

ENVIRONMENTAL HEALTH AND WELFARE AS AN IMPORTANT ASPECT OF CIVILIZATIONAL ISLAM

by

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Introduction: The Modern Route to Ecological Wisdom

Modern man learns the wisdom of ecological equilibrium and environmental health the bitter way. It is also the expensive way. Not until he has seen with his own eyes the bitter fruits of his scientific and technological culture and of his extravagant life style does he come to realize how important ecological equilibrium and environmental health are to the survival of humankind on earth. The names of these bitter fruits are environmental pollution and ecological disasters. The modern industrialized West became the first sector of humanity in history to taste these bitter fruits, just as it was the first to have planted the "forbidden tree of secular knowledge"^[1] that had borne these fruits. It was most unfortunate for humanity that the rest of the world, including Muslim societies, had uncritically followed the footsteps of the West in planting and cultivating the same tree and reaping its fruits.

Given the origin and magnitude of the environmental and ecological crisis that has engulfed the modern West, it is completely understandable why it is also in that part of the globe that the first organized protests against environmental destruction have made their appearance. Although the roots of the modern environmental movement could be traced to the late 19th century, efforts to conserve natural resources, preserve "wilderness," and control pollution, did not become a

force until the 1960s. Environmentalism is, in fact, a post World War II phenomenon. Referring to the American experience in particular, environmental historians cited three major postwar developments that explain the rise of this phenomenon: the willingness of newly affluent Americans to insist on environmental quality and to reject the argument that "pollution is the price of economic progress," the increased destructiveness of modern industry, and the popularization of ecological ideas.^[2]

The dawn of environmental and ecological consciousness in the modern West came in the late 19th century in the wake of vivid images of polluted rivers, lakes and seas with dead fishes floating in them, of polluted air resulting in hazardous smog and acidic rainfalls, intermittent massive soil erosion, landslides, and flooding largely as a result of large scale deforestations, and other forms of environmental disasters. Pollution became an increasingly popular issue in the first half of the 20th century, especially among urban dwellers who craved for a healthier urban environment. Ecological ideas, however, did not gain currency in the West until decades after World War II having to endure the horrible threat of pollution and other environmental hazards to human health, both the individual and public, before being able to see the light of ecological wisdom, is what we mean by modern man acquiring this wisdom the "bitter way."

The economic cost of cleaning and "repairing" the environment proves to be extremely high, and in many cases the damage done to the environment is so severe that it is beyond repair. Added to this economic cost is the inestimable human cost of environmental pollution, as its destructive impact on the physical and psychological health of the population worsens. This is what we mean by the "expensive way" of

learning ecological wisdom. Nonetheless, the rise of ecological concern and the popularization of ecological ideas since the 1960s are most welcome. Similarly welcomed is the institutionalization and steady development of ecology and environmental science as full-fledged academic disciplines in institutions of higher learning. However, the modern history of the development of environmental and ecological consciousness in the West and the continuing deep polarization of its society over the issue, clearly demonstrate that ecological wisdom has never been central to the civilizational consciousness of modern Western man.

Ecological Wisdom in the Islamic Experience, Past and Present

We find an entirely different picture of the origins and development of environmental and ecological consciousness in Islamic civilization. Traditional Muslims learn the wisdom of environmental health and welfare and ecological sanity, not through the bitter experience of environmental pollutions and other costly hazards, but through the teachings of their religion. For them, ecological wisdom is an integral component of their core religious beliefs. As we shall see, ecological and environmental consciousness is central to the teachings of Islam. It is the religion of Islam that teaches Muslims the spiritual meaning and significance of the natural environment and the theological basis for ecological equilibrium.^[3] Further, it is on the basis of this spiritual understanding of ecology and environment that Muslims have cultivated a culture of environmental health preservation and welfare for more than a millennium.

The key to the success of traditional Islamic civilization in creating this culture of environmental health maintenance was the kind of science

and technology that Muslims produced before modern times. Together with many others, we have argued that science and technology as cultivated in Islamic civilization deserves to be termed 'Islamic science'^[4] and 'Islamic technology'^[5], even though Muslims in the past had never used those terms.^[6] Islamic science is Islamic not because it happened to have been produced by Muslims, but because it is based on principles that are drawn from the teachings of Islam and because it is cultivated within the framework of the Islamic worldview. As a matter of fact, in the long history of Islamic science, a considerable number of non-Muslim scientists and scholars contributed to its development and progress.^[7]

This historical fact should not surprise anyone who knows and understands the universal character of the religion of Islam. The epistemological, methodological, and ethical principles of Islamic science are generally of a universal nature, and as such, have been embraced by Jewish, Christian, and other non-Muslim scientists and scholars who lived and thought within Islam's intellectual universe.

While eagerly embracing the philosophical perspectives of Islamic science and other Muslim-originated intellectual ideas, these non-Muslim scholars and scientists did not change their respective religions to Islam, although some did out of their own personal convictions. For many of these non-Muslim scholars and scientists who did not convert to Islam in the religious sense, they nonetheless underwent an 'intellectual conversion to Islam' just as today many Muslims, not just scholars and scientists, have been converted to modern Western intellectualism and scientism, even though they may still perform Islamic rituals such as the five daily prayers and fasting during the month of Ramadan. This striking phenomenon provides an important lesson for contemporary Muslim majority countries that are multi-religious in nature such as Malaysia.

Malaysian Muslims as individuals and as citizens of the country, and Malaysia as a Muslim-dominated state, should not in any way feel constrained in presenting Islamic ideas and programs to non-Muslim communities for the good of the whole country, especially when these ideas are considered universally good but are not to be found in the teachings of other religions.

As a matter of fact, there are good precedents in the country for the popularization of ideas, societal programs, and institutions of Islamic origin among non-Muslims that could be a source of great inspiration for Malaysians. One of these was the introduction of Islamic banking services during the Mahathir Administration under its Islamization policy. Initially greeted with skepticism by the non-Muslim communities, Islamic banking products and services have become universally accepted so much so, that now it is the non-Muslim Chinese who are taking fuller advantage of the wide range of facilities offered by the Islamic banking system as compared to the Malay-Muslims. The expansion of the Islamic banking system and its wide acceptance proves to be one of the major success stories of Malaysia's Islamization policy as pursued in a multi-religious and multi-cultural context. The main reason for the success is the government's wise decision to allow the conventional banking system to continue to flourish while demonstrating its commitment and determination to see the Islamic banking system develop and gain the trust of consumers, especially the non-Muslims.

We are of the opinion that Islamic ideas, ethics, laws, and institutions pertaining to environmental and ecological issues, are yet another legacy of the religion of Islam and its civilization that is very important to be presented to our contemporary world; be it here in Malaysia or anywhere else. We have earlier emphasized environmental

health and welfare as a paramount issue of our time. We believe traditional Islamic civilization has something precious and timely to offer in effectively dealing with the issue. Malaysia, under the Abdullah Badawi Administration, has come up with a new Islam policy called Islam Hadhari which may be best translated as "civilizational Islam." The principles and agenda of Islam Hadhari clearly show that despite its portrayal by its architects as a new approach to Islamic governance,^[8] the new policy exhibits substantial continuity with the Islam and Islamization policy of the Mahathir Administration. However, there are new elements of emphasis in the government's Islam Hadhari concept, one of which is the principle of "safeguarding the environment."^[9] The principle itself is not new to Malaysian government policy. The National Front government has been trying to confront the issue of environmental degradation ever since it gazetted the Environmental Quality Act on 14 March 1974, although critics have often decried the government's effectiveness in enforcing its environmental policies.

What is new about the national environmental concern in the Islam Hadhari concept is the attempt to directly link environmental policy to Islam and make "safeguarding the environment" an official Islamic policy and important societal agenda for the Muslim community in the twenty-first century. This development is most welcomed. It now forces the religious establishment, Muslim scholars, scientists, technologists, and policy makers, to ponder hard on the issue of Islam and the environment and to diligently and wisely access the ecological and environmental wisdom embodied in the teachings of Islam in its spiritual, intellectual, and scientific traditions, with the view of presenting to the general public concrete Islamic proposals on how to safeguard the environment.

Compared to the earlier successful institutionalization of the

Islamic banking system, the attempt to formulate a comprehensive environmental policy that is authentically Islamic, and to devise effective implementation mechanisms sanctioned by an Islamic value system, would prove to be a much more difficult task. It is important to realize that modern environmental problems have spiritual, moral, and intellectual dimensions.^[10] What this means is that long-term solutions to environmental problems necessarily involve changes to some aspects of our current attitudes toward development, our extravagant life style, and our understanding and appreciation of the natural order. It is difficult to persuade people to change their attitudes, habits, and thought patterns, even when they know the change is for the better. In the long run our best hope for a positive change in our environmental thinking would be through education. Those entrusted with the task of implementing the Islam Hadhari policy have to ensure that an adequate content of Islamic teachings on ecology and environment is incorporated into the nation's educational curriculum, at least through both the subjects of Islamic studies and science.

We also want to see significant changes in our thinking on development as well as on science and technology, since these are the two areas of modern societal concern that have the greatest impact on the quality of our environment. Right now, we do have a pool of expertise on alternative development and science and technology models that are in conformity with the Islamic value system and ethics, but this pool is as yet untapped. Some of us have been talking, and may continue to do so as long as we want, about such and such wonderful Islamic theories of development and the Islamic vision of science and technology culture, but the most effective way to impress on the public mind the relatively far more numerous advantages to society of the Islamic models in

question, would be to provide a working practical model, even if it is on a small scale.

Over the decades, Malaysia has been accustomed to the practice of introducing "pilot projects" as an experimental undertaking in various fields such as education, agriculture, and economics, before embarking on each of the new projects on a national scale. More often than not, these pilot projects have been successful, thus paving the way for large scale implementation. We like to suggest the same approach to the realization of Islamic models of development, science and technology, especially in their relation to the environment. Actually, there have been several attempts in Malaysia, particularly by the private sector, aimed at undertaking specific development projects that creatively and harmoniously blend with the natural environment.

The most visible of these attempts are in the development of holiday resorts such as in Pangkor Laut. Unfortunately, the clean, healthy and beautiful environment that one enjoys in these resorts is primarily meant for the few who can financially afford it. This easily gives the wrong impression that opportunities to live or work in areas with clean natural environments are only open to the rich. The poor and the not so rich are forever condemned to live in polluted and environmentally hazardous areas. If we wish to convey a different message to the public, a positive one, namely that development that maintains a healthy environment is scientifically and technologically possible and financially within the means of the state and society, then it is important that the pilot projects chosen, designed, and implemented, are really of the kind that would succeed in conveying that positive message. We would, in particular, encourage the state with the cooperation of the private sector to build small new towns with planning principles and community

priorities that strictly observe the principle of balance between development needs and healthy ecological and environmental considerations. From the long term point of view, it pays for the state to venture into such a development undertaking, the sooner the better, since it will be spared costly payments of bills for cleaning the environment and health bills of its population incurred by environmental hazards.

A holistic idea of development naturally demands the use and application of a holistic conception of science and technology. We believe the traditional Islamic conception of science and technology is holistic and also "contemporary" in nature. There are many ideas related to the theory and practice of Islamic science that could be of great help to us today in creating the new kind of science and technology sorely needed in the implementation of the Islamic model of development in question. The position on science and technology that we have just defined demands two things from us. First, there is a need to convince the public that the nature and misapplications of modern science and technology have been one of the contributory factors of environmental degradation. In other words, there is a need for an Islamic critique of modern science and technology. Second, there is a need for pilot projects with practical applications of scientific and technological principles based on Islamic teachings of environmental management in such areas as agriculture, town planning, industrialization, and engineering.

Let us first examine the essentially close link between the type of science and technology that is being practiced and the quality of the environment that results from their applications. We have earlier alluded to one of the most important features of traditional Islamic civilization, namely the central role of its science and technology in producing a flourishing culture of environmental health maintenance. We would

hasten to add that in both theory and practice, Islamic science and technology affirm the importance of maintaining a harmonious relationship between man and the environment. Islamic civilization can take pride in the fact that its scientific and technological culture did not result in environmental and ecological disasters despite the fact that its cultivation in history spanned a much longer period than the current age of modern science and technology.^[11] If we are searching for the many useful lessons that traditional Muslims have learned from their scientific and technological culture cultivated over the centuries, one would be how their science and technology had provided confirmations of the ecological and environmental truths that their religion has taught.

To avoid misunderstanding, our usage of the term "traditional Muslims" while referring to Muslim views of science and technology needs clarification.^[12] By "traditional Muslims" we mean those Muslims who believe that the Islamic revelation presents to humankind definitive teachings on science that were later put into practice in such wise that the newly developed science became a complete, fully grown, and distinctive scientific tradition. They would argue that the spirit and characteristics of traditional Islamic science are not the same as those of modern science, since the two sciences are based on different world-views that clash on a number of issues. We want to distinguish these "traditional" Muslims from those Muslims who have embraced the modern scientific worldview and whose views of the natural environment and man's relationship with it have been shaped by that worldview.

The traditional Muslim view on science and the environment is that there is a major fault not only with the modern attitudes toward the natural environment, but also with the modern scientific and technological enterprise. Taking the argument further, there is a profound

link between modern scientific and technological culture and the uniquely modern phenomenon of environmental and ecological disasters that we have seen happening on an unprecedented scale in the history of human civilization. It would be faulty thinking to wishfully expect our relationship with the natural environment to turn for the better while we stubbornly cling to the philosophy and spirit of modern science and technology, when it is precisely its reductionistic vision^[13] of the natural order and its "value-free" or largely unethical applications to that domain that have resulted in widespread pollution and other environmental hazards.

It is true to say that, in one sense, modern attitudes toward the natural environment that have resulted in the modern environmental crisis are the consequences of a faulty and an impoverished conception of nature upon which modern science and technology have been based. In other words, modern environmental and ecological crisis may be seen as the bitter fruit of modern science and technology. In another sense, however, modern science and technology is the product of modern western attitudes toward the natural environment that tend to be more secular and materialistic, especially as that science and technology become more successful in delivering material goods to society.

No one can dispute the great success of modern science and technology in delivering the material side of human needs. But there is another side of the story of modern science and technology that could not just be ignored. It is the great failure of that science and technology to meet the non-material needs of human life, particularly the spiritual and intellectual needs. There is also a glaring failure on the part of modern science and technology to help guarantee environmental health. It is important to realize that the failures of modern science and technology

are not simply the failures of modern western man and his civilization to use it correctly. These failures are also the inevitable consequences of a number of weaknesses and shortcomings inherent in the premises, assumptions, and conceptions of modern science and technology. This is the essence of the traditional Muslim critique of modern science and technology.

Modern Muslims who have embraced the modern scientific worldview and philosophy of technology, usually out of ignorance of the Islamic scientific and technological tradition, tend to dismiss the traditional Muslim position by simply arguing that at the hands of good Muslims the same modern science and technology could be put to good use for the benefit of mankind without the negative side effects that have been the lot of modern civilization. But this kind of intellectual stance begs the question "what do we mean by good Muslims?" and "how can good Muslims accept in the first place the foundational ideas of modern science and technology?" When it comes to science, to be a "good Muslim" means more than just to be able to use it wisely in accordance with Islamic ethical principles. It also means to be able to produce a science that is "true" in accordance with Islamic metaphysical, cosmological, and epistemological principles.

Those with sufficient knowledge of these Islamic principles of science as well as of the modern principles, would readily point to their considerable divergence and conflicting positions. On a number of fundamental issues the "good Muslim" position on science and the modern position simply do not converge. In any case, it is absurd to expect a science that is faulty in both theory and practice to serve humankind better just because it happens to be in the good hands of spiritually and ethically conscious Muslims! In light of the, foregoing

Islamic critique of modern science, we would strongly argue for an integrated societal approach to environmental problems that duly takes into account the serious shortcomings in the contemporary conception and role of science. Spiritual and moral values that are dear to Islam and other religions, and which these religions seek to inculcate in society need to be "injected" into contemporary science so as to transform it into a "true and worthy" science.

Let us next consider the need for pilot projects on the practical applications of Islamic scientific and technological principles to environmental management in specific areas of development that we have earlier mentioned. In our view, it is not a difficult thing to come up with such a project. For example, given the Malaysian government's new emphasis on agriculture as a pillar of the nation's economy, we could think of a pilot project on organic farming that seeks to demonstrate an integrated application of Islamic scientific, technological, ecological and environmental principles to farming. In the modern period, organic agriculture has its origin in Germany at the beginning of the twentieth century following the application of Rudolf Steiner's environmental philosophy (1913) to agriculture. The basic ideas in Steiner's philosophy very much resemble Islam's ecological and environmental teachings. According to his theory, the human being is a part and parcel of a cosmic equilibrium that he/she must understand in order to live in harmony with the environment. It therefore asserts the necessity to strike a balance between "the spiritual and material side of life."^[14] The theory accords well with the tawhidic view of man and the natural environment found in Islam.

Organic farming is in reality traditional farming with a new name, new tools and techniques, and new management skills. The two forms of

farming share a common philosophy. Traditional agriculture in classical Islamic civilization was totally organic, in nature with a "great deal of know-how in the form of simple but efficient technology" connected with it. It was organic not only in the pattern of food production, but also in the human ecological pattern underlying agricultural activity. Islamic agricultural activity succeeded in maintaining both natural and human ecological health through the fortification of family and other human ties even when the activity was pursued on large land holdings. Yet it was creative, productive, and biologically diversified enough as to leave a great impact and influence on the development of agriculture worldwide [15]

Organic agriculture is new in Malaysia, but the traditional Malay agriculture that for centuries has been influenced by Islamic values, survives to this day mainly in the rural areas. A country report on Malaysia prepared by officials of the Department of Agriculture defines organic agriculture as a "holistic production management system which promotes and enhances agro-system health, including biodiversity, biological cycles, and soil biological activity."^[16] Although organic farming was introduced in the country only six years ago, primarily with the aim of "reducing the effect of inorganic pesticides and fertilizers in the farm,"^[17] its growth has been encouraging. To date, dozens of such farms mainly initiated by the private sector have sprung up all over the country.

What needs to be done right now is, among other things, to critically evaluate these so-called organic farms to see if any of them is organized and managed in such a way as to meet the criteria set forth by Islamic scientific, technological, environmental, and ecological principles. An inter-disciplinary "outfit" can be created for that purpose,

either at the Ministry of Agriculture such as in its well-known research wing MARDI (Malaysian Agricultural Research and Development Institute), or at one of the public universities. If this pilot project succeeds, then it could be duplicated on a larger scale, and its success would go a long way toward convincing the public, that traditional Islamic scientific, technological, and ecological principles are indeed applicable in the contemporary world. The application of these demonstrated principles to agriculture may then be extended to the industrial sector and other domains.

Why Environmental and Ecological Consciousness is Central to Islam

The central teaching of the religion of Islam is the affirmation of the principle of *al-tawhid*, meaning the Unity of God. The Islamic idea of unity flows from this very important principle which is repeatedly asserted by the Qur'an. Unity may be understood at various levels or conceived as encompassing various domains of cosmic existence or human life. For example, we may speak of the unity of the natural world or on a grander scale: the unity of the cosmos. We may also speak in particular of the unity of living species on earth or of the unity of the human body. Since God is The One, ultimate reality is none other than His Unique Reality which is best described in terms of His Unity.

To a Muslim, to believe in God is to affirm His Unity and to accept all the consequences that follow, both for human life and for human beliefs and thoughts. The traditional Muslim mind is inclined to think of reality, whether as a whole or as a part, in terms of unity. After all, a Muslim is by definition, someone who believes in Divine Unity^[18] and who exercises his individual freedom to identify himself with a spiritual community founded on this principle of Divine Unity and the idea of

Prophet Muhammad as the last divine messenger to the human race.^[19] The traditional Muslim mind is, moreover, one that is dominated by these two ideas and therefore, sensitive to all that these ideas imply. Here we are interested in their implications for our understanding and appreciation of ecology and the environment. Traditional Islamic science has made the necessary ecological inference from the idea of Divine Unity. It has termed the ecological principle in question the "Unicity of Nature."

According to Seyyed Hossein Nasr, the world's leading authority on Islamic science, the idea of the unicity of nature is derived from the application of the principle of *al-tawhid* contained in the first Shahadah, *Lā ilāha illa' Llāh*, to the domain of nature.^[20] The idea is understood to mean the interrelatedness of all things that exist in the natural world. In the past history of Islamic civilization, Muslim philosophers and scientists generally agreed to adopt this very idea as the basis of the Islamic natural sciences as well as their goal. To make unicity of nature the basis or foundation of Islamic science, means that Muslim scientists approached the study of nature with the strong belief that nature, as a whole, constitutes a unity since its constituent parts are related to each other in numerous ways and through numerous laws. The same idea or principle was made the goal of Islamic science, since through their scientific studies and research, Muslim scientists sought to demonstrate the truth of the unicity of nature.

Prior to their studies of nature, they had already accepted the principle of unicity of nature as a metaphysical truth, since they had understood the Qur'anic revelation as telling them so. Moreover, the Qur'an argues that unity of the cosmos, and hence the unity of nature, is a direct proof of Divine Unity.^[21] This argument from God Himself could have only strengthened the Muslim scientists' belief in unicity of nature.

But they also wanted to test the truth of their belief at the scientific level. In their practice of science they discovered that the more they came to know nature the more glaring the truth of unicity of nature appeared to them. Insofar as unicity of nature proves the truth of Divine Unity, Islamic science, through the realization of its above mentioned goal, helps to instill in the minds of Muslim scientists - and more generally the educated minds - a firm belief in the Unity of God. Put another way, *al-tawhid* inspires science, and science in turn affirms *al-tawhid*.

We earlier referred to unicity of nature as an ecological principle. In fact, it is the most fundamental principle in Islamic ecology and environmental science. In contemporary definitions of ecology, the core meaning common to all of them is the idea of interrelationships between organisms and their environments. This core meaning is also what the Islamic idea of unicity of nature seeks to convey. Our foregoing discussion has shown in the clearest terms possible the essential link between the idea of Divine Unity and the ecological idea of the interrelatedness of all existing things in nature, the living and the non-living. Given the centrality of belief in Divine Unity in the Muslim consciousness, we can then very well imagine how central also is the ecological consciousness in the Islamic belief system.

Due to the intrinsic link between the idea of Divine Unity and the ecological idea of unicity of nature, ecological consciousness in Islam is necessarily religious in nature. Ecological consciousness appears as a major component of the Muslim religious consciousness. A similar religious coloring is noticeable in the Muslim understanding and appreciation of the environment. The scope of this essay, however, does not allow us to go into detailed arguments as to why environmental consciousness in Islamic society has to be basically religious in nature.

Suffice for the purpose at hand to cite two strong reasons why Islam insists on a spiritually motivated appreciation of nature. First, Islam teaches Muslims to view nature as a sacred book that serves as a counterpart of the revealed Qur'an. The book of nature contains precious spiritual messages for man's constant reflection, so that he comes to better know its Author-Creator and thereby, gets closer to Him. With the aid of the Qur'an he would be able to arrive at a more complete understanding of the spiritual significance of nature than if he were to rely solely on his reason and mental faculty.

If man appreciates nature on the basis of this spiritual consideration, then that would be the noblest form of nature appreciation. Such a man would not want to destroy nature in the name of development and progress, because what he is going to lose as a result would not be just his precious natural environment.

Second, Islam teaches man to use nature in accordance with the laws God has laid down in His last book given to the human family, the Qur'an. Nature was created to serve man, but this does not mean that man has complete freedom to exploit it as he pleases. As Prophet Muhammad has reminded us, Nature has its rights. Animals and plants have their rights. As for man, God has given him both rights and obligations. He has the right to use Nature, but it is his moral obligation to use it in accordance with the moral and ethical principles ordained by God. Broadly speaking, man has a heavy responsibility to sustain and protect Nature. Today, there is a paramount need to formulate an Islamic environmental ethics that is both traditional and contemporary, as well as to formulate environmental laws in conformity with the purposes of the Shari'ah (*maqāsid al-Shari'ah*). This need must not escape the attention of those entrusted with the task of harmonizing Malaysia's environmental

policy with principles of Islam Hadhari.

Fundamental Ideas in Islamic Ecology and Environmental Science

The Qur'an is the first and most important source of ecological and environmental ideas in Islam. We have already seen how the very idea of ecology, in its most universal sense, is derived from the first part of the Shahadah which is itself divinely revealed. Those of us who are acquainted with contemporary ecological and environmental ideas, and who also read the Qur'an, are probably convinced that this Holy Book of Islam contains an incredible wealth of ideas on the subject ^[22] There have been up to now several writings by contemporary Muslims on what the Qur'an has got to say about the subject.^[23] We do not think, however, these writings have exhausted what we may call Qur'anic ecology or Qur'anic environmental science and philosophy, despite the growing Muslim interest in the subject. There is still a real need to come up with a more comprehensive and enlightened treatment of the subject that embraces all perspectives brought up in the Qur'an.^[24]

Then, there are numerous prophetic hadiths that are of great significance to ecology and environmental science. This particular source of ecological and environmental ideas is the next most important, but unfortunately this is an area that is as yet little studied. In classical Islamic thought, we encounter a wide range of ecological and environmental ideas that Muslim scholars had developed on the basis of Qur'anic teachings and hadiths related to the subject. Most of these ideas may be found in works of Muslim philosopher-scientists dealing with natural philosophy and its various branches, especially the biological sciences. For example, there is the well-known "ecological fable"^[25] written by the tenth-century Ikhwān al-Safā' ("Brethren of Purity"), and

this is found at the end of a treatise on zoology. Works on natural history also contained treatments of ecological and environmental ideas.

Ecology did not exist in classical Islamic civilization as an independent science. The same situation applies to environmental science. This is confirmed by the numerous classifications of the sciences that we know of written over the centuries, none of which ever made a reference to either ecology or environmental science as a branch of knowledge. But this fact does not mean that ideas on ecology and the natural environment were missing from the discussion of Muslim scientists and scholars. On the contrary, as we have earlier asserted, a good number of classical works dealt with such kinds of ideas.

In dealing with ecological and environmental ideas in their works, classical Muslim scientists and scholars have shown that these ideas were very much part of their scientific thinking. But it would be wrong to measure the extent of traditional Muslim awareness of ecology and the environment on the basis of these written works alone. The historical reality was that ecological and environmental consciousness in classical Islamic civilization was much more pervasive than what those scientific works indicated. There was also the "unwritten" history of ecological and environmental thought and practice in Islamic civilization, but we do know that this civilization has carried out over the centuries its economic life, agricultural activities, urban planning, architectural pursuits, and public health policies and programs in the light of a full awareness of Qur'anic ecology and environmental philosophy. We could detect the applications of many elements of Qur'anic ecological and environmental ideas in the various domains of Islamic civilization.

At any rate, ecological and environmental consciousness struck the

Muslim mind quite early in the history of Islamic civilization. To illustrate this point, we may mention here the interesting story of a famous alchemist and medical doctor in tenth century Baghdad. The famous scientist was Abū Bakr Muhammad ibn Zakariyya al-Rāzī (d. 925), the physician-in-chief designate for the Baghdad general hospital yet to be built. He had earlier served as chief physician in the hospital at Ray in Persia. He was consulted about the foundation of the new hospital with him having to select the most suitable site in the city for that purpose. Interestingly, uppermost in his mind was the selection of a site that was considered as having the best quality of air in its surroundings. "He is said to have caused pieces of meat to be hung up in different quarters of the city, and to have chosen the place where they were slowest in showing signs of decomposition."^[26]

Living at a time long before the invention of instruments that can measure air quality, al-Rāzī has come up with an ingenious way of determining the best spot in the city in terms of its environmental quality. Where the hung pieces of meat decomposed the slowest, that was the cleanest part of the city! The really significant thing that we can infer from this story is not so much al-Rāzī's ingenuity in devising a method of measuring air quality, but rather the fact that at that time he could have thought of environmental quality. We do not think ninth century Baghdad city was generally that polluted as to compel him to do what he did. But the fact that as the chief-physician-to-be, he wanted to have the healthiest place for his hospital complex, did show the kind of environmental consciousness that pervaded the Muslim mind in early Islamic history.

Now that ecology and environmental science have become independent academic disciplines of great importance in our contemporary world, it is a matter of urgency for Muslim academics and

intellectuals to approach and study these disciplines, and to contribute to their healthy growth by presenting before the world community Islam's intellectual heritage in the domain of ecological and environmental thought. As far as internal discourse on the subject within the global Muslim ummah itself is concerned, a newly formulated Islamic ecology and Islamic environmental science must emerge among the new ummatic sciences of the twenty-first century.

In the remaining pages of our essay, we would like to identify some of the major ideas in Islamic ecology and environmental science that may be considered as derivable from the doctrine of unicity of nature. Many of these ideas that we are going to discuss now, actually can be derived from the idea of cosmic unity or the idea of unicity of nature either intuitively or through logical reasoning, without the help of revelation. We know that such ideas as ecological balance and equilibrium, earth as a life-supporting planet, and chain of life have been discovered in more recent times by non-Muslim westerners independently of the Qur'anic revelation. Non-Muslim scientists have arrived at these ideas through rational inquiries; experiences that were partially sweet and partially bitter, and the accumulation of wealth of scientific data that took decades and even centuries. We began this essay by asserting that the modern West has acquired ecological and environmental wisdom the bitter and expensive way.

Significantly, however, these same ideas are to be found in the Qur'an. This means that God wants to impress upon humans how important these ideas are in helping them to sustain and protect planet Earth as our only home"^[27] in the vast expanse of the universe, and as our "only heritage" for future generations. God has revealed these ideas in the Qur'an to humankind so that they did not have to waste their time trying

to discover them by themselves. A day delayed in arriving at these ideas means another day of further deterioration in the ecological health of our planet earth. More than any other religious community, Muslims, as the "natural possessors" and first readers of the Qur'an, are answerable to God in their moral task of awakening their own community and the rest of humanity to the loud and clear message of ecological and environmental wisdom contained in that holy book.

If we appreciate the wisdom of God revealing ecological and environmental ideas that man can find out by himself, albeit after a long period of study and research, then we would be even more appreciative of the divine wisdom in revealing ideas that could not be ascertained without the help of revelation. In both cases, however, provided that we are prepared to locate a rightful place for divine revelation in our epistemological beliefs, we would end up with an unshakeable conviction in the truth and usefulness of these revealed ecological and environmental ideas.

We will now highlight some of these ideas. First, there is the idea of the earth's destiny as being linked to the rest of the cosmos. Although this idea is implied in the doctrine of the unity of creation or cosmic unity, the Qur'an seeks to emphasize it in a number of verses. For example, the Qur'an says: "He [God] directs the affairs from the heavens to the earth. Then it ascends unto Him on a day the measure of which is a thousand years of your reckoning."^[28] Second, we have many verses pointing to the uniqueness of Earth as a life-supporting planet. "Do they not look at the earth - how many noble things of all kinds We have produced therein?"^[29]

A third idea is the harmonious relationship between organisms and

their environments. According to the Qur'an, "There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you."^[30] Fourth, related to the third idea is the idea of ecological balance and equilibrium. The Qur'an says: "And the firmament He has raised high, and He has set up the balance of everything in order that you (humanity) may not transgress due balance. So maintain the balance with equity and fall not short in it."^[31] Fifth, there is the idea of a divine economy in nature that abhors waste. We are thus presented with the very useful concept of absence of waste in nature, a concept with promises of positive consequences for human management of natural resources.

Human pursuit of economic activities in general, and the idea of sustainable development in particular, ought to be based on and modeled after the principles of divine economy operating in nature. God hates waste. He creates nature without any waste. When the Qur'an says in many verses that "God has created the heavens and the earth with truth"^[32] and He "created all things in the best way,"^[33] it seeks to emphasize among other things the very idea of absence of waste in His creation. But having created nature without waste He also wants man to use it in the best way. He warns man not to commit excesses in his consumption of natural resources, since excess and waste are synonymous. The Qur'an has admonished man this way: "It is He who produced gardens, with trellises and without, and dates, and plantations with produce of all kinds, and olives and pomegranates, similar in kind and yet different in variety. Eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. But waste not by excess for Allah does not love the wasters."^[34] The ecological health of planet Earth is best guaranteed when man succeeds in uprooting

the culture of waste in society.

Closely related to the human role in ensuring the ecological health of planet Earth, is the Qur'anic concept of man as God's *khalīfah* or vicegerent on that planet.^[35] The ecological function of man on earth as exemplified by our first ancestor Adam and explained in the Qur'an needs to be understood well. This ecological function of man in relation to his role as *khalīfah* may be presented as our sixth major ecological principle from the perspective of the religion of Islam, though not necessarily in that order in terms of importance. We believe that the knowledge God has taught Adam^[36] and has given to all prophets, includes ecological wisdom in the sense we have understood in this essay. As a *khalīfah* of God, man is to protect and sustain Earth. He is told to use nature as he pleases but on one very important condition. He must not approach one particular tree because that tree would bring harm, darkness, wrong, injustice, or transgression to his life.^[37]

In our view, this forbidden tree to which we in fact have referred at the beginning of this essay, refers to none other than the tree of secular knowledge. By secular knowledge, we mean human knowledge of the world and of his place and role in the world by forgetting and excluding God, and in the case of many people, by denying Him altogether. Adam was taught holistic or tawhidic knowledge that enabled him to see the world in God and therefore, to live in a state of bliss. But as a result of Satan's seduction he wanted to experience seeing the world outside God.^[38] This particular experience that Adam went through became the prototype of secular knowledge in the history of human thought. Sincerely regretful of his fateful mistake, Adam turned back to his Lord who forgave him. The spiritual return enabled Adam to regain his lost tawhidic knowledge and his state of bliss while walking on earth.

If we were to forget God then we would be also forgetting that we are His servants. While we can live forgetting both, we cannot erase from ourselves the attributes of *khalīfah* that God has given to us. God does not take away those attributes just because man has failed to honor his obligations as a *khalīfah* in the way God wants it to be. If man does not live as a servant (*'abd*) of God then he is bound to play the role of *khalīfah* dangerously. He will play God by forgetting and denying the real God with all the negative and destructive consequences for human life and planet Earth. Man can only execute his ecological function effectively if he were to remain faithful to his dual role as *'abd* and *khalīfah* of God in accordance with the guidelines He has provided.

Conclusion

This essay is a modest attempt to provide an insight into the traditional Islamic thinking on ecology and the environment, how the Qur'an has shaped Muslim ecological and environmental consciousness, and the centrality of ecological and environmental concern in Islamic civilization. Through examples we have shown the continued relevance of the Qur'anic ecological and environmental wisdom to contemporary human life and thought, and in particular, we demonstrated how Malaysia's current Islam Hadhari policy on safeguarding the environment is best realized if a serious attempt is made to learn from the rich ideas and experiences of Islamic civilization in promoting environmental health. What we have presented in this essay is no more than just a glimpse of the vast panorama of the culture of ecological and environmental concern in Islamic civilization. The full depth and breadth of Islamic ecology and environmental science in both theory and practice needs to be studied. The results of that study, which obviously require the collaboration of many individuals and groups, need to be presented to the twenty-first

century humanity for the benefit of all.

We believe that if we were to present before the global community an Islamic ecology and an Islamic environmental science that is at once traditional and contemporary, comprehensive and holistic, then all the Qur'anic ecological and environmental ideas discussed in the previous pages must be considered as among their core elements.

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Endnotes:

[¹] Without doubt, modern science is the most well-known and also the most important branch of this tree if we judge it in terms of its impact on human beliefs and material progress in the last two centuries. Lest there is a misunderstanding of the "forbidden tree of secular knowledge" that I have in mind, I wish to emphasize that the underlying criticism is not directed at knowledge as such but rather at knowledge as conceptualized, interpreted, and applied in modern Western civilization. It is possible as classical Islamic civilization had shown, to plant another kind of tree of knowledge with a different kind of fruit that would at once bring about scientific and material progress and preserve environmental health and ecological balance. This alternative tree of knowledge also has many branches, one of which is science, another technology. While in a number of respects these two branches of the 'Islamic' tree of knowledge resemble the modern branches of the same name, they are strikingly different in other respects. For a general study of the similarities and differences between Islamic science and modern science see my *Tawhid and Science: Essays in History and Philosophy of Islamic Science* (Penang-Kuala Lumpur: Science University of Malaysia & Nurin Enterprise, 1991).

[²] See Adam Rome, "Give Earth a Chance": The Environmental Movement and the Sixties' *The Journal of American History*, vol. 90, no. 2 (September 2003), p. 525.

[3] For excellent expositions of this theme, see Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis of Modern Man* (London: HarperCollins, 1989); *Science and Civilization in Islam* (Cambridge: Islamic Texts Society, 1987). See also Fazlun Khalid and Joanne O'Brien, eds., *Islam and Ecology* (London: World Wide Fund for Nature, 1992).

[4] A scholar who has done more than anybody else in articulating the idea of Islamic science and expounding its various dimensions is Seyyed Hossein Nasr. See, for example, his *Islamic Science: An Illustrated Study* (London: World of Islam Publishing Company, 1976). As for our best known work in this field see Osman Bakar, *The History and Philosophy of Islamic Science* (Cambridge: Islamic Texts Society, 1997).

[5] As far as Islamic technology is concerned, the leading scholars in the field are Donald R. Hill and Ahmad Y. al-Hassan. See, for example, Donald R. Hill, *Studies in Medieval Islamic Technology* (Aldershot-Brookfield USA: Ashgate, 1998), Variorum Collected Studies Series; and Ahmad Y. al-Hassan & Donald R. Hill, *Islamic Technology: An Illustrated History* (Paris-Cambridge: UNESCO & Cambridge University Press, 1986).

[6] Muslims in the past did not call their science 'Islamic science' because there was no necessity for them to do so. They knew their science was what Islam wanted them to cultivate, and they were convinced their science was the true, universal science. Moreover, they were the most advanced and in fact leaders in science. They did not see any challenger to their science and its worldview. Therefore, they did not see any need to differentiate their science from other contemporary sciences as to label it 'Islamic'. It was people of other cultures and religions who wish to emulate their science.

[7] One of the best known centers of Islamic science where Muslim, Christian, and Jewish scholars, researchers, and translators collaborated in the advancement of that science was Andalusia as Muslim-ruled Spain was called. See our *The Golden Age of Andalusian Science: How the Arab-Muslim Scientific Genius Found Universal Expressions in the Medieval West*, paper presented at Symposium on Al-Andalus: The Legacy and Lessons of Islamic Spain held at Georgetown University on 13 May,

2004, and organized by The Mosaic. Foundation, Washington DC; see also its published version in 'The Golden Age of Andalusian Science,' *Islamica Magazine*, Issue 18, 2006, p.106-112. Another center of fame was the Maragha observatory in present-day Azerbaijan, an inter-disciplinary planetary research center headed by the famous Muslim philosopher-scientist, Nasīr al-Dīn al-Tūsī. The scientists working there were of different religious backgrounds and ethnicity, including Chinese. elsewhere, we have dubbed the observatory as the "Cape Kennedy of the day." See Osman Bakar, 'Islam's Contribution to Human Civilization: Science and Culture', *Strategi, Journal of the Department of Science and Technology Studies*, vol. 1, no. 1 (December 2001), pp. 177-183.

[⁸] In his keynote address in conjunction with the launching of Islam Hadhari at Dewan Wawasan Kubang Pasu, Kedah on May 3, 2005, Prime Minister Abdullah Badawi answered critics of Islam Hadhari by countering that it is not a "new Islamic teaching or sect" but actually "a concept of administration of an Islamic country." The address was widely reported in the Malaysian media.

[⁹] The principles of Islam Hadhari are ten in number, and "safeguarding the environment" appears as the ninth principle. The other principles in the order in which they have been listed are [1] faith and piety in Allah, [2] a just and trustworthy government, [3] a free and independent people, [4] mastery of knowledge, [5] balanced and comprehensive economic development, [6] a good quality of life, [7] protection of the rights of minority groups and women, [8] cultural and moral integrity, and [10] strong defenses. For an official clarification of the ten principles, see The Government of Malaysia, *The Concept of Islam Hadhari* (Kuala Lumpur, 2005). See also www.pmo.gov.my/website/webdb.nsf/vIslamHadhari.

[¹⁰] For a discussion of these dimensions of the environmental crisis, see Seyyed Hossein Nasr, *The Spiritual and Religious Dimensions of the Environmental Crisis*, Temenos Academy Papers, No. 12, 1999.

[¹¹] The period of creativity and innovations in Islamic science and technology lasted for about eight centuries from the eighth to the sixteenth century. In comparison, thus far, modern science and technology is barely four centuries old. For the

periodization of Muslim creativity in science and technology, see Ahmad Y. al-Hassan and Donald R. Hill, *Islamic Technology*, pp. 19-21 and pp. 280-283.

[12] Although our particular reference here is to science and technology the term "traditional Muslims" is equally applicable to other domains of human life and thought.

[13] By "reductionistic" vision of nature we mean having the erroneous view that the natural world is wholly material or physical in nature when in fact its "content" is far richer than that to include non-physical elements and forces. In accordance with this reductionistic vision of nature mainstream contemporary science has been pursuing the modern tradition of seeking to explain all natural phenomena in terms of material causes, although a growing number of scientists have abandoned that vision.

[14] See Viandes, M. H. R., *Guide to Organic Farming - The Lifeblood of the Earth*, 1999, <http://www.mhr-vianmdes.com/en/docu/d0000153.htm>.

[15] See Seyyed Hossein Nasr, *Islamic Science: An illustrated Study* (London: World of Islam Festival Publishing Company Ltd, 1976), p. 218.

[16] See Asna Booty Othman & K. Palasubramaniam, 'Country Report - Malaysia' prepared for the meeting of the Program Advisory Committee, Community Integrated Pest Management in Asia, at Ayutthaya, Thailand, November 2001, http://www.communityipm.org/docs/PAC_2001/Malaysia_PAC2001.pdf.

[17] In our view, while recognizing the urgency of this particular aim, the pursuit of organic farming should be directed at much broader aims if it were to be viewed as truly organic in nature, especially from the perspectives of Islam's tawhidic approach to agriculture, science, technology, and ecology.

[18] We are referring here to the first of six articles of Islamic faith, namely belief in the one God, which every believer in the religion of Islam must accept. We may add a Muslim is a believer in monotheism in its purest sense.

[19] We are referring next to the first of five pillars of Islam, testimony of Divine Unity and testimony of Muhammad as God's messenger, the acceptance of both of which qualifies an individual to be a member of the Islamic community.

[20] For a discussion of the idea of unicity of Nature see S. H. Nasr, *An Introduction to Islamic Cosmological Doctrines* (Cambridge, MA: Harvard University Press, 1964) and (London: Thames & Hudson, 1978), pp. 4-5.

[21] Says the Qur'an: "If there were, in the heavens and the earth, other gods besides God, there would have been confusion in both!" Chapter 21, Verse 22.

[22] According to one source, there are about 500 verses in the Qur'an giving guidance on matters relating to the environment and how to deal with it. See Al-Hafiz B. A. Masri, "Islam and Ecology" Fazlun Khalid and Joanne O'Brien, eds., *Islam and Ecology*. We have not been able to verify this claim yet.

[23] See, for example, Al-Hafiz Masri, "Islam and Ecology" Fazlun Khalid and Joanne O'Brien, eds., *Islam and Ecology*; S. Waqar Husaini, *Islamic Environmental Systems Engineering* (London: Macmillan, 1980).

[24] We are currently preparing a long essay on major ecological and environmental themes in the Qur'an.

[25] There are two English translations of the fable now available. See Ikhwān al-Safā', *Dispute between Man and the Animals*, trans, J. Platts (London: W. H. Allen, 1869); and Ikhwan al-Safa', *The Case of the Animals versus Man Before the King of the Jinn*, translation with introduction and commentary by Lenn Evan Goodman (Boston: Twayne Publishers, 1978).

[26] See Edward G. Browne, *Islamic Medicine* (New Delhi: Goodword Books, 2001). This work was first published in Cambridge in 1921, under the title *Arabian Medicine*.

[27] In the Qur'an we are told that after Satan succeeded in getting Adam and Eve out of the garden of bliss God ordered them in these words: "Get you down, all (you people), with enmity between yourselves. On earth will be your dwelling place and your means of livelihood for a time." The Qur'an, Chapter 2, Verse 36.

[28] The Qur'an, Chapter 32, Verse 5.

[29] The Qur'an, Chapter 26, Verse 7. See also Chapter 6, Verse 99; Chapter 55, Verses

10-12.

[³⁰] The Qur'an, Chapter 6, Verse 38.

[³¹] The Qur'an, Chapter 55, Verses 7-9.

[³²] The Qur'an, Chapter 6, Verse 73; also Chapter 14, Verse 19.

[³³] The Qur'an, Chapter 32, Verse 7.

[³⁴] The Qur'an, Chapter 6, Verse 141.

[³⁵] For that momentous event in the history of planet Earth when a new species called the human or Adamic race was created to represent God in administering the planet, see the Quran, Chapter 2, Verses 30-39; see also Chapter 18, Verses 50-53.

[³⁶] We are referring to the kind of knowledge implied in the Qur'an, Chapter 2. Verse 31.

[³⁷] "O Adam! Dwell you and your wife in the Garden; and eat of the bountiful things therein as (where and when) you will; but do not approach this tree or you run into harm and transgression." The Qur'an, Chapter 2, Verse 35.

[³⁸] The Qur'an, Chapter 2, Verse 36.