Islamic Ethical Framework
for the Development of Science and Technology

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This paper features the principles of Islamic ethics or philosophy for the advancement of science and technology. It argues that Islam has set a number of principles with regard to the philosophical and scientific endeavors and discoveries. Based on Islamic doctrines and traditions, Islamic ethical framework of scientific innovation can be summarized as follows: 1) Islam encourages its people to pursue knowledge and science (*al-'ilm*) and places people with knowledge (*'alim*) in a high and respectable position; 2) any scientific and technological innovation should be based on and derived from the *tawhid* principles, therefore, although science and technology are mostly related to worldly matters, it has ethical and spiritual dimension; 3) it has to seriously consider the harmony of relationship among fellow God's creatures on the earth, in other words, Islam pays considerable attention on the environmental concerns in every kind of scientific and technological innovation; and 4) that human being should be the axis of scientific and technological innovation, in which it has to bring benefits for human beings and does not endanger, contradict and go against the dignity of human beings. Science is created by human, controlled by human and should bring benefit to human life.

In order to gain a better understanding of this context, this paper also examines the variety of Muslim responses to this issue as to whether Muslims should adopt modernity which is manifested in the form of science and technology or avoid it. Two most contrasting positions are those who believe in the neutrality of science and technology, and based on such a ground, they argue that adopting modern science and technology is not only beneficial, but also essential for Muslims to revitalize Islam's "Golden Age". Others, however, insist that science and technology is not value-free and therefore it is not neutral. Current science and technology, in their view, originated from the West and is a product of Western ideology of secularism. Consequently, adopting

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science and technology will bring threat to Muslim ideology and faith. This paper offers a progressive view by arguing that Islam is not hostile to the development of modern science and technology. Ethical and spiritual framework that Islam has outlined for the innovation of science and technology is obvious and evident of Islam's positive attitude toward modern science and technology.

Keywords: *compatibility, modernist position, apologetic, islamization, value-free*

The development of science and technology in the modern era has brought formidable challenges for world religions. Although science and technology has created benefits for human beings on practical level, it is unavoidable that its progress and innovation also often becomes subject of dispute on the intellectual level. Islam is not an exception against such backdrop. The debate over the compatibility of science and technology with Islamic teachings is pervasive among Muslim scientists and intellectuals. In the light of this topic, this paper will discuss the ethical framework that Islam has laid down for the advancement of science and technology, by referring back to the experience of Islam. However, before reaching at this point, a brief survey of Muslims' attitudes toward science and technology is fundamental, since it is from those attitudes the ethical framework of Islam in science and technology can be determined and better comprehended.

Seyyed Hossein Nasr, a renowned contemporary Muslim philosopher, describes three dominant trends within Muslim intellectuals and thinkers regarding the relationship of Islam and science. Firstly, a modernist position that sees modern science developing in the West as a major achievement of Western civilization that has given the West power. Admiration to Western achievements in scientific progress on the one hand, coupled with a period of backwardness among Muslims in pursuing rational thinking, on the other, has led modernists to urge Muslim to adopt Western scientific formula to recapture its golden era in scientific endeavours. Second is a position that can be termed as "Islamist" or "apologetic" and at the same time conformist. This view perceives that there is a contradiction between Islam and modern science and technology. However, the contradiction is not on epistemological root, but rather on the ethical framework. Precisely, it is not the science and technology themselves that can potentially be the source of problems, but the practical application is the most important concern. As a consequence this group proposed an Islamization of science and knowledge as

the solution. In other words, science, in the view of this group, is value-free and how will it operate very much depends on the "man behind the gun". Thirdly is a neutral yet critical position that perceives science as not value free. According to this group of thinkers, science is never created in vacuum and it consists of specific worldviews and therefore it is a reflection of certain values.

Similarly, another category cited by Fazlur Rahman also features two opposite positions as to what position Muslims should adopt with regard to modern knowledge and science. One position argues that Muslims are supposed to adopt modern knowledge and science only on its practical aspects such as technology, and not its intellectual elements. In contrast, however, another view argues that adopting modern knowledge and science can concurrently be done on intellectual as well as practical levels, since no knowledge and science can be harmful to human beings.

With regard to Nasr's classification, this paper agrees on certain point of the second position that the problem of contradiction of Islam is ethical. However, ethics is not the only problem which should be overcome in this relation. On epistemological level, however, there are also important concerns to be dealt with. In this regard, I agree with the third position. However, I will not deal with this topic, and will only focus on ethical or philosophical framework of science and technology according to Islamic perspective.

It should be underlined that the Qur'an, primary source of Islamic teachings, pays considerable attention to the use of human intellects to uncover the phenomena of nature, the creatures of God. According to one version, one third of Qur'anic verses contains not only scientific formulation but also an order for Muslims to engage in scientific quest. In Islamic discourse, it is believed that God has created two types of *ayat* (sign, mark) for human being to be reflected on, namely *ayat qawliyah* that refers to the scripture revealed by God to the Prophet and *ayat kauniyah* which refers to the universe. Both are sources of knowledge on which Islam has encouraged its adherent to uncover. As such, it is undeniable that Islam has its own system of ethical value regarding science and technology. Those principles are:

First, Islam highly encourages its adherents to pursue knowledge and science (*al-'ilm*) and places people with knowledge (*'alim*) in a high and respectable position. This basic doctrine and ethical formulation underlines an ethical dimension that from its very nature Islam has proven to be in harmony with science. Furtermore, in Islamic perspective, knowledge or science is an achievement that

will differentiate human beings from God's other creatures. The first revelation of Islam ordered Muhammad to "read", that include not only "reading" in its literal meaning, but also reading the universe, reading natural phenomena that will lead to the discovery, innovation, invention in science, technology and civilization. Interestingly, not only encouragement in internal circle, at the same time, Islam is also open to other thinking and philosophies. The golden age of Islamic civilization was initiated from the adoption of other sources such as Greek philosophy.

Second, Islam is a religion of progress that does not prevent any changes occurring within societies. The nature of Islam that is not hostile to change and progress is also another ethical value that made possible the invention of knowledge and civilization. There is a popular jargon which circulates widely among Muslims that Islam is a religion that will always be in accordance with progress whenever and in whatever places (*al-Islamu shalihun likulli zaman wa makan*). This jargon can be related with the principle of *ijtihad* (interpretation of main source of Islamic teaching by critical exercise of reason) in Islam that serves as main mechanism in which Islam is able respond to any kinds of change. Equally important is that *ijtihad* not only a maximum employment of reason, but also critical examination of realities. Therefore, if in any circumstance, there is a reluctance to accept changes and innovations form Muslim circles, including scientific and technological innovation; it does not originate from basic teachings of Islam, but from narrow-mindedness of certain groups within Islam and does not represent the Muslims' intellectual framework as a whole.

Third, any scientific and technological innovation should be based on, derived from and incorporated to the *tawhid* principles. Therefore, although science and technology are mostly related to worldly matters, it has ethical and spiritual dimension. It should also be taken into serious account that one of the most fundamental features of Islamic ethics is balance. Therefore, all types of progress, innovation and discovery in science and technology have to be equally based on revelation (*wahy*) and reason (*'aql*), between religious (*naqliy*) and intellectual (*'aqly*) arguments. In other words, although science and technology innovations are humanly and worldly oriented activities, Islam cannot leave their transcendental element aside. The transcendental orientation in the system of Islamic knowledge has led Muslim scientists to seriously take the unseen realities as also a part of realities. Further, belief in transcendental element is one of the fundamental distinctions of Islamic philosophy of science and other system of knowledge, science and philosophy. Unsurprisingly, in this context, spirituality resides in a very important position for developing science and technology. Many

Muslim philosophers believe that spirituality is one of the ethical frameworks that modern science need of but has neglected.

Fourth, in Islamic conception, science and technology innovations have to seriously consider the harmonious relationship among fellow God's creatures on the earth. In other words, Islam pays considerable attention on the environmental concerns in every kind of scientific and technological innovation. Referring back to the *tawhid* concept, one Muslim scholar analyzes *tawhid* into five aspects that include "the unity of creations" as one of its fundamental values. This underlines the type of relationship that Muslims should have with nature and environmental surrounding. Islam views the relationship of humans with nature as *taswiyah* (equity) relationship and not *taskhiriyyah* (exploitative) relationship. Qur'an has stated that the destruction of nature is due to human beings' misconduct. Like it or not, irresponsible behaviour in employing science and technology for natural resource exploitation has contributed to the deterioration and destruction of nature.

Lastly, the human being should be the axis of scientific and technological innovation. It has to bring benefits for human beings and not endanger, contradict and go against the dignity of humanity. Science is created by humans, controlled by humans and should bring benefit for human life. In Islamic context, the *maslaha* (virtue) is the underlying concept that prioritizes humanity and humanitarian concern over any other matters. A considerably liberal thought in Islamic legal theory argues that human virtue should be the main concern of any forms of legal code formulation in Islam. If, in any case, legal code as well as textual formulations of scripture contradicts the achievement of human virtue or welfare and contradicts humanity, so the legal code and textual formulation should be subordinated to human virtue. This philosophical account has to be adopted in understanding ethical framework of Islam in science and technology.■