

ENVIRONMENT, HUMAN SECURITY AND ISLAM: A CASE STUDY OF PAKISTAN

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Introduction

Environment holds a central position in most of the discussions of development strategies in the contemporary globalised world. Deteriorating environment is adversely affecting human lives and is a potential danger for future generations. Thus the basic question of human survival on an environmentally fragile planet has gained urgency. In fact, the word 'environment' of which a single word synonym is 'surroundings', represents all conditions, circumstances and influences affecting the development of an organism. It particularly includes every living and non-living thing found on our planet, the former comprising human beings, animals and plants, and the latter, soil, water, light, climate temperature and pressure etc.¹ *Larousse Dictionary of Science and Technology* defines the environment as all physical and chemical factors affecting the quality of life.²

In 1994, when the United Nations Development Programme (UNDP) presented the concept of human security, environmental security was an important component. In fact, the concept of human security is itself a component of the broader concept of human development, which was first presented by the World Bank in 1980³ and later adopted by the UNDP in 1990.⁴ It needs to be emphasised that the Islamic approach to human development focuses both on materialistic and spiritual development.⁵ Although, in the contemporary Muslim World, there are numerous religious educational institutions, it remains to be seen whether or not they play a role in dealing with environmental problems. This paper attempts to explore various conceptual dimensions of environmental security and the possible role of religion in protecting the environment for the broader benefit of humanity. This piece of research focuses mainly on the Islamic Republic of Pakistan as a case study.

What is Human Security?

Before discussing human security, it is important to discuss briefly the UNDP's notion of human development and the Islamic approach. In 1980,

the World Bank argued that: "Human development encompasses education and training, better health and nutrition.... The case of human development is not only, or even primarily, an economic one. Less hunger, fewer child deaths and better chances of primary education are almost universally accepted as important ends in themselves."⁶ In 1990, this concept was slightly redefined and adopted by the UNDP. In its first issue of *Human Development Report 1990*, UNDP says: "Human development is a process of enlarging people's choices. The most critical of these wide-ranging choices are to live a long and healthy life, to be educated and to have access to resources needed for a decent standard of living."⁷ Since 1990, human development has been measured in terms of the "human development index" which is based on life expectancy, adult literacy, mean years of schooling and per capita income.⁸

With reference to the context, it is appropriate to discuss the Islamic approach to human development. "The Arabic word *Islam* simply means 'submission' and is derived from a word meaning peace."⁹ According to Muslim belief, "Islam is a complete code of life."¹⁰ In the words of Imam: "This is because there is no aspect of life, such as religion, economy, politics, education, health etc., for which it does not provide guidance."¹¹ In the Islamic system, human development is a purposeful activity aiming at: (i) economic development with a fair distribution of benefits, (ii) a fair distribution that should bring positive change in society, in order that, (iii) both these activities of materialistic development should support spiritual development and satisfaction.¹² In Islamic philosophy, the main emphasis is on the fact that human beings are composed of soul and body and thus development is required in both these aspects.¹³

In the Islamic system the "Qur'ân is a primary source of knowledge for Muslims."¹⁴ "One of the basic and most important characteristics regarding social economy and the economic system upon which the Qur'ân repeatedly lays stress is that all means and resources through which human beings earn their livelihood are divinely created."¹⁵ Thus, it is the obligation of human beings that along with the exploitation of divine resources, they should also ensure the security and development of these resources so that the spectrum of their benefits may be widened. In 1994, UNDP presented the concept of human security. It says:

For too long, the concept of security has been shaped by the potential for conflict between states. For too long, security has been equated with the threats to a country's borders. For too long, nations have sought arms to protect their security. For most people today, a feeling of insecurity arises more from worries about daily life than from the dread of a cataclysmic world event. Job security, income security, health security, environmental security, security from crime—these are the emerging concerns of human security all over the world.¹⁶

A careful consideration of the above explanation of human security suggests that environmental security holds a central position in the broader

concept of security. This is why the security of employment, income and health is associated with environmental security. And if there is security of income, health and environment, it follows that there will also be provision of security from crime, leading to intra- and inter- state stability. But what is the way to achieve human security? UNDP argues that "human security is easier to ensure through early prevention rather than later intervention. It is less costly to meet these threats upstream than downstream."¹⁷ Many countries face the environmental threat and degradation of local ecosystems. According to UNDP's own estimates, around eight to ten million acres of forest-land is lost each year. During the past five decades, in Sub-Saharan Africa, 65 million hectares of productive land has turned into desert. Salinisation has damaged 20 percent of the irrigated land in Pakistan. Although the nature of environmental damage may vary from region to region, the effects are similar everywhere. It is beyond doubt that many environmental threats are chronic and long lasting.¹⁸

The Islamic Approach to Dealing with Environmental Protection

The environment is a collective as well as an individual issue, thus efforts are needed at both levels. It needs to follow the principle that an individual should want the same for others as he wants for himself. This is considered to be the common denominator in all the major religions of the world. For instance, Judaism says: "What is hateful to you, do not to your fellow man; that is the entire law; all the rest is commentary." In Christianity: "Do unto others as you would have them do unto you." Similarly in Islam: "No one of you is a believer until he desires for his brother that he desires for himself."¹⁹ This principle also needs to be applied to human and environmental security.

The Islamic strategy for dealing with environmental problems is different from the secular approach. Being central to life, plants, trees and agriculture are extensively covered in both the Qur'ān and the Prophet Muhammad's (p.b.u.h.) teachings. It emerges from the Qur'ānic account that the human being had its beginning in an environment full of vegetation, and the first knowledge given to him was also related to a plant.²⁰ The Prophet said: "If a Muslim plants a tree or does farming, he will be rewarded for his act, whether someone eats of it or steals it, be it an animal or bird, the planter will be rewarded, in any case."²¹ It needs to be mentioned here that Prophetic teachings with regard to plants and other related aspects were not mere directives. He paid full attention to the practical aspects, too. This led to the setting up of a well-developed irrigation system. However, the objectives of this system were not limited to irrigation only; soil conservation, range management and horticulture were also components of this strategy which ultimately enhanced the overall productivity of land.²² Such practices continued during medieval times²³ and were one of the main reasons for prosperity and development during that age.²⁴

The above discussion reflects that human security is a necessary condition for human development and the environment is an important

component of human security. Thus in the Muslim World, the role of religion cannot be bypassed in this process. Another important point is that according to Muslim belief everything is created by God and the human being is a very special creature in the universe. In Islam, Muslims are bound to total submission to God and this submission is the only way to their future security. Security within a person, security between people and security between people and nature, are all equally important. In the Qur'anic context, God is the ultimate owner of everything²⁵ and His creatures should follow the rules fixed by Him. There are three fundamental principles of this religion: *taw-TMd*, *khilāfah* and *ākhirah*. *Taw-TMd* is the central concept of Islam which means "oneness of God". The characteristic of 'oneness' or unity is also reflected in all creatures of the universe, including vegetation, wildlife and environment. This unity maintains harmony in nature.²⁶

Being the special creature of God, the human being is appointed His trustee or vicegerent on earth. Thus, God is the master and the trustee is a vicegerent. In the Arabic language, this vicegerency is called *khilāfah* and the vicegerent is *khalTMfah*. The primary duty of the *khalTMfah* is to oversee the trust. With regard to the use or abuse of trust, the *khalTMfah* is answerable to his Master.²⁷ The other most important concept of Islam is accountability to God; particularly at the time of "the day of judgement." In Islamic terminology, this is *ākhirah*. Therefore, a human being is accountable for all his or her actions, whether these are personal, social or environmental.²⁸

The philosophy of the concepts of *taw-TMd*, *khilāfah* and *ākhirah*, also reflects the environmental code of conduct in Islam.²⁹ As mentioned earlier, the *khalTMfah* is bound to obey God's rules and commandments, and is responsible for the protection of His property, i.e., the environment. Otherwise, he (or she) violates the concept of *taw-TMd* and will be questioned in *ākhirah*. The Qur'an highlights the fact that these are the people who create environmental problems on land and in the sea.³⁰ The Prophet (p.b.u.h.) clearly said that "the world is green and God has appointed you His vicegerent."³¹ As a result of the impact of these teachings, during medieval times, laws were made to protect soil erosion, deforestation, over-grazing, safeguard water resources and to put limits to the expansion of cities.³² The questions which need to be asked are whether these points are part of the curricula of the educational system in Muslim states and do contemporary Muslims act upon these teachings? The following discussion attempts to establish answers.

State of the Environment in Pakistan

In this modern age there are various threats to the environment. In one of its reports, the UNDP argued that: "Despite widespread public support for environmental action, the driving forces of globalisation still put profit before environmental protection, preservation and stability."³³ It was estimated that in Pakistan, the annual cost of environmental degradation was around three billion dollars, nearly a half of the export earnings of the country.³⁴ It

is noteworthy that human health is the major victim of environmental degradation. According to the Asian Development Bank's estimates, out of five selected Asian countries, losses in human health were the highest in Pakistan (Table 1). The losses in human health multiply the effects in other sectors of the economy which slow down the overall human development process. Thus this situation threatens national stability and the security of future generations. It also displaces people to make them environmental refugees.

The connection between environmental degradation and loss of health is depicted in Table 1. I want to discuss two case studies. The first is deforestation and its impact on cultivated land, and second, the state of sanitation in one of the towns of the country. It is common knowledge that in any agricultural country, the efficiency of an overall national system depends upon an equitable flow of water in the rivers, which in turn is dependent wholly on a smooth supply from the watersheds behind. This is possible only if these watersheds have a uniformly

Table:1. Environmental Degradation and the Estimated Loss of Health in Selected Asian Countries

Country	Annual loss (US\$ in billion)	Loss as a % of GDP
China	6.3-9.3	1.7-2.5
Indonesia	2.2	2.0
Pakistan	2.7	3.3
Philippines	0.3-0.4	0.8-1.0
Thailand	1.6	2.0

Source: Asian Development Bank, *Emerging Asia – Changes and Challenges*, Manila: Asian Development Bank, 1997, cited in UNDP, *Human Development Report 1998*, New York: Oxford University Press, 1998, p. 67.

spread out tree cover, because if the slopes are naked, most of the water will pass down causing floods in the rivers. Consequently, a lot of fertile land will be washed away and deposited in rivers raising their beds, and more importantly choking up the gigantic dams impairing the efficiency of the canal system as well as the power generation. Another important effect is that the silt accumulation ends up in the cultivated land and raises the level of land. It is estimated that in the canal irrigated regions of the Punjab province of Pakistan, the level of land is rising at the rate of 1.6 cm per year. This rise is due to the accumulation of silt coming through canal water. How does this affect the agro-rural system of the region? The following points are worth mentioning in this regard:

- (a) This figure indicates that after each decade, the land level has risen by 16 cm (nearly half a foot).

- (b) Heavy soil erosion:
 - Destroys the natural topography and vegetation on hilly areas.
 - Causes floods by the rise in level of riverbeds due to siltation.
 - Causes rise in the level of dam-beds, reducing their water storage capacity and reducing the capacity for electricity generation.
 - Causes siltation in canals and water channels which reduces their capacity.
 - Causes rise in the level of cultivated land, creates irrigational problems and deteriorates soil fertility.
- (c) It does not end here. This situation indicates that after every two decades, the residents of these regions have to raise by one foot the level of their houses, streets and roads, otherwise the drainage of sewerage water would be an impossible task. It is difficult to imagine how a poverty-stricken community will afford such losses.
- (d) This situation indicates that the losses of deforestation are not confined to the destruction of forests in the up-lands, in fact, it is the destruction of a whole national system.³⁵

The second case study is regarding the worsening situation of sanitation and pollution in the country. In Pakistan, the rapid growth in population and indiscriminate use of limited national resources has led to environmental degradation. It is estimated that the country generates over 50,000 tons of solid waste per day; out of which less than a quarter is collected but not managed in the proper manner; thus causing serious air, water and land pollution and health hazards. Only three percent of the industry treats its waste, while the rest discharges untreated effluent into rivers, lakes and the sea. The dumping of untreated municipal and industrial waste has caused contamination of surface and ground water sources and poses a threat to aquatic life. Around 40 percent of the population is still without access to safe drinking water and nearly 84 percent of the rural population is without sanitation facilities. Waterborne diseases account for 25 percent of all hospital cases and about 60 percent of infant deaths in the country.³⁶ According to the Federal Minister of Environment, the major causes of environmental damage are mismanagement of municipal and solid waste, urban air and water pollution, cultivable and range-land degradation and deforestation.³⁷

The quality of the sanitation in Pakistan can be judged from the following Table, in which a comparison is made between two towns, one from Pakistan and the other from the United Kingdom. The town of Sahiwal in irrigated Punjab and Chelmsford in the south-east of England are nearly of the same size with respect to population³⁸ but completely different with regard to the sanitation situation. Although in quantitative terms, a resident of Sahiwal produces less than a half the refuse of the resident of Chelmsford, and the number of sanitary workers per 10,000 residents are far higher in the former than the latter, the state of sanitation is much worse in Sahiwal as compared to Chelmsford. It is noteworthy that there is only

one refuse dumping vehicle for 70,057 residents in Sahiwal as against Chelmsford where 7,111 residents are served by one vehicle. Due to this poor sanitation situation, there is a high level of air pollution and higher incidences of water-born diseases.

Another common characteristic of these towns is that a small river flows through Chelmsford and a canal passes through the centre of Sahiwal. However, the major difference is that possibly Chelmsford's river water would be found to be cleaner and suitable for drinking as compared to the contaminated water supplied by the Sahiwal Municipality to its residents. The level of the contamination of water in Sahiwal can be judged from the fact that most of the untreated industrial and residential waste, and some of the sewerage water is directly poured into the canal which is also a source of drinking water for many people. On several occasions the bodies of pets have been seen floating in the canal. It is interesting to note that there are dozens of religious educational institutions in Sahiwal which focus on the spiritual teachings of Islam but practically none of them is seen to acknowledge that the Prophet (p.b.u.h.) said that cleanliness (both physical and spiritual) is "half the faith".³⁹ Although the current state of Sahiwal can partially be justified by the overall poor economic condition of the country, it is not enough to justify that no other measures can be adopted under the present circumstances. Needless to say that this type of environment is an important component of the vicious circle of poverty which in fact is linked with various other components to keep this cycle in rotation. This situation demands that a multi-dimensional strategy, particularly the initiation of religious-based environmental education should be considered as top priority.

Table: 2 A Comparison of the State of Sanitation and Pollution
Between Sahiwal and Chelmsford Towns

Sanitation	Sahiwal	Chelmsford
Total refuse production per person per day (kg.)	0.6	1.3
Number of sanitary workers per 10,000 persons	16.60	2.21
Number of sanitary workers for the collection of one ton of refuse	2.68	0.34
Total sanitary budget per person per year (UK£)	0.52	7.53
Number of persons served by one sanitary vehicle	70,056	7,111
Uncollected refuse (%)	38	Nil
Arrangements for the hygienic disposal of hospital refuse	Absolutely no arrangements	All disposed hygienically

Pollution emitted by the local industry (mg/cubic meter)	3,482	133
Rate of waterborne diseases (%)	29	Nil

Source: Figures are computed from the data acquired from the Government of Pakistan (unpublished) and Chelmsford Borough Council.

Note: (i) The maximum internationally acceptable level of pollution emitted by the industry is 500 mg/cubic meter.
(ii) The incidences of waterborne diseases in Chelmsford town are between 10 to 15 cases per year, which is a negligible figure.

Why the Environment is Decaying in Pakistan

There are several factors, for instance, lack of adequate financial resources, high population pressure on natural resources, the absence of environmental education and lack of awareness among the general masses, mismanagement of limited available resources and a high level of corruption are major causes of environmental degradation in the country.⁴⁰ Due to limited space, only corruption is briefly discussed in this section and education in the next section. It is considered a common practice in the country that many of the government officials responsible for the protection of national forests and ranges take bribery and allow illegal traders to cut down trees mercilessly. In fact, an increase in corruption in any country means a decline in the process of human security and consequently a decline in the process of human development.⁴¹ Unfortunately, in Pakistan there are no effective means to check corruption, nor accountability mechanisms to hold people responsible.⁴² A German-based NGO, Transparency International, publishes an annual "corruption perception index" based on surveys of various international business people's perception of corruption in the countries in which they operate. According to the index of 1996, Pakistan was judged as the second most corrupt country in the world.⁴³ In the view of a Pakistani thinker: "What is the most important reason for our social decay? We would argue that corruption has contributed the most to our current state of affairs."⁴⁴ In 1996, after the dismissal of Benazir Bhutto's government on the basis of corruption charges, it was estimated that in monetary terms, the losses incurred during the last three years by corruption and mismanagement were between 20 to 25 percent of GDP.⁴⁵

As mentioned earlier, the high level of prevailing corruption in the country also reflects the situation of corruption in the process of deforestation. It was estimated that if an official takes a specific amount of bribery and allows a forest tree to be cut illegally, the losses incurred to the community are nearly four thousands (3982) times more than the amount of the bribery.⁴⁶ These losses are more severe in a country like Pakistan where the total forest area is only 4,484,000 ha (5%) for a population of 131 million (per capita forest area 0.034 ha). One of the major limitations

for this meagreness of forest area is that nearly 80 percent of the land is arid or semi-arid which is mainly due to low annual precipitation.⁴⁷ The presence of vegetation in watersheds is thus not only essential to maintain the environment through soil and water conservation but also a necessary prerequisite to perpetuation of productive agriculture through canals in the fertile Indus Basin which is the mainstay of Pakistan's national economy. In the case of Pakistan, the maintenance of vegetation is more important because regeneration of forests is not an easy task in this semi-arid country. It is mainly due to the high level of corruption that forest resources are being depleted at the rate of 0.2 percent per year and the country is facing one of the highest rate of deforestation in the world.⁴⁸ Once again, systematised promotion of religious education can play an important role in curbing corruption and strengthening environmental and human security.

Religion and the Educational System in Pakistan

Early Islamic history reveals that the Prophet's approach to human security was comparable with UNDP's definition of human security. His strategy for income and employment security, health security, environmental security and security from crimes was based on the enormous emphasis on creation of the mass awareness, education and training. He organised a national education system and established its various sub-departments for the teaching of languages, commerce and business administration, industrial education and training, agricultural education and research, physical education and defence and strategic studies. This system was based on four types of classes, i.e., daily, weekly, seasonal and distance learning. These programmes were multi- and inter-disciplinary in nature, where in addition to the teachers and trainers, participants of these courses were used to making presentations and sharing their experiences. This educational system was the first approach of its kind in the history of Arabian peninsula. It must be noted here that in the Prophetic educational system, various aspects of environmental education (e.g., irrigational system, agricultural techniques, plantation, range management, pollution as well as corruption) were important parts of the curricula of agricultural and religious education. This system functioned efficiently, centuries after his death.⁴⁹ In the eighth century, Islam came to South Asia with the Arabs. In the following centuries, the influence of Islam was not only in the far reaching reforms of governmental organisation, but also in the entire social and educational system. Throughout Muslim rule, education and religion were associated very closely, since education is considered obligatory in Islam.⁵⁰ As a result, educational institutions were often grouped around mosques; in many cases, were supported by religious endowments.⁵¹ This educational system was organised in two stages: elementary and higher, known respectively as the *maktabs* and *madrasahs*.⁵²

The establishment of British rule over the South Asian Sub-continent contributed to the decay of this system. The new rulers wanted the education of India to suit their purpose of administration. They trained local men for clerical administrative jobs and encouraged the use of the English

language along with western thoughts.⁵³ The post-independence (1947) educational system can be divided into two sub-systems: mainstream education and *madrasahs*. Both sub-systems run parallel but not complementary to each other. Mainstream education is primarily based on secular and colonial lines while *madrasahs* are purely working on religious grounds. It is beyond any doubt that *madrasahs* play an important role in improving the literacy situation and fulfilling peoples' spiritual needs by the dissemination of religious knowledge. In the words of Nayyar: "In a society that has persistently neglected the education of its children, and where investment of time and labour in schools does not go very far in fulfilling the needs of livelihood, *madrasahs* have rapidly emerged as a parallel, but non-equivalent system of education."⁵⁴ According to a survey conducted by the central government in 1987-88, there were 2,862 *madrasahs* all over the country offering various types of religious education.⁵⁵ Later, in the year 2,000, their number increased to over 40,000. However, out of such a large number only around 4,350 *madrasahs* were registered with the government.⁵⁶ In fact, *madrasahs* are well-organised institutions and generally provide free food, accommodation and books to their students. In some instances, poor students are also provided financial assistance. *Madrasahs* are mainly charities financed by individual donations. A small number of these institutions also receive *Zakāt* and *Ushr*.⁵⁷

The importance of knowledge is fully reflected in various verses of the Qur'ān, e.g., one of its verses reads: "O my God! increase my knowledge."⁵⁸ Here, knowledge incorporates all types of knowledge—religious, linguistics, natural sciences, social sciences, environmental issues and so on. Therefore, the division of educational system in Pakistan into mainstream education and the *madrasahs* is a self-created situation which in reality contradicts the Prophetic approach to education. This situation creates problems in a country which on the one hand claims itself a modern Islamic state⁵⁹ while on the other, two different systems with different objectives are running parallel to each other. The major problem with *madrasah* education is that its emphasis is only on religious teachings where teaching methods and materials of medieval times are used. This approach is inadequate to deal with the modern challenges of the globalised world.⁶⁰ This situation also creates a huge gap between mainstream education and *madrasahs*. In the past, various efforts have been made to bridge this gap. For instance, in 1979 education policy, several steps were proposed to bring these two streams of education together.⁶¹ In 1986, a seminar was organised by a research organisation in Islamabad which suggested radical changes in the curricula of *madrasahs*. Khurshid Ahmad, a famous Muslim intellectual and the head of a research think tank has advocated for Islamising the formal education system by increasing its religious contents. In the above stated seminar, he argued: "The leadership which is merging in all the spheres of life today, and the way in which national policies are being formulated—our religious education has little impact on it. In fact, the curriculum of our religious institutions is totally different from that of the glorious [medieval] period of Islam. At that time, the educational system was compatible to the

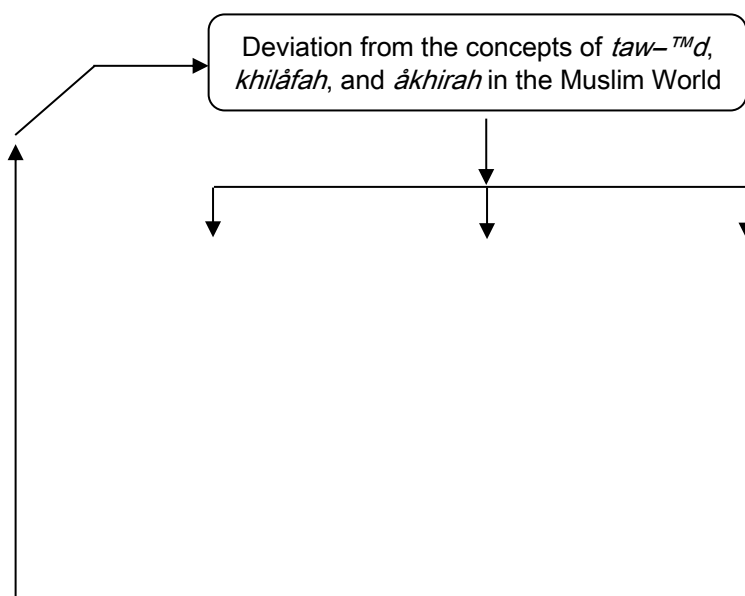
requirement of that age while the opposite is true in this modern age.”⁶² Khurshid Ahmad is correct in the sense that in Pakistan, it is not only the *madrasah* but also the curricula of mainstream education that is irrelevant to the current circumstances of the daily life of the people. It is particularly true in the case of environmental education as this important sector is completely absent in the curricula of *madrasah* and the mainstream education. Throughout the history of Pakistan, neither have sufficient financial resources been allocated nor has due attention been paid to initiate the process of environmental curriculum development.

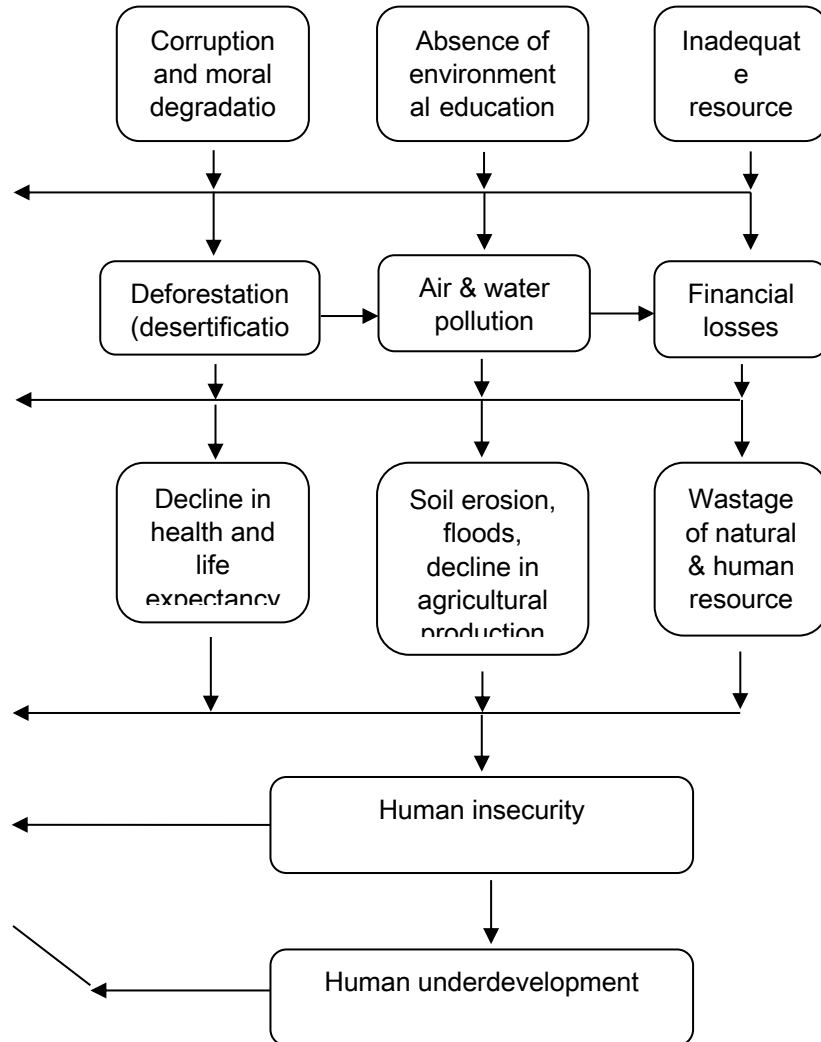
Review and Reflection

The preceding discussion identifies human security as a pre-requisite for human development, and the objective of human security cannot be achieved without achieving the objective of environmental security. In addition to the conceptual approach with regard to human security and its relation with the environment, a case study of the degradation of the environmental situation of Pakistan is presented as an example. The analysis indicates the worsening picture of a country where religion is considered the most civilising force and religious faith is taken as a direction towards righteousness and piety. The discussion raises the question of whether the concepts of *taw-TMd*, *khilāfah*, and *ākhirah* are applied in their true sense with regard to human security and environmental protection. In the Islamic perspective, the negligence of these concepts means the development of a vicious circle of human underdevelopment. Figure 1 indicates how this cycle keeps on rotating. It is considered that in a Muslim culture, the failure to adopt these approaches gives birth to moral degradation and ignorance, which further leads to environmental degradation and human insecurity. While human insecurity is the major cause of human underdevelopment, it is itself caused by the violation of the concepts of *taw-TMd*, *khilāfah*, and *ākhirah*. This is why a Muslim community remains undeveloped socially and economically, which is against the objective of Islam.

What role can Islam play in the promotion of human security through the promotion of environmental security? In Islam, the protection of the environment

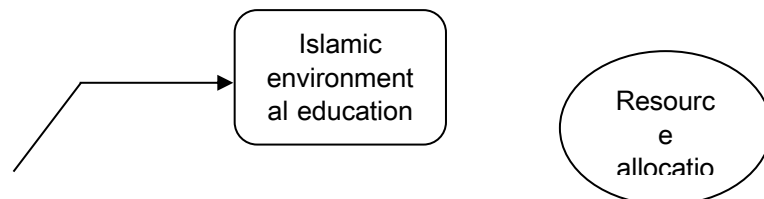
Figure 1 Causes and the Impacts of Environmental Degradation in the Islamic Perspective

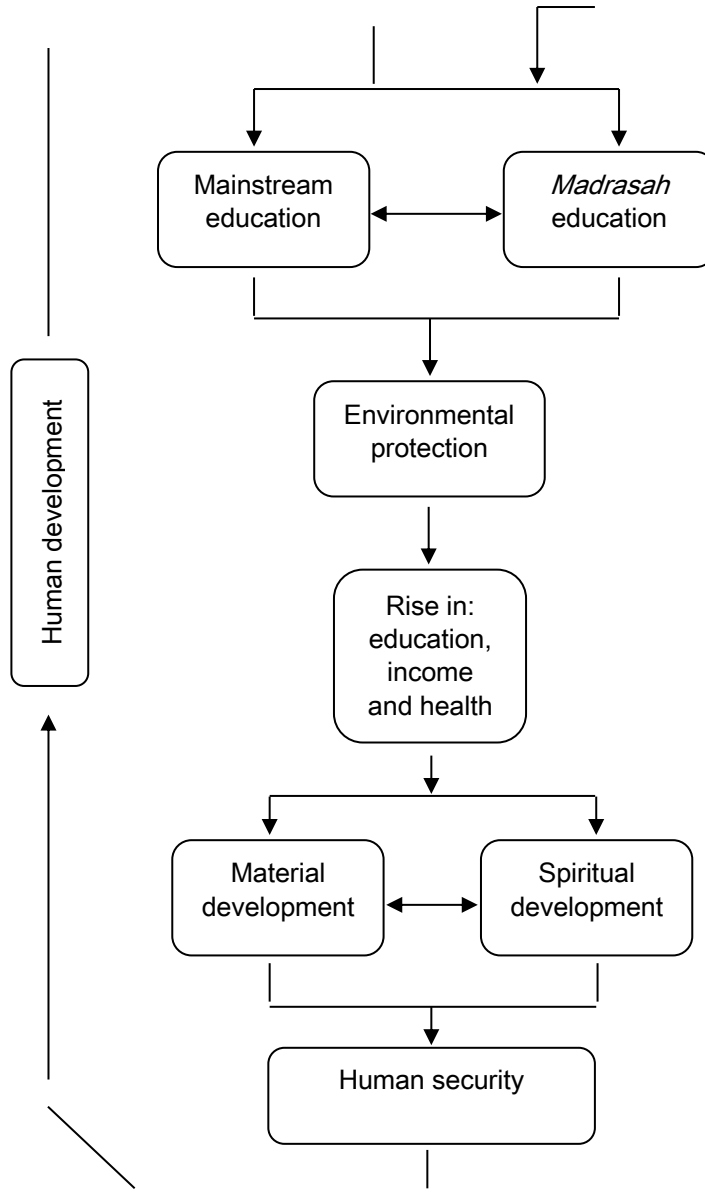




Note: The left direction of arrows indicates that each stage is a deviation from the concepts of *tawhīd*, *khilāfah*, and *ākhirah* in the Muslim World.

Figure: 2. Islamic Educational Approach to Environmental Security





Note: (i) Mainstream education and *madrasah* approaches should be compatible to the nature and requirements of society and capable of dealing with the current challenges of the modern world.
(ii) Material and spiritual development cannot be separated in a Muslim country.
(iii) Islamic environmental education strategy needs to be supported by sufficient financial resource allocation. The creation of a Human Security Fund (HSF) would be more

helpful in promoting and achieving the objectives of this strategy.

is an imperative commandment God. In a Muslim country like Pakistan, this religious aspect of environment is no less important than scientific knowledge and technology related to environmental protection. This situation also highlights the fact that the technology alone is not enough to win the war against the forces destroying the environment. Here the foremost important point is to initiate a systematised process of Islamic environmental education in the Muslim World. An adequate financial resource allocation is essential for this purpose.⁶³ Figure 2 indicates that Islamic environmental education supported through adequate resources or a specially created "human security fund" (HSF),⁶⁴ should be started in mainstream education and *madrasahs*. Both these sub-systems should also coordinate with each other in this regard. This will promote environmental security, physical and spiritual development. These developments will promote human security which will provide a solid base for human development. The human development achieved through this process will be further supportive in the development and strengthening of this educational system. Therefore, various mutually supportive stages in this cycle will strengthen the overall developmental process of a Muslim country.

Notes

1. S. K. Khanzada, "Trees in Combating Industrial Pollution in Environment", in M. Imtiaz Sahhid (Ed.), *Contemporary Affairs*, Lahore: Caravan Enterprises, 1998, p. 154.
2. *Larousse Dictionary of Science and Technology*, New York: Larousse, 1997, p. 378.
3. The World Bank, *World Development Report 1980*, New York: Oxford University Press, 1980, p. 32.
4. UNDP, *Human Development Report 1990*, New York: Oxford University Press, 1990, p. 1.
5. Muhammad Ahsan, "The Twenty-first Century and Human Development in the Muslim World: A Multi-dimensional Approach with Particular Reference to Education", *Muslim Education Quarterly*, Vol. 16-3, 1999, pp. 4-23.
6. The World Bank, *op. cit.*, 1980.
7. UNDP, *op. cit.*, 1990.
8. In addition to these basic factors, some other components are also taken into account to compute the index value for other aspects of human development. The final figures are then arranged in order for comparisons and conclusions to be made.
9. Embassy of Saudi Arabia (Washington), *Understanding Islam and Muslims*, Cambridge: Islamic Text Society, 1989, p. 3.
10. Ghulam Sarwar, *Islam: Belief and Teachings*, London: The Muslim Educational Trust, 1994, pp. 173-80.
11. Yahya Oyewole Imam, "Islamic Health Care Services in the Contemporary World", *The Islamic Quarterly*, Vol. XXXIX-4, London: 1995, pp. 234-44.

12. M. A. Mannan, *Economic Development and Social Peace in Islam*, London: Ta-Ha Publishers Ltd., 1989, 17-18.
13. Niaz Erfan and Zahid A. Valie (Eds.), *Education and the Muslim World: Challenges & Response – Recommendations of the Four World Conferences on Islamic Education*, Leicester: The Islamic Foundation, 1995, pp. 1-3.
14. Abdus Samad, *Iqbal's Concept of State with Special Reference to Emergence of Pakistan*, Niigata-ken, International University of Japan, 1992, p. 335.
15. Khurshid Ahmad, *Studies in Islamic Economics*, Jeddah: International Centre for Research in Islamic Economics, 1976, pp. 3-18, 171-88.
16. UNDP, *Human Development Report 1994*, New York: Oxford University Press, 1994, p. 3.
17. UNDP, *op. cit.*, 1994, p. 22.
18. UNDP, *op. cit.*, 1994, p. 29.
19. Cited in a UNESCO brochure (undated).
20. Muhammad Ahsan, *Contribution of Medieval Muslims in the Fields of Agricultural Research and Development* (Urdu), Rawalpindi: Foundation for Research on International Environment, National Development and Security, 2000, pp. 17-27.
21. *Īlāh Bukhār* and *Muslim*, cited in Muhammad Ahsan, *op. cit.*, 2000, pp. 29-45.
22. Muhammad Ahsan, *op. cit.*
23. Hobson revealed that "one of the most striking manifestations of Islamic agricultural skill was the transformation of the barren valley of pre-Islamic Spain into a paradise of grapes, grain and fruit trees by the introduction of a whole set of plants from the eastern Muslim World, together with appropriate techniques of irrigation and cultivation from the same areas. The gardens of Cordoba flourished under Muslim rule with almost tropical luxuries. By contrast, after the expulsion of the Moors from Spain, the gardens withered away, the fertile valleys grew barren again and so little profit was taken from the rich Andalusian soil that crown-lands of Granada were sold off because simply maintaining them cost more than the Spaniards could make them yield." See: Ismail Hobson, "Principles into Practice: Islamic Tradition", in Harfiyah Abdel Haleem (Ed.), *Islam and the Environment*, London: Ta-Ha Publishers Ltd., 1998, p. 90-02.
24. Muhammad Ahsan, *op. cit.*, 2000, pp. 47-57 & 79-95.
25. Qur'ān, 1:1, 20:6.
26. Abdullah Omar Nasseef, "The Muslim Declaration on Nature", in Harfiyah Abdel Haleem (Ed.), *op. cit.*, 1998, pp. 12-15.
27. Qur'ān, 6:165, 7:180, 17:70.
28. Fazlun Khalid, "Islam, Ecology and the World Order", in Harfiyah Abdel Haleem (Ed.) *op. cit.*, pp. 16-31.
29. In the Islamic history, many of the responsibilities of environmental protection and conservation have come under the jurisdiction of the office of the *-isbah*, a governmental agency which was charged specifically with the establishment of good and eradication of evils. The *mu-tasib*, who headed this office, was required to be a jurist thoroughly familiar with the rulings of Islamic law which pertained to his position. In addition to performing various other duties, he was also responsible for the inspection of markets, roads, buildings, watercourses, sanitation, waste disposal, pollution and treatment to animals.
30. Qur'ān, 30:41.
31. *The Daily Jang*, 22 April 1992.
32. Muhammad Ahsan, "Land Management System of Medieval Muslims", in Jameel Ahmad (Ed.) *Kisht-i-Nao*, Faisalabad: University of Agriculture, 1986, pp. 211-24.

33. UNDP, *Human Development Report 1999*, New York: Oxford University Press, 1999, p. 104.
34. Shahrukh Rafi Khan, *Reforming Pakistan's Political Economy*, Lahore: Vanguard, 1999, p. 198.
35. This discussion is based on the unpublished estimates of the Government of Punjab, Pakistan.
36. Government of Pakistan, *Economic Survey 1999-2000*, Islamabad: Government of Pakistan, 2000, p. 224.
37. *The Daily Jang*, Rawalpindi, 23 January 2001.
38. Around two million.
39. Cited in *Muslim*, one of the six most authentic books on Prophetic teachings.
40. The Prophet (p.b.u.h.) clearly warned that the person involved in corruption and bribery will be punished by God.
41. Social Policy and Development Centre, *Social Development in Pakistan 2000*, Karachi: Oxford University Press, 2000, pp. 131-34.
42. See: (i) United Nations (Department of Technical Cooperation for Development and Centre for Social Development and Humanitarian Affairs), *Corruption in Government: Report of an International Seminar, The Hague, The Netherlands, 11-15 December 1989*, New York: United Nations, 1990. (ii) Alan Diog, "Good Government and Sustainable Anti-Corruption Strategies: A Role for Independent Anti-Corruption Strategies?" *Public Administration and Development*, Vol. 15-2, 1995, pp. 151-65. (iii) Kimberly A. Elliott, "Corruption as a Global Political Problem: Overview and Recommendations", in Kimberly A. Elliot (Ed.), *Corruption and the Global Economy*, Washington, D.C.: Institute for International Economics, 1997. (iv) Michael Johnston, *What Can be done about Entrenched Corruption?*, Washington, D.C.: The World Bank, 1997.
43. Transparency International [<http://www.transparency.org>], April 1998.
44. Akhtar Ali Awan, "The Economics of Corruption", *National Development and Security: Quarterly Journal*, Vol. V-3, February 1997, pp. 87-96.
45. Shahid Javed Burki, *Pakistan: Fifty Years of Nationhood*, Oxford: Westview Press, 1999, p. 174.
46. The Government of Punjab (Pakistan), unpublished estimates.
47. Government of Pakistan, *Pakistan 1999: An Official Handbook on Statistics*, Islamabad: Government of Pakistan, 1999, p. 190.
48. Government of Pakistan, *op. cit.*, 2000, p. 226.
49. See: (i) Muhammad Hameedullah, *State Administration during the Time of Prophet Muhammad*, Karachi: Urdu Academy Sindh, 1981, pp. 195-210. (ii) Muhammad Ahsan, "Population Administration during the Time of Prophet Muhammad", *Ham Loug.*, Vol. 6 (a biannual Urdu Journal), Islamabad: Government of Pakistan, July-December, 1991, pp. 15-17.
50. For the history of Muslim education in South Asia with particular reference to Pakistan, see: Talat Sultan, *Muslim Education and Community Development: An Analytical Case Study of Pakistan*, Makkah Al-Mukarramah: Centre for Research in Islamic Education, 1991.
51. M. Shamsul Haq, *Studies on Compulsory Education: Compulsory Education in Pakistan*, Paris: UNESCO, 1974, p. 16.
52. S.M. Jaffar, *Education in Muslim India (A.D. 1000-1800)*, Peshawar: MS Khan Ltd., 1976, p. 21.
53. L. Khubchandani, "Multilingual Education", in B. Spolski and R.L. Cooper, (Eds.), *Case Studies in Bilingual Education*, Rowley: Newbury House, 1978, p. 23-26.
54. A. H. Nayyar, "Madrasah Education Frozen in Time", in Pervez Hoodbhoy (Ed.), *Education and the State: Fifty Years of Pakistan*, Karachi: Oxford University Press, 1998, p. 215-50.

55. Government of Pakistan, *A Comprehensive Report on Madrassas in Pakistan* (Urdu), Islamabad: Government of Pakistan, 1988, p. 33.
56. Jessica Stern, "Pakistan's Jihad Culture", *Foreign Affairs*, Vol. 79-6, November/December, 2000, pp. 115-126.
57. *Zakāt* and *Ushr* are religious taxes paid by Muslims. In Pakistan, most of the money of these taxes is collected and distributed by the government.
58. Qur'ān, 20:114.
59. Pakistan claims to be an Islamic state. The *National Education Policy 1998-2010* reads that: "Islam is not just a matter of belief. It is a complete code of life wherein science and technology, as well as social and human sciences, economic and cultural activities, in brief, all aspects of life are to be guided and determined by the principles of the holy Qur'ān and *Sunnah*." See: Government of Pakistan, *National Education Policy 1998-2010*, Islamabad: Government of Pakistan, 1998, p. 9
60. *Madrasah* curricula consist of two main branches of learning: revealed knowledge or *ulūm naqliyyah* and the knowledge acquired through intellectual endeavour, i.e., *ulūm 'aqliyyah*. The knowledge of the Qur'ān (e.g., *tajwīd*, *qirā'ah*, *-ifl* and *tafsīr*), *-adīth* (sayings of Prophet Muhammad), *fiqh* (Islamic jurisprudence and its principles), *'ilmul kalām* (philosophy of religion) and *taṣawwuf* (mysticism) are included in *ulūm naqliyyah* while the *na-w* (linguistic sciences), *manṭiq* (logic) and *'ilmul -ayāt*, etc. are the branches of *ulūm 'aqliyyah*. Qur'ān and *-adīth* are the primary sources of knowledge for Muslims and are guiding principles for every age. It is noteworthy that: (i) the problem does not lie with the branches of *ulūm naqliyyah* or *ulūm 'aqliyyah*, rather it is the curriculum which was developed in medieval ages keeping in view the requirements of that time, which was not updated later, (ii) *madrasah* system does not include modern sciences in its curriculum, and thus, (iii) this situation has created a division between mainstream education and religious education. This approach is not compatible with the real philosophy of Islam where there is no such division between religious and secular education as Islam emphasises on the acquisition of all types of knowledge and its utilisation for the benefit of humankind.
61. Government of Pakistan, *National Education Policy and Implementation Programme: 1979*, Islamabad: Government of Pakistan, 1979, pp. 43-47.
62. Quoted in Mufti Intizam Ullah Shahabi, *Fourteen Hundred Years of Islamic Education* (Urdu), Karachi: Maṭba'-i-Sa'īd, 1987, p. 12.
63. Various international financial institutions, particularly the IMF and the World Bank can play an important role in this regard. It is a common practice of these lending institutions that in advancing loans to developing countries, they emphasise on structural adjustment programmes and conditionalities. If they provide enough funds for environmental protection, suggest environment friendly structural adjustment programmes and help recipient countries to allocate more resources for this purpose, sufficient funds can be made available to promote human security through environmental protection.
64. During 1994, the proposal of the establishment of the "human security fund" was also presented by the UNDP. See: UNDP, *op. cit.*, 1994, pp. 8-9.