Energy Management, Sustainability, and Ethics: An Islamic Perspective

Mohammad Khalil Elahee

Abstract

The challenge of global climate change requires a radical change in our understanding of environmental issues, for its causes are linked to our dominant development model and its impact is significant at the grassroots level. Addressing energy production and consumption remains at the heart of any feasible solution. In this article, I define energy management (EM) as a systemic and systematic endeavor to optimize energy use through engineering and management tools in order to achieve political, economic, and environmental objectives. I also discuss what underpins EM's ethical dimension, focusing on sustainability, and critically analyze the Islamic perspective to elaborate a value-based, universally acceptable, realistically applicable, and objective environmental ethic.

By using EM as a vehicle toward sustainability, hence addressing climate change, I evaluate the outcomes of such a radical change in our understanding of environmental issues. I conclude by investigating whether a difference in vision with regard to faith and the hereafter can hinder a common engagement. Evidence is also sought from relevant specialist studies by non-Muslims, in which such Islamic principles as ordering the good and prohibiting the evil, *ijmā'*, *istiḥsān*, *istiṣḥāb*, or *istiṣlāḥ* have been implemented to a given extent in all but name.

Keywords: Ethics, Sustainability, Environment, Islam, Development, Energy, Ecology

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Introduction

The climate change challenge requires a radical change in our understanding of environmental issues. The use of energy is a characteristic of all civilizations, a unique attainment of human species that is even more remarkable than language or the use of tools.[1] The linkage between use of energy and environment has always existed; this has been particularly true since the Industrial Revolution.[2] However, this linkage has now assumed a global nature with a long-term effect on the climate and beyond. The causes of environmental damage due to energy use are related to our dominant model of "development" and its impacts are important at grassroots level.[3]

In 2013, for the first time the level of carbon dioxide in the atmosphere exceeded 400 ppm, more than 20 percent since most of us were born. This is as much as 100 ppm higher than levels reached in the past 1 million years, comparable only to situations when the sea levels and global temperatures were much higher. Indeed, it should be a "psychological tripwire" for everyone.[4] Not only are we the first generation of humans to face such a challenge, but we are also the only generation in a position to prevent irreversible damage to our planet and ourselves.[5]

The Intergovernmental Panel on Climate Change (IPCC) has again confirmed that emissions of carbon dioxide from human activities are the main driver of climate change.[6] Skeptics may disagree, but the warning cannot be rationally ignored: "[M]ost aspects of climate change will persist for many centuries even if emissions of carbon dioxide are stopped. This represents a substantial multi-century climate change commitment created by past, present and future emissions of carbon dioxide."[7]

But despite the endless conferences, increasing scientific evidence, some business interest, apparent political support, and growing sensitization, there is still no global agreement on greenhouse gas emissions reductions. The deadline is now postponed to 2015 in Paris for a craftily named "climate agreement," although the communiqué at the United Nations Framework on Climate Change Meeting in Warsaw in November 2013 could not even agree to a clear reference to carbon dioxide emission reductions. In the absence of a "carbon dioxide agreement" that would entail a firm commitment from industrial powers to reduce emissions, the only soft "agreement" reached thus far refers to the risks posed to the global climate.[8] Yet addressing energy production and consumption remains at the heart of any feasible solution.

The oil crisis of 1973 triggered, particularly in North America, previously unknown energy conservation and energy-saving programs. Energy efficiency, defined as getting more output with the same energy input, spread alongside

technological evolution. If the United States had the same level of energy efficiency that it had forty years ago, it would need 50 percent more energy.[9] Europe may not have achieved similar results because of market liberalization.[10] The Jevons Paradox or Rebound Effect, which dates as far back as 1865, has been evoked to support the view that energy efficiency does not per se lead to reduced consumption in absolute terms. Jevons had argued that improved technological efficiency as regards the use of coal in the nineteenth century would not have reduced its requirement, but would have increased its consumption, that is have a "Rebound Effect."[11]

In fact, the idea of seeking an absolute decrease in the use of a given resource through technology or other means has not been much of a concern in recent history because the dominant economic system is designed to increase consumption. However, since the 1980s Australia, Europe, and Japan in particular have recognized the need to substitute scarce, polluting, and expensive energy with renewable sources or even nuclear power.[12] Here again, it is quite possible that the ultimate aim has not been to reduce energy consumption in absolute terms.

This paper defines energy management (EM) as a systemic and systematic endeavor to optimize energy use by employing engineering and management tools to achieve political, economic, and/or environmental objectives. It differs from a definition proposed earlier[13] by referring explicitly to a "systemic" approach (i.e., to an integrated or holistic consideration of multiple criteria). This leads to an E5 analysis from energy, engineering, economic, environmental, and ethical perspectives. While energy is a resource derived from the Sun directly or indirectly (except for nuclear and geothermal), engineering is vital to its transformation into useful forms. This has an economic dimension both in terms of capital investment and operation costs. A fourth dimension now requires consideration: environmental impact. The latter is listed separately even if the relevant costs and benefits may be evaluated in financial terms. Yet, the analysis is not fully systemic unless political, social, and cultural dimensions are also included. This opens the way to the ethical aspect. As proposed here, although this particular dimension is not determined unilaterally by political, social, and cultural factors, it can also be set on the basis of values derived from philosophies or religions.

Sustainability

EM is a vehicle, tool, or vector to attain set objectives. Before assessing the ethical nature of the latter, one must ask whether energy consumption should

be increasing or decreasing in absolute terms. The positive correlation between economic growth and energy consumption has been evoked as a reason in favor of more consumption. But the picture is complex because it depends on the energy supply mix, energy conversion and distribution, as well as on the end-users (including the consumers' needs and lifestyle).[14] In the case of developing countries and emerging economies, the coupling of economic growth and energy consumption is stronger compared to the case of the United States or the European Union (EU), for example. However, it is a fact that monsoons in India or droughts in China, both climate-prone events, may have more influence than national economic growth on average rural income.

More crucially, consumption should be related to the question of sustainability, that is, to the limits imposed on economic growth by resource availability and the resilience of ecosystems and human society. In addressing the ethical issue behind consumption, a host of issues need to be considered, among them the gap between developing and developed nations, international trade and cooperation, technology and know-how transfer, demography and migration, post-colonial legacies and liabilities, economic globalization, sovereignty and access to resources, local distributions of wealth, vulnerabilities of specific groups, equity, inter-generational responsibility, and the prioritization.

As understood here, Nelson writes, ethics is "not something owned by the Philosophy Department, but something we inescapably do." It is not about "detached, impersonal, objective, rational agents engaged in grand theorizing deduce. Rather, ethics is and should be about what imperfect human beings living in particular historical, socioeconomic contexts can and should do, given those contexts." Furthermore, and particularly for complex pluralistic situations, "past and present experiences as well as traditional ethics of rights and duties no longer stand as adequate guides."

Experts have called for "a new industrial revolution to address climate change." But such an undertaking is, in fact, no less than a reengineering of the ideas behind economic analysis. Instead of a logical, non-emotional, and mechanistic economic approach, referred to as the Enlightenment Beta Version, a broader evolutionary approach to rationality is needed, "a new science based on a world-view that the world is also alive and profoundly unsafe, interdependent and uncertain."[15] Economics is thus no more "value-free": it must be intrinsically tied to ethical judgment, for example through the E5 analysis of EM. Hence, sustainability needs to be defined in a way that clearly differentiates it from the possibly controversial concept of sustainable development by referring to an explicit ethical dimension, as seen in the 1987 Brundtland Report.[16]

This particular definition remains an authoritative reference with a predominance of economic growth as the parameter for measuring development. It may be questioned whether it still holds if its reference to future generations becomes irrelevant. Also, for development to be sustainable, several issues have to be considered. For example, is it enough to have recourse to new energy sources or to apply pollution control to eliminate unwanted effects on the environment? Does a coal-fired power plant become sustainable if there is no such thing as climate change? The Brundtland definition contains no ethical limit or recognition of a limit to our systems. The "needs" of current and future generations is also an ambiguous word used in the Brundtland Report.

In the same year as the oil crisis, E. F. Schumacher and I. Illich reminded us of the need to consider the limits of development.[17] About the same time, E. Morin pointed out that the term development in the social science is contrary to its biological meaning, where growth is genetically predetermined. He questions the foundations of our very concept of development by relating it to a "cultural/civilisational crisis" founded upon the paradigm of western humanism that denies uncertainty and resting upon the assumption that economic and technological development implies progress and prosperity for all.[18] Interestingly, he calls "neo-archaism," "neo-naturism," and neo-rousseauism" the "green" reaction of people to the pressures of industrial modernization. Morin further recalls that the West's development since the seventeenth century has never been linear and that individuals in "archaic" societies attained higher levels of self-development than they have in modern ones.[19] He affirms that our development suffers from a "false sovereignty" and a "false infinity," a case made worse by the failure to reckon with the interdependency, interrelation, and convergence of various crises.[20]

Similarly, in 1980 the Brandt Commission warned that the world is a fragile and interlocking system, whether for its people, its ecology, or its resources. The Brundtland Commission, as well as similar initiatives, did not meaningfully address Brandt's proposals due to many obstacles, such as that posed by energy issue-related market policies.[21]

M. Serres also introduces the idea of sustainability when he calls the issue a "problem of control," a need to manage our mastery instead of "mastering nature."[22] Before him Einstein , as far back as 1947, blamed the tragic fate of the scientist, turned into a "homo-oeconomicus" whose investigations are used by the "morally blind" political power which is itself living in a world of "phenomenal economic concentration."[23] Even A. Marshall, the father of neoclassical economics, as early as 1898, perceives that "ecological limits would again become important."[24]

In this paper, sustainability is defined as an integrated ethical concept resting on multidisciplinary dimensions (viz., social, economic, and environmental) and on relative knowledge rather than certitudes. It is about the ability to respect limits. As it is organically related to development, the next section explores the contribution of major philosophies and religions to our current understanding of environmental issues.

The History of Development

Values, not humanity or land, are what is required of us if we want to master, if we want to implement sustainability as an ethical imperative. C. W. Maguire remarks that rulers had moved from the mastery of humans to that of lands from past to more recent history quoting Rousseau's "fundamental rights and responsibilities of land possession may be the fundamental building blocks of a society."[25] With reference to western thinking, I. Schatzschneider states Aristotle's philosophy that nature is made for Man and that Kant affirms in the same sense that the environment has no intrinsic value.[26] Descartes, for his part, refers to rendering "ourselves the lords and possessors of nature."[27] But Maguire also points to "environmental stewardship" as having inspired the Founding Fathers,[34] themselves influenced by writings of Locke, Rousseau, and Hobbes. He says that the latter

> gave us a surprisingly liberal definition of the equality of man. Strikingly, it is not equality in the eyes of God but equality in the eyes of nature. In the context of nature, Hobbes argued, we equate almost perfectly.[28]

This agrees with what T. Ramadan highlights as Hobbes' definition of our "a posteriori" moral, one that is "naturally aggressive and predatory." By contrast, Rousseau considers humans as "naturally good," again not as an innate characteristic but rather developing as such through socialization.[29]

In fact, R. Grove claims that western environmentalism started in the colonies, including French Mauritius (then called Isle de France), during the seventeenth and eighteenth centuries.[30] For example, in the land of the lost dodo and the extermination of many species, French settlers quickly adopted drastic measures to protect the threatened fauna, flora, forests, fish stocks, rivers, estuaries, and lagoons. Some of them were keen to include issues related to humane treatment of migrant workers and even the abolition of slavery. Grove further identifies a strong reference to Indian, Chinese, and Zoroastrian spiritual teachings in the origins of French Mauritius' environmentalism movement.[31] It may be added that the vision of a "lost paradise" that has to be re-

covered also influenced such pioneering environmentalists as Bernardin de St Pierre (d. 1814)[32] and Francois Leguat (d. 1735).[33] Unlike Defoe's *Robinson Crusoe*, the latter's story is marked with a genuine search for sustainability in a natural environment rather than an attempt to "master" it.

Indeed, the reference to Rousseau's influence reaching the colonies and the American conservatives' attitude toward the environment are equally most pertinent. Maguire's argumentation is indeed sound and is even confirmed by some new interpretations given to the philosophy of environmental justice.[34] If some consider Aldo Leopold the father of environmental ethics, we know that the East has its own, and often deeper and stronger, foundations in terms of environmental ethics. Leopold's vision goes a long way toward the status given to nature in Eastern philosophies. Contrary to dominant western thought, he reduces humanity from the master to a fellow member of a community that includes nature.[35]

In the West, the economic aspect has historically preceded and indeed shaped the environmental aspect discussed above. Haleem further relates environmental exploitation to the practice of usury, despite its condemnation in the Scriptures and the teachings of Aristotle, St. Augustine, and St. Thomas Aquinas.[36] One cannot deny that environmental impacts are limitless if money can breed more money without any effort, for this means that no value has to be attributed to nature and only a little to human beings. J-M. Platteau refers to the views of some who relate the birth of this phenomenon (i.e., modern capitalism) to the Reformation, while others attribute it to the early Enlightment.[37] Some refer to the Enlightment Beta version as the source of industrial modernization and its capitalist outlook.[38] Developmental stewardship, as understood by some Christian and Jewish groups, clearly emphasizes humanity over nature.[39] In fact, Adam Smith's supposed "invisible hand" has not only failed to self-regulate the economy so that it will serve social good, but it has also become a political and cultural mantra, not to say a pseudo-religious one, with a dire impact on the environment.[40] *Savage capitalism*, to borrow a term used by Pope Francis, can only lead to savage development.[41]

The recourse to religious images in the political discourse of contemporary leaders is well known from George W. Bush's "stewardship of the environment" to Barack Obama's "God's creation warming up day by day."[42] However, according to Platteau, Christians seeking development and environment protection have found it difficult to adhere to "austere morals." Ideological and intellectual transformations have been gradual and not provoked mainly by religious zeal.[43] American Jews have presented similar discourses to Christians, in some cases forming joint coalitions, focusing on how envi-

ronmental issues affect nature, intergenerational equity, and implications for the poor. These are similar to the generic ethical arguments found in secular discourses.[44] We are a long way from any moral obligation imposed on these communities in the universal sense employed by Kant, far from any return of the moral in the face of an imminent threat.[45]

Unlike concerns related to food and hunger, environmental, climate change or energy issues have supposedly not been very visible in religious circles.[46] Both established and new religions have something to say on such issues, but their impact has been marginal. Furthermore, they rarely differ from the mainstream secular discourse, even calling for "unity of thought and action."[47] Yet they seldom question the economic paradigm dominated by the "cult of money,"[48] even when, in terms of philosophy, nature may be deified (e.g., Hinduism).

Energy

In his "Imperative for Responsibility," Jonas identifies fear as a prime motivator for responding to environmental issues. Broome prescribes "work by ethicists and economists" prior to democratic deliberation and social action and considers it an "imperative moral principle" that the better-off should take the first steps to mitigate the emissions responsible for climate change.[49] Even if the fear factor, participative democracy, and responsible social action can all be promoted through religions, thus far no ethic seems to have been implemented accordingly in the field of the environment, particularly in the case of energy-related issues.[50] Paradoxically, a recent study reveals that few individuals are not motivated when it comes to reducing energy consumption.[51] Here, the main drivers are financial benefits and environmental protection; the latter is not related to religion.[52] But energy behaviors are complex and profoundly marked by lifestyles, background, income, and education.[53] Again, religion or moral reference is not specifically identified in the latter studies as a root factor that shapes energy-related behavior. There is a mythical gap between the potential of energy saving and its actual materialization, an "energy efficiency" paradox.[54] Identifying a religious and philosophical basis, or its lack, as a reason for the difficulties of tackling energy-environment linkages may be an unwarranted deduction.

Setting limits to achieve sustainability should be a matter of ethical principle. EM is the vehicle toward such an objective. Warren also defines in a comparable way one EM subset called Demand-Side Management (DSM): energy demand at user/consumer end that is controlled in order to meet an en-

ergy supply mix subjected to various limits. He further refers to Elissa, who emphasizes reduced energy consumption as a DSM target.[55] Finally, EM (including DSM) represents a "no-regret" tool, for this effort is worthwhile even if there is no such thing as climate change.[56] This characteristic stems from our focus on "broader rational" value-based ethics rather than on "market-driven" economics and "false infinity and false sovereignty" certitudes.

The Islamic Perspective

In elaborating the Islamic perspective on environmental issues, inevitable reference is made first to *tawḥīd*,[57] the absolute Unicity of God, the Only One worthy of worship or adoration. From there stems humanity's role as *khilāfah* (vicegerent) on Earth and the Muslims' role as *shuhadā'* (witnesses).[58] Such concepts can be found in Q.2:30-39. As such, humanity has the responsibility to properly use all of the resources put at its disposal. As it is not the owner or proprietor of nature, humanity will have to account for its deeds in front of God on the Day of Judgment. In terms of ethics, the Hadith relate that the Prophet (peace be upon him) was sent to perfect good character that the best Muslims are the best in manners, and that nothing weighs more on the balance on the Day of Judgment than good character.[59] Both the Qur'an and the Sunnah stress respect for nature.

Reference may be made also to the role of Muslims as witnesses to humanity (Q. 2:153, 4:104, and 7:181). People are responsible for maintaining the equilibrium in which creation has been set, engaging in a struggle (jihad)[71] to transform themselves and the world in harmony with the natural order (*fiṭrah*), if they are not in accordance with the revelation sent through the prophets.[60] Disruption or disequilibrium is interpreted as the result of what we do with our own hands, a warning so that we may return to God.[61]

T. Isutzu distinguishes among divine ethics, ethico-religious concepts, and social ethics as found in the Qur'an. He holds that the latter category, which includes regulatory systems, refers specifically to the daily life of people within society. For Muslims, however, such ethics must derive largely from the second category, for these are the ones that shape their character. All three categories are, however, closely related. According to Isutzu, the divine ethics mentioned in the Qur'an represent a core influencing ethical behavior, just as the most important qualities sought after by Muslims are embodied in Allah's Names and Attributes.[62]

B. Girardin points to political ethics as a separate entity, one that is essential for ensuring that the implementation of, for example, environmental

or energy management, occurs through systems, rules, and decisions. He views personal and social ethics as being unable to make a difference in society at large. For instance, he refers to "adversity" as calling for "endurance and tenacity" at the personal level, as calling for "resilience" at the social level, and as calling for "sustainability" at the political level in terms of a corresponding ethical response.[63]

Thus, it may be argued from Isutzu's and Girardin's ideas that ethics in politics stand a step away in terms of construction from the social, religious, and divine ethics found in the Qur'an. But Muslims cannot ignore either the Qur'an or the Sunnah. A sustainable society requires the translation of "endurance and tenacity" (i.e., divinely inspired *ṣabr*) at a personal level, into a fundamental characteristic of the existing sociopolitical structure. Other sources, together with the contribution of non-Muslims in a plural society, are challenges to be addressed in formulating a sustainability paradigm that is acceptable to everyone.

Girardin also refers to traditional, legal, and philosophical approaches as having become interwoven to define the role of ethics in the Muslim world's politics.[64] He makes no specific reference to environmental ethics, but points to contributions made by such figures as al-Ghazali (d. 1111) and al-Farabi (d. 950). In fact, B. Malek and L al-Kanderi analyzed al-Ghazali's *Iḥyā' 'Ulūm al-Dīn* to identify references to different definitions of ecology.[79] They remark that his concept of education is essentially ecological and emphasizes one's home, children, and family, and highlight his discussion of the need to respect the limits imposed by nature. Malek and Kanderli find in al-Ghazali's writings the view that taking care of nature is an act of adoration of God (*'ibādah*). They also cite his conclusion that God's will includes the ecological balance of the world.[65]

Similarly, B Senayl finds in al-Farabi's *Al-Madīnah al-Fāḍilah* a call for the "practical wisdom of self-governance" as the way to tackle the hazards of the city and social life. He relates the idea of "reflexive society by Anthony Giddens, Charles Taylor and Ulrich Beck" to al-Farabi's happy and virtuous society/city, that is, there is a need to be "educated, informed, made aware of risks and gain some sense of certainty." Senayl mentions, among other risks, climate change as one that can be addressed through al-Farabi's reason and practical wisdom.[66]

S. H. Nasr emphasizes the spiritual dimension of Islamic ethics, recognizing nature as a trust (*amānah*)[67] that is living and ever-praising God.[68] The term *āyah*[69] points to all signs of God – those which are around or within us or part of divine revelation. In other words, nature is essentially sacred. The

whole Earth is a place of worship, more precisely, a prostration to God. Nasr sees religion's role as being both ethical and intellectual. He therefore criticizes those modernists and reformers who have imitated the West not "recognizing the nexus between the Super Artisan and nature" and "not turning to the perennial wisdom of Islam and the Shariah."[70] He calls for unity in awareness of the One God to save the natural environment.

S. W. A. Husaini proposes an interesting intellectual effort to bring ethics into environmental planning and engineering. Like Nasr, he retains adherence to Shari'ah and recourse to *fiqh* (jurisprudence).[71] However, he agrees to "selective borrowing and assimilation" for "imitative-innovative social change," particularly of "*non-shariyah* knowledge through demonstration and scientific method, cross-cultural diffusion of Science and Technology" but excludes "compromise with primary system of values." He remarks that much of administrative law, like those related to environmental systems, is *mursal* [72] (outside the Shari'ah's purview) and derived by similar methodologies as used for *fiqh*, like *ijmā'*, *istiḥsān*, *istiṣlāḥ*, *istiṣḥāb*, or *'urf*. Husaini cites Iran's 1968 Basic Water Code of 1968 as an embodiment of the Islamic ethos related to ownership, the prevention of pollution, and even gradualism and leniency (*tadrīj*)[75] in its enforcement. He agrees with interest (*ribā*)[76] on water bills, which he justifies as a "national public good," while elsewhere he evokes relief from hardship and constraint (*taysīr*)[77] to allow recourse to interest-bearing loans. Husaini reckons that "Islamic culture" provides additional, purer, and more powerful justifications and motivations than "Western and Marxist-Leninist mentality" to meet the people's needs.[78] In this he joins Nasr in the call to return to Islamic traditions to save the environment.[79]

More subtly, Ramadan recalls that Muslims do not have a monopoly on ethical behavior. In fact, the "ethical reminder" from other religions and philosophies is important.[80] This may be compared to S. Hunke's conclusion that the challenge of the Muslim world woke up and saved Christianity.[81] Ramadan further returns to the Shari'ah's original and etymological definition of "the way" and of *fiqh* as meaning "Islamic law" and "jurisprudence."[82] This opens the scope for a vision of transforming the self and the world in line with the objectives (*maqāṣid*) of the Shari'ah. Fragmented adaptation through fatwas or confinement in a space and/or time ghetto contradicts Islam's universal appeal. Working with non-Muslims to address urgent global problems like climate change becomes possible when such an approach is followed. Ramadan does not depart from any of Islam's basics; rather, he proposes ethics as the means to relate faith, moral, and values to behavior (*akhlāq*).

The challenge of such a transformative reform based on ethics is awesome, but it is fully pertinent in our era of globalization. The problem is that the critical thinking collectively needed to achieve such a goal remains elusive. With particular reference to the environment, issues like *ḥalāl* consumption are still considered primarily in a disjointed, mechanical and "unholistic" manner.[83] Hope may rest in the fact that ethics is both a matter of consciousness and of heart, as taught to us by religions and philosophies.[84] Moreover, *tawḥīd*'s very essence implies that it is also a matter that involves God, for it arises between a human being and his/her heart.[85]

To conclude, making ethics a matter founded in the individual's heart does not deny the need for an organic link between ethics and the current sociopolitical system or structure. Such a link has historically existed in Muslim societies, established through traditional, legal, and philosophical approaches. The enforcement of environmental policies in the Muslim world as well as the related ethico-religious concepts or social ethics (to use Isutzu's definitions), have been well documented in the literature.[86] However, the contemporary world is facing a three-fold unprecedented challenge in terms of environmental ethics related to climate change: the threat of climate change is global, requires urgent action, the problem as well as possible solutions involve everyone, regardless of religion or lack thereof.

Energy Management (EM)

As stated above, EM rests on five Es. The last but not least dimension, that of ethics, is critically tied to the need for achieving sustainability. Islamic teachings point to the respect of the limits of unstainability.[87] This hypothesis is discussed below in the light of the current threefold challenge posed by climate change. The transition from personal ethics, derived from divine ethics and ethico-religious concepts, to social and political ethics had to take concrete form in Madinah, where the Prophet's new society was to emerge. *Sūrat al-Isrā'*, revealed in Makkah, laid much of the foundation for ethical interactions among individuals and within the community.[88]

The first verses refer to the Prophet's night journey (*isrā'*) and ascent (*mi'rāj*), followed by a reminder what had happened to the Children of Israel. This is addressed to humanity (viz., the descendants of Prophet Noah) as stated later, to remind them of the need to respond and be grateful to God for His guidance. The point here is not to refer to the Flood as a global catastrophe, but to emphasize the universal dimension of the message sent to the Prophet, the last of the line of messengers sent to different peoples at different eras.

The story of the Children of Israel, the chosen people and bearer of divine ethics, is then related, including its interactions with other civilizations who are referred to as "servants of God" even though they were probably not believers. As M. Asad pointed out, the key lesson is that if humanity does not show "ethical rectitude," it will suffer the "natural law of cause and effect" and be destroyed by its members deeds.[89] Such destruction may take many forms; however, verse 9 befittingly mentions the hereafter as the eternal reward for those who belief and do good. Verse 13 proclaims "And We have fastened every person's deeds to his/her neck, and on the Day of Resurrection We shall bring out for him/her a Book which he/whe will find wide open."[90] Verses 16 and 17 warn of the "complete destruction" that awaits in this world, particularly for those who have lived luxuriously. It may be misleading indeed to see here an allusion to the current threat of climate change, for verses 18-21 lead us to understand that the immediate threat applied to the Quraysh, who were being tempted to choose the unsustainable *ājilah* over the sustainable *ākhirah*, the temporary enjoyment of this world over the hereafter.[91] But this message is of no less pertinence today.

Verses 22-39[92] outline, in the context just prior to establishing the new pluralistic society in Madinah, twelve key ethical principles: Do not set up other divinities with God, honor one's parents, give to the needy, be moderate and do not waste, do not kill children for fear of poverty, avoid sexual misconduct, respect life, protect the orphan's wealth, keep all covenants, be just in all dealings, do not pursue what is unknown, and be humble on Earth. If reference is made first and foremost to *tawḥīd* and the right of God, ending in verse 39 and again referring to the same obligation, all of the other concepts address the individual's responsibility toward others. As is often the case in the Qur'an, the reference to God is the driving force behind other obligations, including those directed toward one's self. Personal and social ethics based on ethico-religious concepts can be derived from these ethical principles.

Although most commentators have not emphasized these verses' direct inference of environment-related ethics, understanding sustainability as an integrated holistic ethical concept opens the door to a number of relevant lessons. First, as Malek and Al Kanderi[93] point out and referring to al-Ghazali, education is crucial to building a sustainable society, for this starts in the home with the entire family. Parents who show mercy (*raḥmah*) in upbringing and educating their children are rewarded by having their children implore God to have mercy upon them. Education is also about transmitting this mercy down the generations. A sustainable society cannot exist if no sustainability has been inculcated in the family. More recent definitions of sustainability clearly agree that hu-

manity should not limit its scope to physical resources.[94] As the Qur'an proclaims in several places, there is a close relationship among such terms as *al-Rabb* (one of God's Names) and *tarbiyah* (education) and *raḥmah*.[95] It is also interesting to note that the last term relates to a time-frame that includes both this world and the hereafter. Thus it is a most befitting term to use when considering the concept of sustainability.

The next closest circle, the relatives, is then mentioned along with the needy and the wayfarers as deserving of one's generosity. The social implication here is of the highest order, for it stresses not just the importance of solidarity within the larger family unit, but also reaching out to strangers. In modern times, this may well extend to needy immigrants, to the estimated more than 1 billion people already affected by climate change, and to the estimated 200 million climate migrants expected by 2050.[96]

The following two principles call for moderation, not necessarily frugality or Spartan living, instead of wasting resources and also condemn any Malthusian means to fight poverty, for the real threat to sustainability is the unequal distribution of wealth and not population growth.[97] In fact, the Food and Agricultural Organization has stated that by 2030 world food production is expected to exceed population growth.[98] Ibn Kathir's commentary on the Qur'an defines waste or extravagance as the way of the spendthrift, citing Ibn Abbas' words: "If a man spends all his wealth on appropriate things, then he is not a spendthrift, but if he spends a little inappropriately, then he is a spendthrift."[99] The Qur'an condemns spendthrifts in the strongest term, such as calling them "brothers of Satan."[100] On the other hand, efficiency is praiseworthy even if it can imply an increase in absolute consumption or expenditure. Although verse 30 affirms God's power to give or to withhold, the preceding verse explicitly evokes the human responsibility to avoid waste in order to avoid becoming blameworthy and exposed to severe poverty.[101]

Sexual misconduct may seem unrelated to the issue of sustainability. However, a close scrutiny of the world and at the local community and individual levels shows that the deviations from sustainability find in sexual behavior a very useful ground. Among the most flagrant examples is the use of sex symbols in advertising to incite people to spend unnecessarily, as well as the damage done to family stability (and sustainability) due to sexual promiscuity or the promotion of a hedonistic lifestyle around the so-called leisure industries, which have no intrinsic value of their own. Belief in the hereafter and the individual's accountability to God for his/her deeds prevents people from indulging irresponsibly in "unsustainable" worldly pleasures, in which sexuality usually has a pivotal role.

In verse 33, the respect for life refers to human beings; however, the general idea is that all life is sacred and cannot be ended without any reason. The possibility of saving life instead of exacting revenge is evoked, highlighting again that limits should be observed. This reminds us that *ḥalāl* consumption, for example killing animals only for consumption, should be carried out with a consciousness of the value of life and the due respect for it. Not exceeding limits in taking life indicates humane practices as well as sustainability in regard to production and consumption. Consumerism is a real problem in this era of globalization, because it puts pressure on the world's limited natural resources, among which are conventional energy sources, for the sake of increasing productivity.

Verse 24, which refers to the rights of orphans, clearly has an underlying principle: to ensure nothing less than sustainability in managing their wealth until they reach maturity. This serves as a proper transition to the immediately following principles of keeping one's covenants and being just in all dealings. Today, as Girardin has pointed out,[102] accountability is a key foundation of any framework of political ethics, including matters related to the environment. While the sustainable management of an orphan's assets lies mostly on the personal and social levels, intergenerational accountability related to sustainability is best handled at the political level. It has also an international dimension due to the current reality of globalization. Verse 35 is about being just in all dealings, of which environmental and social costs are an important part. In the case of uncertainty about possible impacts, the next verse proclaims the fundamental guiding principle: Do not follow that which we do not know. The "precautionary principle" is thus well founded in Islamic ethics and should be applied to such undertakings as the use of genetically modified organisms, the exploitation of shale-gas, or the potential threats of climate change. In case of doubt, abstention should be the rule, as this is also a mark of humility, a recognition of the limits of our knowledge.

In verse 37, those who "strut in the land with conceit and arrogance" refers to all who show a similar attitude in their relation with Earth. The verse concludes by stating that they cannot penetrate the earth or attain a stature like that of the mountains. In other words, humanity is reminded the necessity of remaining humble vis-à-vis nature.[103] Today, people compete with each other to raise the highest buildings and most impressive infrastructure with little, if any, consideration as to the sustainability of Earth.[104] Even the areas surrounding the holy places in Makkah and Madinah have become temples of luxury and consumerism – extravagant hotels and shopping malls for the economi-

cally powerful. Paradoxically these sacred precincts, which were initially areas in which no tree could be cut down, are now concrete jungles. The waste of resources, including energy and food, at the very heart of Muslim world has turned these places into paragons of unsustainability.[105] However, the situation has not always been disappointing in terms of sustainability in the Muslim world. Protected reserves have long been a tradition in urban planning, as reported by Hussaini.[106] Long ago, al-Kindi and Ibn Sina addressed issues of pollution and its control in several of their medical treatises.[107]

The Qur'an evokes the role of animals and plants, from the smallest to the largest, in maintaining sustainability in nature by calling upon human beings time and again to reflect on the signs of God.[108] These creatures are also referred to as *muslim*, for they are submitted to God's will and glorify Him permanently, as proposed in verse 44. Commenting on the latter verse, Ibn Kathir mentions the following hadith that shows the spiritual dimension given also to non-human creations:

> Imam Ahmad recorded that Mu'adh bin Anas said that the Messenger of Allah (saw) came upon some people who were sitting on their mounts and talking to one another. He said to them: "Ride them safely then leave them safely. Do no use them as chairs for you to have conversations in the streets and marketplaces, because the one that is ridden may be better than the one who rides it, and may remember Allah more than he does."[109]

In Islam, sustainability is a universal spiritual, religious, moral, and ethical obligation. However, for Muslims this obligation is innate and thus something more than just something founded upon rationality or purely utilitarian in the Kantian sense. This reconciles with our pure inherent nature and reminds us of our covenant with God to worship only Him and seek His pleasure.[110]

Islamic morality cannot be imposed on others; nor is it absolutist or exclusivist. Translated into a value-based realistically applicable and objective ethical statement, it may be submitted to democratic debate in a pluralistic society and find broader, if not universal, acceptance. To be clear about the validity of Islam-derived ethics, we can refer to Platteau's rebuttal of Lewis' claim that Islam can be blamed for the Muslim world's lack of progress.[111] Conversely, Muslims may adhere to a non-Muslim ethos as long as its elements do not contradict the Qur'an and Sunnah.

Defining EM as a vehicle toward sustainability also transforms energy policy from being a strictly economic concern subjected to the dominant interest-based system.[112] Issues evoked by Stern[113] such as credibility, trust, and mutual confidence, instead of "complacent irresponsibility" as rebuked

by Sen,[114] become integrated in the decision-making process and actions. Thus humanity can recognize its uncertainties, limits, and need to be humble in all of its undertakings and thereby shaping people's energy behavior. We need to embrace an energy culture where our notions of "thinking, having, and doing" are defined in terms of sustainability.[115]

Four case studies are given below. The relevant EM-related ethical dimensions are highlighted, including Islamic references.

Table 1. Cases Studies on EM and Islamic Ethics

Cast Studies	**Ethical Issues**			
Smart Grid Development.	Islam gives the **right to privacy,** but this may be jeopardized as information is processed on habits & movements.	**The use of clean** energy leading to **sustainability as an Islamic duty**.	**Fair trading in terms** of buying & selling of electricity in real time (**no interest or speculation**). Ownership & control of technologies, including the grid, must be established on **Islamic ethical principles (e.g., equity)**.	**In many cases** smart grid contributes to poverty alliviation education, vaccination, public safety, autonomy of supply, & better wellbeing **(principle of doing good).**
Shale-Gas Substitute for Oil.	Ownership of underground natural resources (they belong to God & are for the community **(distrinution of wealth, not mono-) poly).**	Pollution & harm related to hydro-fracking **(do not deface Earth after it has been set in order).** Water contamination **(avoiding a greater evil for the common good).**	Reduced dependency on oil & reduced emissions related to climate change **(relatively more sustainability globally?)**	Local benefits as compared to being subjected to powerful multinationals **(distribution of wealth, not monopoly).**
Coal power generation in developing countries or small climate change vulnerable islands.	Access to energy for poor & developing countries. The situation is different for Mauritius, which is 100 percent grid connected. **Need to use local God-given natural renewable sources available in Mauritius.**	Local pollution issues (e.g., mining). **Harm done to society.** Coal disposal is a problem in tiny island of Mauritius.	Global pollution & climate change. Should developoing countries suffer from the global-warming caused by industrialized nations or be deprived of the right to use fossil fuels?	Issues of ownership, tariff, equity, transparency, monitoring and community involvement, government, technology & know-how transfer, inter-generational responsibility, & policy coherence must be addressed.

Social media for changing energy-related behavior.	Is the goal to reduce energy energy but in a more efficient way? The latter may not be sustainable, more of a fashionable "greening" device. **Deeds are judged by their intentions.**	Risk of influence by **negative aspects or un-Islamic practices related to social media**.	Costs & benefits of this method as compared to other ways of changing energy behaviors. Effectiveness of method to be confirmed. **Islam calls for excellence in whatever is done. If the measure doubtful, would it be better to abstain?**	Question of lifestyle: Is this method compatible with **simple living, moderation, frugality, & the spirit of sharing (real, not virtual)? Is it accessible to all?**

Expressions may be spelled out from the issues in this table to reflect universal, value-based, realistically applicable and universal ethos. But before doing so, four questions must be asked: "Who are we?" "Whom are we Addressing?" "In whose name are we mandated?" and "What is our finality?" Answering these questions cannot be done hypothetically. Consultation and critical deliberation can be applied to the first three questions, for the answers to them can be devised through negotiations and common understanding by all people, regardless of their religion, background, authority, social group, or interests at stake.

The last question is the trickiest. For a Muslim, being inspired by Islam and justified in terms of its principles is not just normal, but a matter of giving meaning to his/her life and death. But non-Muslims may have this same relationship with their own religions. In fact, they may even aspire to the same lifestyle, thereby moving together toward sustainability. Thus, one may legitimately ask whether a difference in vision with regard to faith and the hereafter can hinder common engagement.

Evidence can be found from specialist studies by non-Muslims related to EM and sustainability where implementing such Islamic principles as ordering good and forbidding evil, *ijmā'*, *istiḥsān*, *istiṣḥāb,* or *istiṣlāḥ* has been achieved to a given extent in all but name. This is summarized in table 2 below.

Table 2. Ethics from non-Muslims

Case-Studies	Ethical Statement	Close to which *Fiqhī* Principle(s)?
Role of Ethics in Shale Gas Policies[116]	Protection from serious harm takes precedence over enhancing welfare.	*Istiḥsān*, ordering good and forbidding evil
	Minimizing false negatives (e.g., promoting social accepability).	*Ijmā'*, promoting conscensus among stakeholders

Several Common Cases[117]	Adopt alternative to give benefit while minimizing potential harm	*Istiḥsān*
	Precautionary Principle	*Istiṣḥāb*, Abstain if doubtful
	We take action	Doing good and forbidding evil
	We work together	*Ijmā'*, promoting consensus through common action
	We avoid the worst rather than obtain the optimal	*Istiḥsān*, *istiṣlāḥ*

The above table does not claim that non-Muslims who seek to derive ethical expressions rigorously apply the *fiqh* principles. Strict conditions apply, for instance, when dealing with *istiṣlāḥ*, particularly for *maṣlaḥah mursalah*.[118] The analysis is even more complex when there is no certainty as to the benefit (e.g., Is coal really cheaper?) or its scope (e.g., Does the project benefit everyone? Under which time frame are we considering climate change?).

Conclusion

Ethics related to the environment have been deduced using the same methodology used to derive *fiqh* from the Qur'an, the Sunnah, and other sources. Separately, non-Muslims have drawn ethical statements compatible with Islamic principles often using a somewhat similar methodology. In both cases, it may be possible to satisfy to different extents the objectives of the Shari'ah by elaborating appropriate ethics. This should, however, be the subject of further work involving classical Islamic scholars and environmental ethicists.

Climate change is unique not just because of its gravity and imminence, but also because of its global dimension and relationship to multiple crises, particularly to that of the dominant economic system and the consumerist lifestyle. The Muslim world includes rich oil- and gas-producing nations and poor countries that are most vulnerable to climate change. But Muslims are found in non-Muslim countries just as non-Muslims are found in Muslim countries. Responding to climate change while sustaining socioeconomic progress is a spiritual, religious, moral, and ethical duty for Muslims. Many non-Muslims share this concern. Mutual engagement is therefore possible, even necessary, and can occur by translating their shared values into ethical expressions in the context of plural societies.

Different levels of action are possible: government, civil society, interreligious groups, stakeholders with the same interests, local communities, professional bodies, the private sector, families, individuals,the joint efforts of Muslim countries, regional entities facing common realities, and by any com-

bination of the latter. All can use EM to work toward sustainability, which is defined by having an intrinsic ethical dimension related to limits imposed not just by climate change, but also by such priority concerns as local pollution, depleting resources, inefficiency and waste, and reliance on imports. Unquestionably, the current dominant economic system has to be challenged if sustainability is to be achieved.

This radical change in our understanding of environmental issues, resting upon ethical progress, is of universal pertinence. It also has a personal, social, and wider political dimension. At its heart lies the need to wake up and get people to critically adopt an energy culture founded on responsibility and sobriety. For Muslims, this is above all a matter of *taqwā* (God-consciousness).[119]

Endnotes

1. J. Goudsblom, *Vuur en Beschaving* (Amsterdam: Meulenhoff, 1992), 15.
2. J. C. Scheraga, "Energy and Environment," *Energy Policy* 22, no.10 (1994): 798.
3. David. L. Greene, "Energy Policy: Where Are the Boundaries?" *Energy Policy* 62 (2013): 1-2.
4. Michael Gunson, "NASA Global Climate Change," http://climate.nasa.gov/400ppmquotes/, 6 January 2014).
5. Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2013 – The Physical Science Basis," October 2013:17, http://www.climate2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf (6 January 2014).
6. Ibid., 1.
7. Ibid., 25.
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9. *Electricity Currents* 25, no. 8 (October 2012): 1.
10. P. Warren. "A Review of Demand-side Management Policy in the UK," *Renewable and Sustainable Energy Reviews* 29 (2014): 944.
11. *Electric Currents*, 1.
12. Department of Primary Industries and Energy (Australia), "Involving Employees in Energy Management Programmes" (1994), 1.
13. Earlier definitions do not include *systemic*. This addition stresses the integrated or holistic approach enforced by consideration of the 5 Es. Refer to K. Elahee, "Energy Management: A Tool for Sustainable Development," *Proceedings of 6th World Congress on Integrated Resources Management*, Geneva, February 2002 (CD-ROM); K. Elahee, "Energy Management: Optimisation of the Use of Steam in the Textile Industry in Mauritius" (PhD thesis: University of Mauritius, 2001), 9; K. Elahee and R. Dubois, *Design of a Heat Recovery Unit for Textile Waste Water* (Geneva: R97 World Congress, February 1997), 5:190-96.

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20. Ibid., 256.
21. J. B. Quilligan, *The Brandt Equation* (Philadelphia: Brandt21 Forum, 2002), 1 and 15, http://www.brandt21forum.info/BrandtEquation-19Sept04.pdf (6 January 2014).
22. Mendes, *Le Mythe*, 255.
23. A. Einstein, *Comment je vois le monde?* (Flammarion: 1979), 233 and 235.
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28. Maguire, *American Stewardship*, 4.
29. T. Ramadan, *L'Autre en Nous* (Presses du Chatelet: 2009), 142.
30. R. Grove, *Green Imperialism* (Cambridge University Press: 1995), 9.
31. Ibid., 63.
32. Bernadin de St Pierre, *Paul et Virginie* (BeQ: n.d.) http://beq.ebooksgratuits.com/vents/Saint-Pierre-Virginie.pdf (6 January 2014) (first published in 1788).
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38. Nelson, "Ethics and the Economist," 146.
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42 Wardekker et al., "Christian Voices," 512.
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45. Ramadan, *L'Autre en Nous*, 144 and 148.
46. W. H. Rauckhorst, "Energy Ethics," *America: The National Catholic Review*, 6 November 2006.
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48. Mercopress, "Francis Criticizes Savage Capitalism."
49. Nelson, "Ethics and the Economist," 148 and 147.
50. Rauckhorst, "Energy Ethics."
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54. C. Lang and M. Siler, "Engineering Estimates versus Impact Evaluation of Energy Efficiency Projects: Regression Discontinuity Evidence from a Case Study," *Energy Policy* (16) 2013: 360.
55. Warren, "A Review of Demand-side Management Policy," 942 and 943.
56. Elahee, *Energy Management: Optimisation*, 17.

57. In terms of environmental aspect, *tawḥīd,* Islam's most fundamental concept, implies that God, the Creator, is Incomparable and thus Man and nature are creations that owe Him everything. Nothing is beyond the knowledge or control of God and He is able to do what He wants. Human actions neither save nor destroy the environment, unless it is the Will of God. Muslims should act ultimately for the sake of God, seeking His pleasure through their deeds. Although the masculine form is used when referring to God, it is understood that He is above all comparison, neither male nor female, independent of His Creation that is in need of Him. Further reference may be made to Q. 112.
58. Reference may be made to the role of Muslims as *shuhadā'* (witnesses to humanity), for example, Q. 2:153, 4:104, and 7:181.
59. Al-Bukhari, translation by Aisha Bewley, *Al-Adab al Mufrad*, part14, "Dealing with People and Good Character," http://www.sunnipath.com/library/Hadith/H0003P0014.aspx (15 June 2014).
60. Several references occur in the Qur'an to the balance, order, or equilibrium of Nature (e.g., Q. 55:1-13). *Jihad* is defined as the effort or struggle, by appropriate means, to resist transgression, corruption, or injustice, if not to construct order, harmony, or peace. A "jihad" for the environment is possible through the development and application of relevant ethics. The finality is to seek the pleasure of God, even if the benefits of such environmentalism accrue to humanity. *Fiṭrah* is the natural order of creation, including the state in which the person is born, i.e. pure, without sin or guilt. Reference may also be made to Q. 30:30.
61. Q. 30:41. This verse may be interpreted to mean that disturbances in nature caused by humanity (as well as corruption or disorder in society) are not irreversibly "damning." By returning to what is ethically "right" before it is too late, the worst may be avoided.
62. T. Isutzu, *Ethico-Religious Concepts in the Qur'an* (Quebec: Mc Gill-Queen's University Press, 2002), viii and 17.
63. B. Girardin, *Ethics in Politics* (Geneva: Globalethics.net, 2012), 58.
64. Ibid., 29.
65. B. Malek and L. Al Kanderi, "Education and Ecology from Al-Ghazali's Perspective," *Future of Arab Education* 33 (2004): 12, 9-10, 15, 19, and 29, respectively.
66. B. Senayl, "Risk and the City: Aristotle's Phronesis, Al Farabi's Al Madina al Fadila and Reflexive Modernity," http://felsefegazetesi.com/english-risk-and-the-city-aristoteles-phronesis-al-farabis-madinah-al-fadilah-and-reflexive-modernity/ (15 June 2014).
67. Reference may also be made to Q. 33:72. Humanity bears this *amānah* (trust) just as a person's *īmān* (faith) is a trust (both words are related).
68. Haleem, *Islam and the Environment*, 118-37. S. H. Nasr's "Sacred Science and Environmental Crisis: The Islamic Perspective" ends this collection of papers.
69. Normally used to mean a verse of the Qur'an, *āyah* also refers to any sign, message, lesson, or manifestation from God (as revelation, in nature, or within us).

The sacred character of any *āyah* is to be respected. This is particularly pertinent when we refer to environmental ethics.

70. Haleem, *Islam and the Environment*, 135. Nasr uses the concept of Shari'ah to refers to divine law with its roots from the Qur'an and Sunnah; however, it is also understood as possessing a deep spiritual dimension. For more on his definition, see S. H. Nasr, "Shariah, Tariqa, and Haqiqah," Living Islam, http://www.livingislam.org/k/trq_e.html (7 January 2014).
71. S. W. A. Husaini, *Islamic Environmental Systems Engineering* (London: Macmillan Press, 1980), 16. Husaini recognizes the "flexibility and multiplicity in human understanding of sharia ordinances" and that "*fiqh* rulings are dependent on the social, material, and intellectual environments of each age and polity."
72. Ibid., 50-51 and 165.
73. Ibid., 83. Husaini points out this key element. Much of the environment-relevant legislation is *mursal* (derived with negligible limitation imposed by the Qur'an and Sunnah). The matter is left to intellectual individual and collective effort to derive laws in the spirit of the Qur'an and Sunnah's general guidance. Such an approach may still use the methodology applicable to Islamic law and jurisprudence. The outcome may also be in terms of ethical expressions.
74. These are some of the elements/tools used to derive *fiqh*. Their application is subject to several conditions, particularly that the new ruling attained cannot contradict the clear and agreed-upon principles from the Qur'an and Sunnah. More generally, *ijtihād* relates to systematic intellectual effort to derive rulings that, in the absence of evident directives from these two sources, comply with the Shari'ah's objectives (*maqāṣid*). *Ijmā'* refers to consensus, which may take several forms, such as that of practice, the community, majority or unanimous, implicit or silent. Many consider it a source of legislation on its own, provided it does not contradict the Qur'an and Sunnah. *Istiḥsān* refers to considering what is better, also called "juristic preference." *Istiṣlāḥ* refers to consideration of general or public interest. *Istiṣḥāb* refers to consideration of circumstances, presumption of continuity. *'Urf* refers to custom or usual practice.
75. *Tadrīj* (gradualism and possible flexibility in the initial process of enforcement) is an essential concept to be reckoned with today (e.g., in the enforcement of environmental norms). The progressive implementation of ethics is often needed for the sake of pedagogy and practical aspects. However, in some cases this principle also means that the most restrictive measures may come first, to be relaxed later as equilibrium is restored (e.g., for pollution).
76. Refer to Q. 2:275 and 2:278-79 for the prohibition of *ribā* (interest). This is a vital issue to be considered from the environmental perspective as the exploitation of resources cannot be sustainable if interest, hence added value, is obtained on money without any risk or effort undertaken. If nature is not given any value, the equation is even more difficult to balance.
77. *Taysīr* refers to leniency or relief under extreme hardship or constraint. Strict conditions indeed apply and in any case it must be reckoned as a temporary or

special situation. Over-relying on it may provide contextual solutions within a limited scope while the broader objectives of the Shari'ah for the majority or for the future generations may be at peril. This is to be thought of carefully in addressing the economic, energy, or the ecological crisis (and their link).

78. Husaini, *Islamic Environmental Systems Engineering*, 66.
79. Haleem, *Islam and the Environment*, 137.
80. T. Ramadan, "Fiqh, éthique: quelles finalités?" Public Conference held by Research Centre for Islamic Legislation and Ethics (CILE, Qatar), 17 December 2013, video viewed on http://tariqramadan.com/blog/2014/01/02/fiqh-ethique-quelles-finalites/ (7 January 2014).
81. S. Hunke, *Le Soleil d'Allah brille sur l'Occident* (Albin Michel: 1997), 389.
82. Ramadan, "Fiqh, éthique."
83. *Ḥalāl* refers to what Islam considers lawful. There is a need to go beyond the apparent superficial compliance with what is lawful in matters of food. The issue of consumption, and by extension the consumer society, is the driving force behind the unsustainable exploitation of natural resources, including energy. Ethically, it must be questioned whether it is any more *ḥalāl* to consume goods and services that are produced in total disrespect of nature, if not of human dignity. Any waste and extravagant use of energy can only be *ḥarām*.
84. Ramadan, *L'Autre en Nous*, 156.
85. Reference to Q. 8:24. The transcendental dimension given to ethics in Islam is never to be forgotten. Between a person and one's heart, between one's self and one's thoughts, desires, whims, and (eventually) actions, there is the certainty that God is in control of everything. God can intervene and transform one's heart, not to mention that He decides on the reality of one's efforts.
86. Haleem, *Islam and the Environment*, 92; Husaini, *Islamic Environmental Systems Engineering*, 76 .
87. See endnote 109 below. In particular, we may refer to the Prophet's authentic sayings about not wasting resources, such as performing ablution in a stream or doing good by planting a tree even if one hears the trumpet announcing the end of the world. Therefore, believing and doing good is not about seeking material gain, but about seeking a desirable and usually expected outcome.
88. A. A. Maududi, *Tafheem al Qur'an*, Ayah Project, King Saud University, http://Qur'an.ksu.edu.sa/tafseer/tafheem/sura17-aya23.html (16 June 2014).
89. M. Asad, *The Message of the Qur'an* (Gibraltar: Dar al-Andalus, 1980), 597.
90. Ibn Kathir, *Tafsīr Ibn Kathīr* (Riyadh: Dar al-Salam, 2003). See his commentary of Q. 17:1.6.
91. Ibid., Q. 17:18.
92. Ibid., Q.17:22-39.
93. Malek and Al Kanderi, "Education and Ecology," 12.
94. D. Scammon, "Sustainaibility and Culture: How do They Eork together?" Academia.edu –Share Research. http://www.academia.edu/1817961/Sustainability and_Culture_How_do_They_Work_together (16 June 2014). UNESCO, "Teach-

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95. Refer to Q. 16:1-5 and 55:1-13.
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108. Excellent articles and books have now been published, as well as websites on the topic. For example, The Eco-Muslim, "10 Qur'an Verses on the Environment and Doable Action," http://www.theecomuslim.com/2013/03/10-environment-Qur'an-verses.html (16 June 2014); Islam Awareness, "Islam's View of Nature," http://www.islamawareness.net/Nature/view.html (16 June 2014); Green Faith, "Muslim GreenWorship Qur'an Verses and Books," http://greenfaith.org/resource-center/spirit/greenworship-resource/muslim-greenworship-resource/muslim-greenworship-verses-and-books (16 June 2014); J. Brockwell, "Islam and Earth Day," http://islam.about.com/od/activism/a/earth_day.htm (16 June 2014).
109. Ibn Kathir, *Tafsīr Ibn Kathīr*, Q. 17:44.
110. For example, Q. 7:172-73.
111. Platteau, "Religion, Politics, and Development," 330.
112. Greene, "Energy Policy," 1-2.
113. Nelson, "Ethics and the Economist," 151.
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115. Sweeney et al., "Energy saving Behaviours," 375.
116. I. Melo-Martín , J. Hays, and M. L. Finkel, "The Role of Ethics in Shale Gas Policies," *Science of the Total Environment* 470-71 (2004): 1114-19.
117. Nelson, "Ethics and the Economist," 145, 151, and 154.
118. *Maṣlaḥah mursalah* refers to cases in which a ruling is established in the absence of evident text from Qur'an and Sunnah on the basis of what is in the public interest.
119. *Taqwā* (God-consciousness) refers to a prime quality of the Muslim closely related to one piety and closeness to God. Reference may be made to Q. 49:13, as it is this characteristic that makes one superior in front of God. It is more than simply a fear of God, as commonly translated; it is fearing, out of love and desire, to please God only, seeking His pleasure. This should be the motivation of any Muslim's ethics.