

Confronting Climate Change and Fostering Islamic Economic Development Through *Awqāf*⁽¹⁾

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Abstract. The modern world's ecological and economic crises result from its reductionist, mechanistic, and materialistic worldview. This study of Islamic economics – based on its metaphysical and cosmological sciences – reveals a path to economic justice and ecological equilibrium that requires recovering the Islamic intellectual heritage and establishing corresponding Islamic scientific, technological, economic, and other social structures for spiritually meaningful work and integral development; a role *awqāf* traditionally played in Islamic civilization that needs to be recovered today. This path, which was lost during the colonial period, requires integrating the findings of modern science into higher orders of knowledge, allowing man to live in harmony with himself, his community, and nature. This achieves both “vertical” and “horizontal” equilibrium, the intersection of which symbolizes the integration of all of life around a sacred center. This can also increase the number and vitality of contemporary *awqāf*, which Syed Khalid Rashid so rightly calls for in his lead article (Rashid, 2018).

Keywords: *Awqāf*, Climate change, Global warming, Socio-economic development, Scientism, Environmental crisis, Holistic approach.

KAUJIE Classification: E22, H57

(1) This response to Syed Khalid Rashid's highly valuable lead article on the “Potential of *Waqf* in the Contemporary World” in this discussion forum adapts and modifies our previous work on Islamic economics (el-Ansary, 2017a; el-Ansary, 2017b).

1. Introduction

The present tense of climate change – the destruction we’ve already baked into our future – is horrifying enough. Most people talk as if Miami and Bangladesh still have a chance of surviving; most of the scientists I spoke with assume we’ll lose them within the century, even if we stop burning fossil fuel in the next decade. . . . the [climate change] crisis will be most dramatic across the Middle East and Persian Gulf, where in 2015 the heat index registered temperatures as high as 163 degrees Fahrenheit. As soon as several decades from now, the *hajj* will become physically impossible for the 2 million Muslims who make the pilgrimage each year. (Wallace-Wells, 2017, para. 8 & 13)

As the preceding quote suggests, climate change represents the single greatest threat to the future of humanity and creatures on earth, even endangering the performance of the *hajj* itself within the coming decades. The impact of climate change on the Islamic world will be disproportionate relative to other civilizations, because it occupies the “middle belt” of the earth from the Mediterranean to the China Sea. This has vast implications for the role of *awqāf* in promoting sustainable, integral economic development through holistic production processes based on the integration of the findings of modern science into higher orders of knowledge not only in Islamic civilization, but also in providing a model for other civilizations, including the West that has contributed most to the current crisis. *Awqāf* played such a role in harmonizing religion and science in Islamic civilization in the past through funding Islamic educational institutions such as al-Azhar University on one hand, while fostering holistic production processes and spiritually meaningful work that allowed man to live in harmony with himself, his community, and nature on the other hand. It is necessary for *awqāf* to recover these functions today, and it is this dimension that we would like to add to Syed Khalid Rashid’s highly valuable lead article on the “Potential of *Waqf* in the Contemporary World” (Rashid, 2018).

Indeed, scientists and environmentalists are increasingly recognizing the need for religion and science to join forces in confronting the on-going ecological crisis, particularly since most people in the world may only heed religious, as opposed to secular, ethics about nature. In 1991, for example, Carl Sagan,

Stephen Jay Gould, and other renowned scientists issued a joint statement entitled “Preserving and Cherishing the Earth: An Appeal for Joint Commitment in Science and Religion”, which declared:

[Our current environmental] problems of such magnitude, and solutions demanding so broad a perspective must be recognized from the outset as having a religious as well as a scientific dimension. Mindful of our common responsibility, we scientists – many of us long engaged in combating the environmental crisis – urgently appeal to the world religious community to commit, in word and deed, and as boldly as is required, to preserve the environment of the Earth. (“Preserving and Cherishing the Earth”, 1990, para. 3)

Yet the agnosticism of many scientific thinkers raises the question of how religious ethics can

cohabit with a view of the order of nature that radically denies the very premises of religion and that claims for itself a monopoly of the knowledge of the order of nature, at least any knowledge that is significant and is accepted by society as “science”. (Nasr, 1996, p. 273)

It is one thing for religious leaders to protect nature by highlighting the sanctity of God’s creation, and quite another thing to defend the environment from exploitation by relying on a secular worldview that arguably conflates values and tastes as “preferences” that have no moral import, thus compromising the ability to make morally meaningful statements (see for instance, MacIntyre, 1984; Veatch, 1971). As Seyyed Hossein Nasr asserts, “In a world in which the very category of ‘sacredness’ as applied to nature is meaningless, to speak of the sacredness of life is little more than sentimental thinking or hypocrisy” (Nasr, 1996, p. 6). *Awqāf* are increasingly difficult to create and properly maintain in such a milieu, a key need that Syed Khalid Rashid rightly emphasizes.

As we have argued elsewhere, it is therefore necessary to highlight the radical difference between science as organized knowledge, which can refer to any level of reality, and *scientism*, which claims that modern science, defined as a strictly empirical or sensory means of knowing the material world, has a *monopoly* on knowledge – that is, that anything beyond the sensory world is unreal, impossible to prove, or purely fanciful. Accordingly, scientism is

an ideological construct that effectively supplants a metaphysical view of the universe, eliminating any basis for religious ethics about the environment, let alone the intellectual and applied roles of *awqāf* in the contemporary world, through its reductionism.

If there is to be lasting cooperation about nature between religion and science, scientism, which is inherently hostile to religion, cannot be allowed to usurp the role of science. In fact, scientism is “bad philosophy,” not “good science”. It is self-refuting – because it is impossible to prove that “The only way to know anything truly is by using your physical senses” *by using your physical senses* (el-Ansary, 2017a, p. 6). Moreover, contemporary “hard science” itself has now brought to light a number of “limit theorems”, a phrase the philosopher-scientist Wolfgang Smith introduces to describe various ways science discloses its own boundaries (Smith, 2004, p. 213).

It is then a scientific (not a scientific) worldview which, through confining itself to technological, political, economic, and other purely materialistic structures, does injustice to man and threatens nature by treating both as resources rather than as the sacred creations they are, with all this implies for the contemporary role of *awqāf*. Specific crisis events, such as the melting of the glaciers of Mount Everest, with its dire consequences for downstream farming and hydropower (Vidal, 2015)⁽²⁾, the melting ice sheets of the Antarctic (Joyce, 2016) and Greenland (Abraham, 2016), or the acidification of the oceans and destruction of the Great Barrier Reef (Griffith, 2016), are merely the “tip of the iceberg”, to borrow an analogy from systems theory⁽³⁾, because they are manifestations of unnoticed larger problems generated by an underlying dysfunction: our worldview.

Accordingly, addressing this root cause requires that we change how we look at the world, at

ourselves – and ultimately, at reality⁽⁴⁾. Islam (and religion as such) asserts that only a holistic approach to the sciences of man and nature can solve the crises we face, by showing us how to change the way we live.

The prevailing mechanistic approach to the sciences of man and nature runs counter to such a holistic solution by promoting technical solutions *within* the prevailing mechanistic paradigm, ignoring the root causes of current crises in favor of short-term solutions that often cause worse outcomes in the long term, as we shall argue below. As Gandhi put it (as quoted in Schumacher, 1975, p. 24), “dreaming of systems so perfect that no one will need to be good”, as mainstream economic theory often suggests, is one of the greatest delusions of our time. Such allegedly “amoral” solutions are not only consistent with a scientific worldview, but arguably what it demands.

Awqāf can play an essential role in reversing this trajectory by recovering the Islamic intellectual heritage and establishing Islamic scientific, technological, economic, and other social structures for sustainable and integral economic development to fulfill a hierarchy of spiritual and other needs. Doing so will result in both “vertical” and “horizontal” equilibrium, the intersection of which symbolizes the integration of all of life around a sacred center. To arrive there, however, we must first identify the secular roots of the current crisis and also understand why conventional responses to this crisis have failed. Only then can we find a way forward through a holistic approach. This paper will therefore briefly outline: (a) the historical role of *awqāf* in Islamic civilization in addressing a hierarchy of spiritual and other needs through holistic education and spiritually meaningful production processes; (b) how this was largely lost through Western colonization of the Islamic world; (c) the secular roots of the current environmental crisis driven by the West based on a mechanistic worldview and why conventional responses to this crisis have failed; (d) the spectrum of positions of Muslim economists on conventional responses and the current crisis; and (e) a traditional Islamic

(2) The same melting can be observed in Glacier National Park in Montana, where over 120 of the 150 glaciers have disappeared, and the remaining glaciers have shrunk in area by two-thirds (see, Glick, 2004).

(3) We thank James P. Buchanan for his comments and recommendations on “systems theory” in relation to Islamic economics. For an overview of this “systems theory” approach connecting events to underlying patterns, structures, and worldviews, see (Stroh, 2015).

(4) See for instance, Seyyed Hossein Nasr, “Islam and the Preservation of the Natural Environment”, lecture at Georgetown University, Qatar, Center for International and Regional Studies, January 6, 2009, available online at <https://www.youtube.com/watch?v=1THGZpu1rP4>.

perspective on how to reverse the current trajectory by recovering the role that *awqāf* tradition-nally played in the Islamic world. Since a study of *awqāf* throughout the Islamic world is far too vast to cover in even a single manuscript, we shall use examples from Egypt and al-Azhar University in this article to illustrate these historical and intellectual developments, particularly since Cairo is the intellectual and cultural capital of the Arab world and al-Azhar University has historically been the most influential educational institution in the Islamic world.

2. The Role of *Awqāf* in Holistic Approaches to Islamic Education and Social Welfare

As Syed Khalid Rashid's article (Rashid, 2018), rightly suggests, *awqāf* played a dramatic multi-dimensional socio-economic role in Islamic civilization, funding not only spending on mosques, including the salaries of *imāms* and operational expenses, but also educational institutions, including expenses of libraries, books, salaries for faculty and staff, student stipends, and so forth. The funding extended as well to the building of hospitals and spending on physicians, medicines, and care of patients, to the building and support of orphanages, to assistance for the poor and needy, for pilgrims to Makkah, for injured animals, and virtually every other need one could imagine. However, the essential starting point of these applications of *awqāf* was a holistic worldview that integrated religion and science into a unity and hierarchy of knowledge to provide spiritually meaningful work fulfilling a hierarchy of spiritual and other needs. The educational role of *awqāf* is therefore essential to all later applications of *awqāf*. As we have argued elsewhere, Islamic (or any other religious) law is a necessary but not sufficient condition for an Islamic (or any other religious) economy (el-Ansary, 2017, p. 305).

On the one hand, Islamic law requires a minimum division of labor to provide necessary and useful goods and services, asserting that some members of the community must practice each profession to fulfill the needs of society. The division of labor is thus analogous to other collective duties (*farḍ kifā'ī*), including the aforementioned building of orphanages and hospitals. If no members in the community fulfill these needs, each member of the community is held spiritually accountable. The division of labor is thus conceived of as a duty, not simply a pragmatic possibility.

On the other hand, a sacred approach to intellectual, productive, and artistic sciences would also be necessary, because the norms and principles of art, which are also derived from the heart of revelation, would govern the making of things in a sacred economy (Coomaraswamy, 1989). From this point of view, human arts and crafts should communicate a spiritual truth and presence analogous to nature, or God's art. "The ethical aspect of work in this case embraces also the aesthetic", writes Nasr (2011, p. 58)⁽⁵⁾. Thus, the production process is conceived as a spiritual discipline in which what one makes is not only a means of livelihood but also a product of devotion. According to Ananda Coomaraswamy, "The artist was not a special kind of man, but every man is a special kind of artist" (Coomaraswamy, 2004, p. 175).

This approach to the making of things has always been closely wed to the spiritual practices of Islam, because the necessary condition for this approach is consciousness of one's mortality and complete dependence on the absolute, or "spiritual poverty" (*faqr*)⁽⁶⁾. Metaphysics and a sacred understanding of the sciences of nature apply to everything in the productive sciences – from architecture and urban planning to the art of dress and personal living space. The same applies to the practical sciences investigating everything from social organization to the treatment of the environment. This link between work, spiritual education, and the character of our surroundings forged by the Islamic intellectual sciences is crucial to fulfilling the hierarchy of people's spiritual and other needs⁽⁷⁾. Islamic economics therefore

(5) He also notes that *ḥusn*, the root of *iḥsān* in Arabic, means both "beauty" and "goodness", whereas *qubḥ* means both "ugliness" and "evil". Ibid, fn. 14, p. 411.

(6) For the man who has acquired *faqr*, its immediate consequence is "detachment with regard to all manifested things, for the being knows from then on that these things, like himself, are nothing, and that they have no importance whatsoever compared with the absolute Reality". This detachment implies "indifference with regard to the fruits of action... which enables the being to escape from the unending chain of consequence which follows this action" (Guénon, 1973, p. 16).

(7) This linkage does not mean that that it is necessary to master the books articulating metaphysics and the sciences of nature before such art can be produced. This is because of the importance of the oral tradition in various religions, where metaphysics and the spiritual significance of nature do not have to be articulated in books to be inwardly realized.

depends on the Islamic intellectual sciences and is fatally incomplete without it. The most promising areas of the economy in which to begin developing or applying such sciences are arguably holistic agriculture, medicine, architecture and textiles, as well as carpet and utensil production.

3. The Napoleonic Invasion of Egypt, the Resulting “Two-Track” Educational System of Muhammad Ali, and the Decline of *Awqāf* Through British Occupation

The Napoleonic invasion of Egypt triggered an intellectual crisis within the Islamic world, since Islamic science had enjoyed intellectual dominance over Western science for 700 years prior to the 17th century, and Muslim scholars were unaware of philosophical and scientific developments in the West as a result. Muhammad Ali (d. 1849), the governor of Egypt from 1805-1848, therefore, sent military personnel as well as Egyptian scholars to Europe to study Western military and other sciences while also continuing traditional Islamic education. He also reorganized *awqāf* under the government for administrative purposes, but it is important to note that this was *not* an attempt to undermine the objectives of *awqāf* as such (as the British would try to do by the end of the 19th century). Muhammad Ali thereby initiated a “two-track system” of education in Egypt in which Western and Islamic intellectual sciences were taught simultaneously (Gomaa, 2001; Gomaa, 2006)⁽⁸⁾.

At the recommendation of Shaykh Hasan al-Attar (d. 1835), the Grand Imam of al-Azhar from 1830 to 1835, Muhammad Ali deputed Rifa’ah Rafi’ al-Tahtawi as the chaplain of an educational mission to Paris with the Egyptian students. He surveyed the French intellectual and scientific scene, resulting in a book entitled *Takhlis al-Ibriz fi Talkhis Bariz (Extracting the Gold in a Summary of Paris)* (Gomaa, 2001; Gomaa, 2006). Ali Pasha Mubarak (d. 1893), who became Egypt’s Minister of Education in 1849, then wrote a 20-volume series of books entitled *al-Khitat al-Tawfiqiyyah*, bringing together knowledge of literature, history, and science, including Egyptian demography, in an encyclopedic format to protect the Egyptian identity on one hand

and prepare the ground for a new era of Islamic civilization in Egypt on the other (Gomaa, 2001; Gomaa, 2006). He was therefore attempting to bridge the “two-tracks” of Western and Islamic education, integrating the findings of modern science into higher orders of knowledge and providing the intellectual basis for the holistic socio-economic role of *awqāf* (Gomaa, 2001; Gomaa, 2006). Likewise, Qadri Pasha, an expert in Islamic law, attempted to clarify the similarities and differences between Islamic and French law, which some Egyptians mistook as an attempt to compromise Islamic law with French law since he wrote in French.

Until the British occupation of Egypt, these and other Egyptian scholars enjoyed the intellectual freedom to explore ways to build bridges between the two educational tracks Muhammad Ali had initiated, with all this implied for the holistic role of *awqāf*. This changed dramatically with the British occupation of Egypt in 1882. In Iraq, the British directly cancelled *awqāf*, confiscating them through government control and denying freedom of expression and the opportunity for holistic education financed through *awqāf* (al-Kawthari, 2000). In Egypt, the British could not take such drastic measures, but employed a variety of indirect means to undermine *awqāf*, including disinformation that the institution was a source of corruption, inefficiency, and backwardness through journalists writing in newspapers and later through producers in films (Ironically, the British also bribed preachers through *awqāf* funds not to speak against the British occupation and the colonial agenda) (al-Kawthari, 2000). Of course, modern scholarship has refuted claims regarding the widespread inefficiency of *awqāf* (see for instance, Ghazaleh, 2011).

Unfortunately, the disinformation campaign by the British, therefore, led to confusion and intellectual chaos over the proper role of *awqāf* in Egypt, making any effort to integrate the two educational tracks and the findings of modern science into higher orders of knowledge extremely difficult. Muhammad Zahid al-Kawthari (d. 1951), a polymath and adjunct to the last Grand Shaykh of the Ottoman Empire who fled from Turkey to Egypt because of Atatürk, wrote an extensive series of articles on this destructive influence of the British (and French) on *awqāf*, which were later collected and published as *Maqalat al-*

(8) Interview with Shaykh Ali Gomaa, former Grand Mufti of Egypt.

Kawthari (al-Kawthari, 2000). Muhammad ‘Abduh (d. 1905), the Grand Mufti of Egypt from 1899-1905, was accordingly unable to build a bridge between the two tracks under the circumstances, all of which were further complicated by the rapid changes “on the ground” in terms of communication, transportation, and technology (Gomaa, 2001; Gomaa, 2006)⁽⁹⁾.

4. Intellectual and Spiritual Roots of the Environmental Crisis

Before clarifying the way forward to resolve the environmental crisis through holistic education and economic development based on *awqāf*, we must first identify the secular roots of the crisis nature faces and also understand why conventional responses to this crisis have failed. Economists analyze this crisis in terms of “market failure”, or the failure to include environmental costs such as air pollution in the price of goods. This leads to the overuse of goods such as clean air relative to their “true” costs – such natural resources that ordinarily have a “price” are considered “free”, or are drastically underpriced. Market failure is thus the cumulative effect of the overuse of goods such as clean air relative to their true values (or the cost of pollution in this example) that leads to the inefficient use of resources.

Accordingly, market failures can account for a myriad of environmental threats, including marine losses, deforestation, desertification, freshwater system decline, loss of biodiversity, proliferation of toxic pollutants, acid rain, nitrogen excess in fertilization, and so forth (see for example, Philip, 2010, ch. 2). This naturally puts a blinding spotlight on the need for reasonable regulation of markets and commerce, but the political process responsible for such regulations often fails due to the corrupting influence of special interests, raising the question of Juvenal: *Quis custodiet ipsos custodes?* (Who will guard the guardians?) (Juvenal as quoted in Hurwicz, 2007). Such special interests arise because small groups with mutual interests have a greater incentive to organize and lobby than larger groups do, since one’s share in the goods thereby procured diminishes as the number of stakeholders increases (see for instance, Buchanan & Tollison, 1984)⁽¹⁰⁾. As Gus Speth explains, “Politi-

cal failure perpetuates, indeed magnifies, this market failure” (Speth, 2008, p. 53). Moreover, the problem of special interests tends to worsen over time, since the longer economic disorders remain unremedied, the more special interests amass wealth and organize more effectively to protect their advantages (see for example, Olson, 1984; Reich, 2015).

As we have argued elsewhere, this analysis clearly diagnoses the symptoms of current environmental economic disorders, but it does not reach their underlying root cause, namely, a mechanistic worldview that generates corresponding scientific, technological, economic, political, and other social structures (el-Ansary, 2017a; el-Ansary, 2017b). Islam sees the end of the human state in the perfection of our spiritual possibilities. Economic activity must therefore address our physical, intellectual, and spiritual needs, balancing all three in such a way that no single dimension is emphasized at the expense of others. E. F. Schumacher, perhaps the most important economist to represent religious thought in the 20th century (see for instance, Schumacher 1975; Schumacher, 1977), identified the basic objectives of this integral approach in terms of three objectives that would meet the needs of individuals for personal and spiritual growth and dignity:

First, to provide necessary and useful goods and services.

Second, to enable every one of us to use and thereby perfect our gifts like good stewards.

Third, to do so in service to, and in cooperation with, others, so as to liberate ourselves from our . . . egocentricity. (Schumacher, 1979, pp. 3-4)⁽¹¹⁾

Clearly, all three objectives apply to what one does and what one makes⁽¹²⁾. Economic activity thus has two aspects: the *transitive* (or objective) aspect and the *intransitive* (or personal) aspect. Work is transitive that produces results *outside* of the worker and is directed to some object or service in the external world (Schumacher’s first objective of work). Work is intransitive where its effects stay *within* the worker and contribute to the formation of

(9) Interview with Shaykh Ali Gomaa, former Grand Mufti of Egypt.

(10) Public choice theory refers to the application of economic theory to the problems of political science, particularly collective choice processes.

(11) It is important to note that Schumacher was greatly influenced by certain Muslim thinkers, as his daughter’s biography attests.

(12) As Nasr points out in an essay on Islamic work ethics, “Work carried out in accordance with the Sharī’ah is a form of *jihād* and inseparable from the religious and spiritual significance associated with it”. Nasr (2011, p. 51).

character (Schumacher's second and third objectives of work). All economists would recognize the first objective, or the transitive aspect of work – the production of goods and services for human welfare. Some economists like Adam Smith recognized the intransitive aspect related to the second and third objectives of work to various degrees, acknowledging that different types of work have different effects. As Smith noted in later editions of *The Wealth of Nations*, employing few of man's faculties could have serious social costs by reducing certain human capabilities:

The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of forming any just judgment concerning many even of the ordinary duties of private life. (Smith, 1778, vol. 2, p. 366)

From the holistic perspective of Islamic ethics, production or exchange that violates any of the three objectives is “degrading” because we decrease the value of the objective we violate not quantitatively, but qualitatively. One reason is because “goods differ in kind” (Sandel, 2010, p. 95), so to view selling pornography, for example, as the same as selling household items is ultimately a category mistake. The first dehumanizes its producers, the second, ideally, does not. When “everything is for sale”, writes Michael Sandel, markets themselves may corrupt goods. If you pay children to read books, he explains, then children are taught that reading is a chore, not a practice with intrinsic worth; similarly, selling seats in a classroom diminishes the value of a diploma, and hiring foreign mercenaries degrades citizenship. Sandel concludes: “[W]hen we decide that certain goods may be bought and sold, we decide, at least implicitly, that it is appropriate to treat them as commodities, as instruments of profit and use” (Sandel, 2012, pp. 8-9).

A holistic approach, on the other hand, asserts that humans are human *beings*, not simply human “havings” and “doings” (Nidumolu, 2013, p. 1 & 16). If it is true that complete fulfillment is only found in the unlimited reality of God, as all the world's major religions assert, then it follows that to seek the *infinite* in finite goods can only result in profound disappointment, pain, and even despair. Accumulating wealth for its own sake converts the joy and blessings of wealth into a sort of envious misery, because somebody else will always have more. Indeed, a misdirected search for the infinite has stoked appetites that now insatiably devour the beauty of the natural world. Bereft of the traditional worldview of their ancestors, large segments of humanity have strayed from paths that lead to a sense of the sacred or transcendent, to the beauty that satisfied humans grounded in living religious traditions for millennia.

To find the path again, we must recognize that beauty and the love of beauty give our soul happiness, and virtue, or beauty of soul, which is the highest form of beauty in this world. But since sensible beauties are situated outside the soul, and their meeting with it is accidental, the soul must carry the beautiful within itself if it wishes to be happy in an unconditional and permanent manner. However, to fill the void created by the absence of inward beauty with heedless consumption can be likened to drinking saltwater – it will only make us thirstier. Schumacher (1979) describes this cycle in the context of modern economies:

The basic aim of modern industrialism is not to make work satisfying but to raise productivity; its proudest achievement is labor saving, whereby labor is stamped with the mark of undesirability. But what is undesirable cannot confer dignity; so the working life of a laborer is a life without dignity. The result, not surprisingly, is a spirit of sullen irresponsibility which refuses to be mollified by higher wage awards but is often only stimulated by them. (pp. 27-28)

It is precisely such a cycle – the endless need for more – that is destroying our natural world.

Alternatively, one might think that a socio-economic system based on central command explicitly appealing to cooperative ideals, or the “visible” hand of the state rather than the invisible hand of the market, would be better equipped to neutralize

negative effects of growth. But, in fact, the opposite is true, as evidenced by the dismal environmental record of communist countries, which some observers even blame for the collapse of the Soviet Union (see for instance, Dellapenna, 2010)⁽¹³⁾. Communism attempted to achieve economy-wide cooperation through central planning, but it undermined the basis for such cooperation by its systematic deskilling of work. Like other mechanized economies, communism ignores the intrinsic connections between meaningful work and spiritually productive cooperation (Schumacher's second and third objectives of work). Special interests, moreover, can take on even more corrupt and dysfunctional forms in industrial communism than in capitalism, because bureaucrats often conflate the interests of bureaucracy with the interests of society (John Medaille, private correspondence, August 20, 2014). The absence of a spiritual dimension in communist political theory means that communism attempts to achieve a sort of a "Christian" charity without relying on the inspiration of Christ, or any other revelation⁽¹⁴⁾. But charity without a spiritual grounding is often fatal: "There is no supportable middle position. Those who want the Good Society, without believing in God, cannot face the temptations of Machiavellianism" (Schumacher as quoted in Wood, 1984, p. 264).

In an industrialized world, communism and capitalism therefore have *much* more in common than their proponents admit: both neglect the second and third objectives of work, and the resulting loss of intrinsic meaning in production and exchange promotes conflict rather than cooperation between workers, owners (whether individuals, corporations, or the state), and consumers (see for instance, Putterman, 1990). Although communism opposes spiritual values much more directly than capitalism, both systems undermine spiritual values. Without a change in the philosophical understanding of work, personal reform *within* a system is rendered powerless to reform the system itself. Schumacher (1974) writes:

This is of decisive importance. It shows that appeals for good behaviour and the teaching of ethical or spiritual principles, necessary as they always are, invariably stay, as it were, *inside* the system and are powerless to alter it: unless and until the preaching leads to significant *new types of work* in the physical world. (p. 12)

Indeed, there is an increasingly urgent debate over whether the secular paradigm that has indirectly created the industrial economic system can generate new technologies quickly enough to solve the accompanying crises related to the environment. Whether technological "fixes" are possible depends on whether or not our worldview corresponds to the nature of reality. If it does not, attempting to find a fix *within* the current paradigm can lead to a vicious downward cycle of technologies, with each "cure" often leading to more and more adverse (and even catastrophic) "side effects". If science and technology are based on philosophical presuppositions that ignore higher levels of reality above observable phenomena, and this does not correspond to the nature of reality, then both man and nature suffer unintended adverse consequences.

5. A Spectrum of Positions within Islamic Economics and a Way Forward

The central question about the adverse relationship between nature and the economy is whether we are in need of institutional transformation or simply moderate reform. Most Muslim economists have taken a position emphasizing the need for Islamic economic law in an Islamic economy, which can support either view on the need for institutional transformation or moderate reform depending on the scope of change (the same spectrum arguably applies to economists of other faiths, *mutatis mutandis*). For example, the most prominent analysis of Islamic finance from the perspective of behavioral economics is that of Mahmoud el-Gamal (2006) in his book *Islamic Finance: Law, Economics, and Practice*. Whereas perhaps the most prominent analysis of Islamic economics from an institutional perspective is that of Hossein Askari, Zamir Iqbal, and Abbas Mirakhor (2015) in their book *Introduction to Islamic Economics: Theory and Application*. Likewise, Umer Chapra has written several books in the field emphasizing Islamic principles of social justice and ethics. All these economists can be interpreted as

(13) And as Speth (2008) avers, "Its [communism's] authoritarian political system and highly centralized economic planning produced one environmental disaster after another" (p. 58).

(14) For a brilliant analysis of how Marx's anti-theological critique of industrial capitalism actually depends upon a theological critique despite his disavowal of it, see Hughes (2007).

favoring institutional change rather than moderate reform, particularly Mirakhor, Iqbal, and Chapra. Although all of the aforementioned economists have made very significant contributions to the literature, there is a lacuna in their writings regarding the intimate, but neglected, connection between Islamic *cosmological* sciences and Islamic economic thought. This lacuna has massive implications for the scope of institutional change necessary to confront the environmental crisis and provide sustainable development, with all this implies for the contemporary role of *awqāf*.

One Muslim economist who has attempted to fill this lacuna is Asad Zaman, who has a website of articles and lectures critiquing the mechanistic worldview while attempting to draw out the implications for Islamic economics⁽¹⁵⁾. However, there is so much information there that one can miss the essential starting point, namely, the need for holistic production processes rooted in the integration of the findings of modern science into higher orders of knowledge.

We have written elsewhere on how the discoveries in physics during the last century have challenged the notion of a strictly mechanistic universe, and fierce debate has ensued about interpreting the new physics and about what should replace pre-quantum materialism (see for instance, Smith, 1984, p. 50-51). As one scholar puts it, we are in a reality marketplace (Smith, 1995, p. i). Suffice it to say here that Muslim philosopher-scientists such as Ibn Sīnā (d. 1037), ‘Umar Khayyām (d. 1131), and Naṣir al-Dīn Ṭūsī (d. 1274) have developed a holistic philosophy of nature that resolves quantum paradox on one hand and integrates the findings of physics into higher orders of knowledge on the other. Mullā Ṣadrā (d. 1640) developed their thought into a grand synthesis of Islamic theology, philosophy, and mysticism to provide the metaphysical foundation for a contemporary science capable of interpreting all natural phenomena through a spiritual perspective that responds to the limitations of modern science without denying its factual discoveries⁽¹⁶⁾. As the

astronomer Robert Jastrow (2007) put it, albeit in a non-Islamic context:

For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance, he is about to conquer the highest peak; and as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries. (p. 107)

Indeed, it is ironic that René Descartes, who established the philosophical foundation for secular science by denying any qualitative dimension to nature and creating an inseparable gulf between the subject who knows and the object that is known, was a contemporary of Mullā Ṣadrā.

Accordingly, we must recover the Islamic intellectual heritage if we would bring forth holistic science and technology that can change our economic paradigm. It is important to point out in this regard that Islamic economics does not only apply to economies informed by Islamic principles; it also spells out the *consequences* of violating these principles in secular economies, both at the individual and structural levels, including the aesthetic aspect of work. If such spiritual principles are necessary for equilibrium – because injustice towards man and nature leads to instability – then spiritual principles are the necessary starting point of economic analysis, because disequilibrium is unintelligible in its own terms. Economics is therefore continuous with other practical sciences ranging from ethics to politics and is not an independent domain separated from the rest of social life, as most economists maintain (for a description and critique of this breach, see for instance, Foley, 2006). Islamic economics thus critiques both modern mainstream economic theory and practice. From this point of view, the most important contemporary role of *awqāf* is to recover the Islamic intellectual heritage and develop corresponding scientific, technological, economic, and other social structures to confront the environmental crisis and provide sustainable and integral economic development. This could then serve as a source of inspiration for other civilizations to follow while creating the socio-economic milieu

(15) See <https://asadzaman.net>.

(16) These scholars make a crucial distinction between *al-jism al-ṭabī‘ī* (natural body) in the “corporeal” world of perceptible qualities and *al-jism al-ta’līmī* (mathematical body) in the “physical” world of measured or measurable quantities, which is central to Wolfgang Smith’s approach to the

quantum paradox. See Nasr (2006, pp. 169-183 & ch. 12). For a detailed discussion and analysis of Seyyed Hossein Nasr’s views on Islamic science, technology and the environmental crisis, see Quadir (2013).

within the Islamic world to increase the number and vitality of *awqāf* (triggering a virtuous cycle in opposition to the vicious cycle currently at work) that

Syed Khalid Rashid (2018) so rightly calls for in his lead article.

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مواجهة تغير المناخ وتعزيز التنمية الاقتصادية الإسلامية من خلال الأوقاف

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كرسي هلال، وهشام، وليلى الإدريس السويدي في الدراسات الإسلامية
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المستخلص. إن الأزمات البيئية والاقتصادية العالمية الحديثة ناتجة عن النظرة العالمية المادية والميكانيكية الضيقة. تكشف هذه الدراسة المبنية على أسس ومبادئ الاقتصاد الإسلامي الطريق إلى تحقيق العدالة الاقتصادية والتوازن البيئي. وقد أبانت الدراسة أن هذا البناء يتطلب استعادة التراث الفكري الإسلامي وإنشاء هياكل إسلامية علمية وتكنولوجية واقتصادية وهياكل اجتماعية أخرى ذات علاقة بالعمل الروحي ذي المغزى والتنمية المتكاملة؛ وهو دور لعبته الأوقاف في الحضارة الإسلامية في الماضي والتي نحتاج إلى استعادته اليوم. يتطلب هذا المسار، الذي ضاع خلال الفترة الاستعمارية، دمج نتائج العلوم الحديثة في نظم معرفية أعلى تسمح للإنسان بالعيش في انسجام مع نفسه ومجتمعه وطبيعته. ويحقق ذلك التوازن "العمودي" و"الأفقي"، الذي يرمز تقاطعه إلى تكامل الحياة كلها حول مركز مقدس. إن إعادة إضفاء الطابع التاريخي على عمليات العمل والإنتاج، التي ضاعت خلال الفترة الاستعمارية، يمكن أن تزيد أيضاً من عدد وحيوية الأوقاف المعاصرة؛ حيث تلعب هذه المؤسسة مرة أخرى الدور المحوري الذي قامت به في الحضارة الإسلامية في السابق، وهو الأمر الذي يدعو إليه سيد خالد رشيد في مقالته الرئيسية في هذا الركن.

الكلمات الدالة: الأوقاف، تغير المناخ، الاحتباس الحراري، التنمية الاجتماعية الاقتصادية، الأزمة البيئية، المقاربة الشاملة.

تصنيف KAUIE: E22, H57