Accessed 21st December 2020.

Jusoff, K., and Abu Samah, S., (2011). "Environmental Sustainability: What Islam Propagates". World Applied Sciences Journal, 12: 46–53.

Kasia Moreno. "The 67 People As Wealthy As The World's Poorest 3.5 Billion". Forbes. 25th March 2014. <https://www.forbes.com/sites/forbesinsights/2014/03/25/the-67-people-as-wealthy-as-the-worlds-poorest-3-5-billion/>. Accessed 24th December 2020.

Kaunain, M.F., (2018). "Environmentalism in the Quran". Resolusi Vol. 1 No. 2 Desember 2018. ISSN 2621-5764, pp. 146-153.

Keller, D. R., (2010). "Environmental Ethics; the big question". Wiley-Blackwell.

Keller, Nu Ha Mim., (1999). "Evolution Theory and Islam: Letter to Suleman Al". Muslim Academic Trust.

- Khalili, J. A., (2011). "The House of Wisdom: How Arabic Science Saved Ancient Knowledge and Gave Us the Renaissance". Penguin Publishing Group.
- Khalid, F., (2019). "*Sign's on the Earth – Islam Modernity and the Climate Crisis*". Kube Publishing Ltd.
- Khalid, F., with Joanne O'Brien., (1992). "*Islam and Ecology*". World Wide Fund for Nature.
- Khan. N., (2018). "*Human Origins: Theological Conclusions and Empirical Limitations*". Nature & Science/Evolution, Yaqeen Institute.
<https://yaqeeninstitute.org/nazir-khan/human-origins-theological-conclusions-and-empirical-limitations>. Accessed 17th June 2021.
- Khair, Bustami Mohamed., (2000). "*The Qur'an and Science: The Debate on the Validity of Scientific Interpretations*". Journal of Qur'anic Studies, vol. 2, no. 2, 2000, pp. 19–35. JSTOR.
- Knott, K., (2018). "*Muslims and Islam in the UK: A Research Synthesis*". Centre for Research and Evidence on Security Threats.
- Lacy, Natalie, "*La Cultura del Agua en al-Andalus = The Culture of Water in al-Andalus*" (2004). Independent Study Project (ISP) Collection. 506.
https://digitalcollections.sit.edu/isp_collection/506. Accessed 4th September 2021.
- Lang. J., (1997). "*Even Angels Dare to Ask: a journey to Islam in America*". Amana Publications, USA.
- Lawson, I., (2005). "*Leading Schools in the UK: A challenge for us all*". National College for School Leadership.
<https://dera.ioe.ac.uk/5315/1/download%3fid=17257&filename=leading-islamic-schools-in-the-uk-full-report.pdf>. Accessed 29th April 2022.
- Leopold, A., (1949). "*The Land Ethic from A Sand County Almanac: And Sketches Here and There*". Oxford University Press.
- Lings, M., (2007). "*The Holy Quran – Translations of Selected Verses*". The Royal AAL Al-Bayt Institute for Islamic Thought and the Islamic Text Society. Mega Printing Turkey.
- Llewellyn, Othman. (2003). "*The Basis for a Discipline of Islamic Environmental Law*" in R. Foltz., F. Denny and A. Bahruddin (eds). *Islam and Ecology: A Bestowed Trust*. Cambridge: Harvard University Press, pp. 185-247.
- Lohfink, N., (1991). "*The Covenant Never Revoked: Biblical Reflections on Christian-Jewish Dialogue*". Paulist Press International, U.S.
- Lumbard, J. E. B., (2015). "*Covenant and Covenants in the Quran*". Journal of Quranic Studies (June 2015), Volume 17 Issue 2, Page 1-23, ISSN 1465-3591.
- Lyons, J., (2010). "*The House of Wisdom*". Bloomsbury Publishing Ltd.

- Mabud, S.A., (1992). "Aims and Objectives of an Integrated Science Curriculum for a Multi-faith, Multicultural Country". *Muslim Education Quarterly*, 9:4 (1992), 14–24.
- MacCammon, L., (2013). "Saving the "Ignorant American": Reflections on Science, Religion, and Public Scholarship," *Verbum: Vol. 10 : Iss. 2 , Article 2*.
- Malik, S. A., (2021). "Islam and Evolution – Al-Ghazali and the Modern Evolutionary Paradigm". Routledge Taylor & Francis Group. London and New York.
- Manoiu V. M., Arslan, R., Madani, A., and Duzgunes, E., (2016). "Environmental Education in the Holy Quran". *Lucrarile Seminarului Geografic "Dimitri Cantemir" NR. 42, 2016*.
- Manzilati, A., M. D. A. Wildana., (2019). "Zakāt 2.0". UB Press. p84.
- Manzoor, S .P., (1984). "Environment and Values: The Islamic Perspective. In *The Touch of Midas: Science, Values and the Environment in Islam and the West*", ed. Z. Sardar, 150-169. Manchester: Manchester University Press.
- Marshall, A. (1988). "A postmodern natural history of the world: Eviscerating the GUT's from ecology and environmentalism". *Student. History. Phil. Bil. Biodmed science* 29: 137-164.
- Marshall, D., (1999). "God, Muhammad and the Unbelievers: A Quranic Study". Richmond, Curzon.
- Mary Evelyn Tucker and John A. Grim., (2001). "Religion and Ecology: Can the Climate Change?". *DAEDALUS Journal of the American Academy of Arts and Sciences*, Volume 130, Number 4, of the Proceedings of the American Academy of Arts and Sciences. p. 9.
- Mawil Izzi-Dien., (2000). "Environmental Dimensions of Islam". Lutterworth Press.
- Mawil Izzi Dien., (2013). "Islam and the Environment: Towards an "Islamic" Ecumenical View". *Quranica, International Journal of Quranic Research*, Vol. 5, Issue 2, Dec 2013..
- Md Nazrul Islam & Md Al-Amin., (2019). "The Rampal Power Plant, Ecological Disasters and Environmental Resistance in Bangladesh". *International Journal of Environmental Studies*, 76:6, 922-939, DOI: 10.1080/00207233.2019.1662183.
- Meer, N., and Breen, D., (2022). "Muslim Schools in Britain: between mobilisation and incorporation". pp. 1-27. <https://core.ac.uk/download/pdf/286343134.pdf>. Accessed 1st May 2022.
- Ozalp. M., (2016). "God and Tawhid in Classical Islamic Theology and Said Nursi's Risale-I Nur". PhD Thesis. Department of Studies in Religion, School of Letters, Art and Media, Faculty of Arts and Social Sciences. University of Sydney.

- Mian, H. S., Khan, J., & Rahman, A., (2013), "*Environmental Ethics of Islam*", Journal of Culture, Society and Development – An Open Access International Journal, Vo. 1. 2013.
- Michael J. Vlach., (2009). "*The Church as a Replacement of Israel: An Analysis of Supersessionism*", (PhD dissertation at Southeastern Baptist Theological Seminary, Wake Forest, NC, 2004), p. xv. Cited in Ice, Thomas D., "What is Replacement Theology?" (2009). Article Archives. Paper 106.
- Millgram, E., (2001). "*Practical Reasoning: The Current State of Play*," in Varieties of Practical Reasoning, p. 1. Cambridge, MA: MIT Press.
- Mills, L. S., I., Soulé, M. E., and Doak, D. F., (1993). "*The Keystone-Species Concept in Ecology and Conservation*." BioScience Vol. 43 No. 4. pp 219-224.
- Mitchell, H., T. Hamilton, F. R. Steggerda and H. S. Bean. "*The chemical composition of the adult human body and its bearing on the biochemistry of growth*." Journal of Biological Chemistry 158 (1945): 625-637.
- Moaddel, M. and Talattof, K. (eds.), (2000). "Contemporary debates in Islam: an anthology of modernist and fundamentalist thought". New York: St. Martin's Press.
- Moran, G., (2021), THE FINAL DOMINO: YASIR QADHI, YOUTUBE, AND EVOLUTION. Zygon®, 56: 34-53. <https://doi.org/10.1111/zygo.12666>.
- Moran, J., (2012). "*Three Challenges For Environmental Philosophy*". Philosophy Now, Issue 88.
- Mohamed, N. (2012). "*Revitalising an Eco-Justice Ethic of Islam by way of Environmental: Implications for Islamic Education*". PhD dissertation, Stellenbosch University.
- Mohamed, N., (2013). "*Islamic Education, Eco-ethics and Community*". Studies in Philosophy and Education, An International Journal. ISSN 0039-3746.
- Mueller, M.P. and M.L. Bentley., (2006). "*Beyond the 'Decorated Landscapes' of Educational Reform: Towards Landscapes of Pluralism in Science Education*". Science Education 91(2): 321-338.
- Muhammad, A. M., (2013). "*Muslims in Non-Muslim Lands: A Legal Study With Applications*". The Islamic Texts Society. Cambridge, UK.
- Mohamed, Y., (1991). "*Knowledge in Islam and the Crisis in Muslim Education*". Muslim Educational Quarterly 8(4): p13-31.
- Nadia Drake, "*Will Humans Survive the Sixth Great Extinction*". 23rd June 2015. <https://www.nationalgeographic.com/news/2015/06/150623-sixth-extinction-kolbert-animals-conservation-science-world/>, accessed 3rd October 2020.
- Naqvi, S. N. H., (1997). "*The Dimensions of an Islamic Economic Model*". Islamic Economic Studies. Col. 4, No. 2, May 1997.
- Nasr, S. H., (1968). "*The Encounter of Man and Nature: The Spiritual Crisis of Modern Man*". George Allen & Unwin Ltd.

- Nasr, S. H., (1996). *"Man and Nature"*. Chicago: KAZI Publications.
- Nasr, S.H., (1992). *"Islam and the Environmental Crisis. In Spirit and Nature: Why the Environment is a Religious Issue"*, ed. S.C. Rockefeller, 84-108. Boston: Beacon Press.
- Nasr, S.H. (2003). *"Islam, the Contemporary Islamic World, and the Environmental Crisis. In Islam and Ecology: A Bestowed Trust"*, eds. R.C. Foltz, F.M. Denny and A. Baharuddin, 85-105. Cambridge: Harvard University Press.
- Nasr, S. H., (2006). *"On the question of Biological Origins"*. Islam and Science, 4(2): 181-197.
- Nasr, S. H., (2007). *"The Essential of Seyyed Hossien Nasr"*. Edited by William C. Chittick, Forwarded by Huston Smith. World Wisdom Inc.
- National Geographic, *"Dubai The World's Hottest Property"*. January 2007.
- Newton, Lisa H. (2005). *"Business Ethics and the Natural Environment"*. Wiley-Blackwell.
- Newton, L. H., (2002). *"Ethics and Sustainability: Sustainable Development and the Moral Life"*. Prentice Hall, New Jersey.
- Nikolaos Voulvoulis & Mark A. Burgman., (2019). *"The contrasting roles of science and technology in environmental challenges"*. Critical Reviews in Environmental Science and Technology, 49:12, 1079-1106, DOI: 10.1080/10643389.2019.1565519.
- Norshariani Abd Rahman, Fatin Nur Marhamah Zabidi and Lilia Halim., (2020). *"Integration of Tawhidic Elements for Environmental Education from the Teachers' Perspectives"*. Religions 2020, 11, 394; doi:10.3390/rel11080394.
- N. S. Sheikh. *"And the New Moon Rose Over Us": The Fiqh and Science of Islamic Moon-Sighting*. Keele University. <http://www.zawiyah.org>. Accessed 20th December 2020.
- O-Neil, J., (2002). *"The Varieties of Intrinsic Values, in Environmental Ethics: An Anthology"*, ed. Andrew Light and Holmes Rolston (Oxford: Wiley Blackwell). 131-42.
- O' Riordan, T., (1989). *"The Challenge for Environmentalism. In: New Models in Geography"*, R. & N. Thrift (Eds.). Unwin Hyman, London: pp:77-102.
- O' Riordan, T., (1981). *"Environmentalism"*. 2nd Edition, Pion, London
- Orr, D. W., (1989). *"Ecological Literacy"*. Conservation Biology, 3 (4), 334-335.
- Orr, D. W., (1992). *"Ecological Literacy: Education and the Transition to a Postmodern World"*. New York: State University of New York.
- Orr, D. W., (1994). *"Earth in mind"*. Washington, D. C. Island Press.

- Palmer, C., McShane, K., and Sandler R., (2014). "Environmental Ethics". Annual Review of Environment and Resources, October 2014.
- Park, C., (2001). *The Environment, principles and applications*. Routledge, London & New York, 2nd Edition.
- Parrot, J., (2017). "Reconciling the Divine and Free Will in Islam". Yaqeen Institute for Islamic Research.
- Passmore, J., (1974). "Attitudes to Nature". Royal Institute of Philosophy Lectures 8: 251-264.
- Paul R. Ehlich & Anne H, Ehlich., (2009). "The Population Bomb Revisited". The Journal of Sustainable Development 1 (3).
- Pepper, D., (1996). "Modern Environmentalism". London: Routledge.
- Pew Research Centre January 31st, 2017.
- Philips, A. B., (2006). "The Evolution of FIQH". International Islamic Publishing House. Riyadh, Saudi Arabia.
- Philips, A. B., (1997). "The Purpose of Creation". Printing Publishing and Distribution Co. Ltd.
- Plantinga, A., (1997). "Methodological Naturalism", Part 2. Origins and Design 18 (2): pp. 22-34.
- Pope John Paul II (2001). General Audience. Rome: 17th January.
https://w2.vatican.va/content/john-paul-ii/en/audiences/2001/documents/hf_jp-ii_aud_20010117.htm.
- Pylon, B. (2017). "Eat Stop Eat", CLK Books.com.
- Quammen, D. (2018). "The Tangles Tree: A Radical New History of Life". William Collins.
- Quiren Schiermeier, "Eat less meat: UN climate-change report calls for change to human diet". Nature 12th August 2019.
<https://www.nature.com/articles/d41586-019-02409-7>. Accessed 20th December 2020.
- Rau, G., (2012). "Mapping the Origins Debate: Six Models of the Beginning of Everything". InterVarsity Press. Westmount, Illinois, USA. p 85-152.
- Rai, J., (2019). "Understanding poverty-environment relationship from sustainable development Perspectives". J. Geogr. Environ. Earth Sci. Int. 2019, 1–19.
- Rasmussen, L., (1996). "Earth community earth ethics". New York: Orbis Books.
- Reuter, T. A., (2015). "The Green Revolution in the World's Religions: Indonesian Examples in International Comparison". Religions 2015, 6, 1217-1231. ISSN 2077-1444.

- Reynolds, G. S., (2020). *“Allah God in the Quran”*. Yale University Press.
- Reza Shah Kazemi., (2011). *“Seeing God Everywhere – Qu’ranic Perspectives on the Sanctity of Virgin Nature”*. A Journal of Tradition and Modernity, no. 27, June 2011.
- Rifken, A., (1984). *“Algeny. A New Word – A New World, A provocative Critique of Darwnism, The Age of Genetic Engineering, And Our Relationship to Nature”*. Penguin Books, New York.
- Rishbeth, C., (2001). *“Ethnic Minority Groups and Design of Public Open Space: An Inclusive Landscape?”*, Landscape Research 26.4: pp. 351-66. <http://dx.doi.org/10.1080/01426390120090148>.
- Rizvi, A. M., (2010). *“Islamic Environmental Ethics and the Challenge of Anthropocentrism”*. The American Journal of Social Sciences 27:3.
- Rizvi, S., (2017). *“Al-Ghazālī’s moderation in belief. Al-Iqtisād fī al-ī‘tiqād”*. British Journal of Middle Eastern Studies, 44:1, pp. 149-150, DOI: 10.1080/13530194.2016.1238593.
- Rocha, J. C., Peterson, G., Bodin, O., & Levin, S., (2018). *“Cascade regime shifts within and across scales”*. Science 21st December 2018: Col. 362, Issue 6421, 1379-1383.
- Rochat, P., (2018). *“The Ontogeny of Human Self-Conscience”*. Current Directions in Psychological Science 1-6, Association for Psychological Science.
- Rodney Blackhirst. *“Symbolism of Islamic Prayer”*. The Matheson Trust.
- Roger S. Gottlieb., (2009). *“Introduction: Religion and Ecology – What is the Connection and Why Does it Matter”*. The Oxford Handbook of Religion and Ecology, Edited by Roger S. Gottlieb. Oxford Handbooks Online. Scholarly Research Reviews. <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195178722.001.0001/oxfordhb-9780195178722-e-1>. Accessed 3rd May 2021.
- Rolston III, H., (1968). *“Challenges in Environmental Ethics”*. Environmental Philosophy: From Animal Rights to Radical Ecology, 2nd ed. Upper Saddle River, NJ: Prentice Hall. Pages 124-144.
- Rull. V., (2012). *“Time, evolution and physical reductionism”*. EMBO Reports. March; 13(3); pp. 181-185. Published online 2012 Feb 3. doi: 10.1038/embor.2012.4
- Rustom, M., (2012). *“The Triumph of Mercy – Philosophy and Scripture in Mullah Sadra”*. State University of New York Press.
- Salleh, A. D., Kashim, M. I. A. M., Adnan, N. I. M., Ghani, N. A. R. N. A., & Jamsari, E. A., (2019). *“Theory and Application of Sadd al-Dhara’i’ (Blocking the Means) in Shafi’iyya School”*. International Journal of Academic Research in Business and Social Sciences, 9(1), pp. 724–737.

Salmani, B., Hakimzadeh, R., Asgari, M. and Khaleghinezhad, S. A., (2015), "Environmental Education in Iranian school Curriculum, A content analyses of Social Studies and science textbooks". Int. J. Environ. Res., 9(1):151-156, Winter 2015 ISSN: 1735-6865.

P. Andrew Sandlin. "The Old Covenant and the New, Revisited". May 01, 2000; <https://chalcedon.edu/magazine/the-old-covenant-and-the-new-revisited>. Accessed 25th December 2019.

Sardar, Z., (1977). "Science, Technology and Development in the Muslim World". London: Croom Helm.

Sarkar, I., (2015), "Islamic Values and Environment Disquiet, Philosophy and Progress": Vols. LVII-VVIII, ISSN 1607-2278.

Sarvestani, A. A., & Shavali, M., (2008). "Environmental Ethics: Toward an Islamic Perspective". American-Eurasian J. Agric. & Environ. Sci., 3(4):609-617. ISSN1818-6796.

Schumacher, F., (1973). "Small is Beautiful: Economics as if People Really Mattered". Abacus. London

Sessions, G., (2007). "Deep Ecology". Gibbs Smith Publisher.

Shafi, M., (2011). "Ma'riful Quran – A Comprehensive commentary on the Holy Quran. Volume 1 (Surah Al-Fatiha, Al-Baqara)". Maktaba-e-Darul-Ulomm, Karachi.

Shayla Love. "A Thousand Years Before Darwin, Islamic Scholars Were Writing About Natural Selection". 5th October 2020. World News. <https://www.vice.com/en/article/ep4ykn/a-thousand-years-before-darwin-islamic-scholars-were-writing-about-natural-selection>. Accessed 7th June 2021.

Sheikh Safi-ur-Rehman al-Mubarkpuri (2002). *Ar-Raheeq Al-Makhtum (The Sealed Nectar): Biography of the Prophet*. Dar-us-Salam Publications.

Shomali, M., (2008), "Aspects of Environmental Ethics: An Islamic Perspective". Thinking Faith.

Siddiqui, A., (2007). "Islam at Universities in England - Meeting the needs and investing in the future". Report submitted to Bill Rammell MP [Minister of State for Lifelong Learning, Further and Higher Education].

Simon Worrall. "What Darwin Didn't Know about Evolution". National Geographic September 21, 2018. <https://www.nationalgeographic.com/science/2018/09/darwin-evolution-crispr-microbiome-bacteria-news/>. Accessed 23rd October 2020.

Simpson, G.G., (1953). "The Meaning of Evolution". Revised Edition. Yale University Press, New Haven, Connecticut.

Siraj, M. A. and Tayab, M. A. K. (2017). "Water in Islam". In: Raju, K. V. and Manasi, S. (ed.) Water and Scriptures: ancient roots for sustainable development. Springer, pp.15-58.

- Schultz, P., (2002). "Environmental Attitudes and Behaviors Across Cultures". Online Readings in Psychology and Culture, 8(1). <https://doi.org/10.9707/2307-0919.1070>.
- Smith, A. (2008). "Nucleic acids to amino acids: DNA specifies protein". Nature Education 1(1):126.
- Stevenson, J., Demack, S., Stiell, B., Abdi, M., Clarkson, L., Ghaffard, F., and Hassan, S., (2017). "The Social Mobility Challenges Faced by Young Muslims". Report commissioned by the Social Mobility Commission.
- Subbarini, M.S., (1993). "Biocentrism as an Approach to Environmental Ethics: An Islamic Determiner for Environmental Education". Environmental Education and Information 12(3): 207-212.
- Sutton, P. "A Scientific Overview of Eid Moon Sightings". School of Mathematics and Physics, University of Lincoln, UK. (<https://psuttonblog.wordpress.com/outreach/scientific-overview-of-eid-moon-sightings/>). Accessed 19th December 2020.
- Sylvan, R., (1985). "A Critique of Deep Ecology". Radical Philosophy 40:2.
- Tabar, M. R., & Shobeiri, S. M., (2015). "The foundations of environment in Quran with a review of seven United Nations Conferences on the environment". Environment Conservation Journal 16 (SE) 185-197.
- Timothy S. Stephens. "Darwin and Religious Thought". University Chaplain, North Western University. <https://www.northwestern.edu/onebook/the-reluctant-mr-darwin/essays/darwin-religion.html>. Accessed 30th May 2021.
- Thomas Berry and the Great Work. Thomas Berry: Biography. "The Critique of Modernity and the Environmental Crisis". <http://thomasberry.org/life-and-thought/about-thomas-berry/the-critique-of-modernity-and-the-environmental-crisis>. Accessed 17th January 2020.
- Thomas, P., (2012). "The Creation-Evolution Debate: An Islamic Perspective". PhD Dissertation, Department of Education and Professional Studies, Kings College, University of London.
- Tosun, E., (2012). "Guide to Understanding Islam". Esen Ofset Matb. San. Tic. A.Ş. (2012/8 İstanbul).
- Tucker, M. E., and Grim, J., (1997). "The challenge of the environmental crisis". Centre for the Study of World Religions, Harvard Divinity School, Religions of the World and Ecology Series.
- Tucker, M. E., and Grim, J., (1997-2004). "World religions and ecology series". Cambridge, MA: Harvard University Press.
- Umar F. Abd-Allah, "Theological Dimensions of Islamic Law", in The Cambridge Companion to Classical Islamic Theology, ed. Tim Winter (Cambridge University Press, 2008), 251.

Umm Abdurrahman Sakina Hirschfelder, (2010). *Who is God? His Names and Attributes and their Significance to the Individual*. International Islamic Publishing House.

United Nations Environmental Programme (UNEP) Global Environment Outlook 2000, 1999.

Virginia Morell. *Meat-eaters may speed worldwide species extinction, study warns*. Science, AAAS. 11th August 2015.
<https://www.sciencemag.org/news/2015/08/meat-eaters-may-speed-worldwide-species-extinction-study-warns>. Accessed 21st December 2020.

Waghid, Y., (2010). *Towards a Philosophy of Islamic Education*. In International Encyclopedia of Education, Philosophy of Education, eds. B. McGraw, E. Baker and P. Petersen, 241-246. Oxford: Elsevier.

Wagler, R., (2011). *The Impact of Human Activities on Biological Evolution: A Topic of Consideration for Evolution Educators*. Evo Edu Outreach 4, 343–347.
<https://doi.org/10.1007/s12052-011-0326-5>.

Wani, Z. A. and Maqbool, T., (2012). *The Islamic Era and Its Importance to Knowledge and the Development of Libraries*. Library Philosophy and Practice (e-journal). 718.

Watson, J. D. & Crick, F. H., (1953). *Molecular structure of nucleic acids; a structure for deoxyribose nucleic acid*. Nature 171. pp. 737–738.

Watson, M and D. Sharpe., (1993). *Green Beliefs and Religion. In The Politics of Nature: Explorations in Green Political Theory*, eds. A. Dobson and P. Lucardie, 210-228. London: Routledge.

Weiss, Bernard G., *“Covenant and Law in Islam”* in Edwin R. Firmage, Bernard G. Weiss, and John W. Welch (eds), Religion and Law: Biblical-Judaic and Islamic Perspectives (Winona Lake: Eisenbrauns, 1990), pp. 49–84.

Wersal, L. (1995). *Islam and Environmental Ethics: Tradition Responds to Contemporary Challenges*. Zygon 30(3).

Westra L, & Robinson T, eds. 1997. *The Greeks and the Environment*. Lanham, MD: Rowman & Littlefield.

White, G. F., (1988). *The Environmental Effects of the High Dam at Aswan*. Environment: Science and Policy for Sustainable Development, 30:7, 4-40.
DOI: 10.1080/00139157.1988.9930898.

White, L., (1967), *Historic roots of our ecological crisis*, Science, Vol.155, pp.1203-07.

White, P.S., (2013). *Derivation of the extrinsic values of biological diversity from its intrinsic value and of both from the principles of evolution*. Conservation Biology 2013 Dec; 27(6):1279-85. Doi:1111/cobi. 12125. Epub 2013 Aug 23.

Whitehouse, K, A., & Duffus, A. L. J., (2009). “*Effects of environmental change on wildlife health*”. Philosophical Transactions of the Royal Society B, Biological Sciences. The Royal Society Publishing.

Winchester, A. M., (1971). “*Genetics: A Survey of the Principles of Heredity*”. Houghton Mifflin Harcourt Publishing Co.

Winerman, A., (2011). “*Developing Mecca: A Case Study of the Royal Makkah Clock Tower*” (May 19, 2011). SSRN: <https://ssrn.com/abstract=1846593>. or <http://dx.doi.org/10.2139/ssrn.1846593>.

Wolfgang Pannenburg, translated by Geoffrey W. Bromiley., (2004). “*Systematic Theology*”, Volume 2. T&T Clark International. p119.

Woodward, T., (2003). “*Doubts about Darwin – A History of Intelligent Design*”. Forwarded by Phillip E. Johnson. Baker Books. MI, USA.

Worden, Ward S. “*Milton’s Approach to the Story of the Fall*”. *ELH*, vol. 15, no. 4, Johns Hopkins University Press, 1948, pp. 295–305, <https://doi.org/10.2307/2871619>.

Yusuf, H., (2006). “*Caesarean Moon-Births*”. Part II, p16.

Yusuf, H., (2011). “*Caesarean Moon Births – Calculations, Moon Sighting and the Prophetic Way*”. Zaytuna College, Berkeley, USA.

Zafar Ahsan., (2012). “*The Quran and Laws of Planetary Motion*”. *Revelation and Science* Vol. 02, No 01 (1433H/2012), 43-50

Zuleka Keskin and Mehmet Ozalp., (2020). “*An Islamic Approach to Environmental Protection and Ecologically Sustainable Peace*”. J. Camilleri and D. Guess (eds.), *Towards a Just and Ecology Sustainable Peace*.