ROLE OF SCIENCE, FAITH AND ENVIRONMENT FROM IBN AVICENNA (IBN SINA) PERSPECTIVE

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Abstract: Global environmental and ecological balance, monitoring and understanding of nature and universe as sub-spherical units such as atmosphere, lithosphere, hydrosphere and biosphere are explained with human beings and all other creatures at the center of the universe. The preservation of elegant scales and balances put by Allah into the universe in general, and nature in particular are examined from the Islamic faith point of view. The roles of Muslims in general and Mu’min (Believer) and Mohlis (Faithful), in particular, are explained in detail so far as their relationships with natural environmental, other beings and Allah are concerned. Subsequently, thoughts of Islamic scholars and especially Ibn Sina (Avicenna) are presented on a broad perspective. Finally, conclusions, recommendations and some possible further research needs are mentioned for the preservation and balanced exploitation of the natural resources without harming the harmony implemented by Allah in the ecological system.

Key words: environment, faith, Allah, human, religion, science, world

1. INTRODUCTION

Human beings, animals and plants are dependent on some gases, water, nutrients and solids that are available in nature rather abundantly but in fine balance and measures and almost freely for their survival. Among these essential commodities, the most precious ones are the air in the atmosphere that living organisms breathe and the water that is available in the form of hydrosphere. The atmosphere has evolved over geological time, and the continuation of life on earth is closely related to the composition of the atmosphere, hydrosphere and lithosphere. From the geological records it seems that about 1.5 billion years ago free oxygen first appeared in the atmosphere in appreciable quantities, (Harvey, 1982). The appearance of life was very dependent on the availability of oxygen but once sufficient amount was accumulated for green plants to develop, then photosynthesis was able to liberate more into the atmosphere. Unfortunately, during the last century these basic precious commodities for the survival of all creatures are polluted unilaterally by human beings only initially unconsciously at the cost of other creatures and nature but recently for themselves also.

Although pollutants may originate from natural or man-made activities, the term pollution is often restricted to considerations of air and water quality as modified by human actions, particularly when pollutants are emitted from industrial, urban, commercial and nucleated areas at rates in excess of the natural diluting and self-purifying processes prevailing in the lower atmosphere. Pollution seems as a local problem with three distinctive geographical factors. First of all, the wealth of human beings defines the distribution of housing, industry, commercial centers and motor vehicle transportation between these centers. Such a system forms the major source of man-made pollution. The second agent that plays a significant role in the formation of pollution is a natural phenomenon in the atmosphere and hydrosphere which controls the local and temporal climatic weather and quality variations as a result of which the pollutants introduced into
these spheres are either scattered in various directions or carried away by currents. The interaction between the pollution emissions and the spheres may well be modified by local relief factors. Finally, atmosphere, hydrosphere and lithosphere were created in harmonious balance and measures for the sustenance of biosphere where the living creatures survival. Hence, the equilibrium between these spheres and their harmony with the human beings in the center constitutes the environment and ecology.

Unfortunately, unlimited and uncontrolled technological developments affect the environment leading to various human health problems and spherical pollution. Accordingly, measures should be taken for reducing risks concerning environmental pollution and possible ecological imbalances. The various spheres and their interactions for human survival on the earth are shown in Figure 1. All these spheres and interactions are created by Allah in balance and proportional measurements in harmonious manners which are exposed to human for reflection, finding paths to reach Allah and for worldly scientific studies.

Even though the natural circulation within and among the spheres provides scavenging effects, continuous and long term loading of atmosphere, hydrosphere and lithosphere have already given signals for undesirable and dangerous expectations in the future which might increase, if the necessary precautions are not taken. For this purpose, more research activities are necessary in order to appreciate the natural events in the atmosphere; ozone depletion in the stratosphere; pollution in the lower troposphere and transboundary between the troposphere and hydro-lithosphere; energy, transport and industrial pollutants generation and their movement; effects of acid rain; waste water leakage into the surface, and especially ground water resources. It seems that success in these areas necessitates, at first glance, sound scientific basic research and its proper applications. To this end more extensive climatically, meteorological, hydrological and hydrogeological observation networks should be established for spatial and temporal monitoring of the uncontrollable variables. There should be ever greater cooperation in detecting and predicting atmospheric changes, and assessing consequential environmental and socioeconomic impacts, identifying dangerous pollution levels and greenhouse gases. It should be emphasized at this stage that from scientific and technological points of view, almost every effort has been done for keeping ecological balance and stopping environment degradation. A major question is whether the scientific approaches in their inhuman consequences towards environment with the lack of moral and faith are enough to restore the balance for sustainable ecology and clean environment?

The emphasis in this paper is given on the nonscientific aspects of human behaviors which are among the most necessary ingredients for cleaner and friendly environment and sustainable ecological balance in the long run. Human faith, moral and behaviors furnish, perhaps, the basic requirements for sustainable environment and ecology. In the following sections these requirements will be explained from the Islamic standards point of view, in general, and Muslim scholars especially Avicenna’s (Ibn Sina’s) perspective in particular.
2. HUMAN BEHAVIOR

Origin of men in the earth took place about two million years ago. Human as a creature is under the continuous influences of internal and external motivations through worldly social life and these motivations mold his/her life with alternative happiness and depression sequences depending on time and circumstances. In general, as a part of this universe, human is integrated into spatial and temporal operations and changes in the forms of improvements or deteriorations that appear in the process of flowing material and spiritual media. In order to examine his/her integration with these motivations, it is illuminating to separate the external part as the external environment which consists of material, extraterrestrial and terrestrial types in addition to the internal environment of spiritual existence and reflection. It is possible to divide further the terrestrial environment into various sub-environments as the socio-environment concerning relationships among individuals, institutions, foundations, government and state in general; bio-environment that concentrates on the human interaction with other creatures and plant life; geo-environment concerning the lithosphere and land-scape and all types of natural sources that are at the service of creatures at their habitat on the earth; hydro-environment with water resources, their occurrence, distribution and continuous movement in the universe and especially in the lower layers of the atmosphere.

Since the creation, in the early periods of human existence on earth, all these environments had impacts on daily human life and survival but as the time passed away with the wisdom and intellectual ability granted to human beings by Allah, they started to obtain their fundamental needs such as food, shelter and clothing by exploiting natural sources in the nearby environments at reasonable rates. These, initial requirements were all very innocent because they were basic essentials for survival. Although at micro scales the destruction of the environment was started but it took many centuries even millions of years for the human beings to realize destruction of their nearby environment by killing many animals; polluting the air and water sources especially after the invent of fire and its extensive use; through wars inflicting losses on human wealth; forest devastations and many others. At the beginning, human as a warrior against nature unconsciously and unconsciously continued the destruction at times seemingly for useful activities, but later on especially, the scales and extents of environmental destruction were at an unprecedented level alarming each country to ponder about the possible increasing trends towards future and their irreversible damages. Recently, human beings realized that exploitation of nature at the present rate threatens their very existence on the earth. Therefore, many national and international scientific, social, political, and NGOs started to function at full ranges and scales for environmental and ecological protection all over the world.

Unfortunately, materialistic deteriorations in the nearby atmo-, hydro-, bio- and geo-environments coupled with extravagance and luxurious standards of life gave ways to additional comfortability provided by the unprecedented technological developments abasing respects and regards in the traditional, social, religious and cultural lives. Consequently, demoralization in the society in addition to hollow ambitions and feelings without beneficial purposes started to flourish everywhere beyond limits. Parallel to this materialistic destruction in the environment, moral and ethical values also deteriorated with positivistic scientific evaluations void of faith. In the meantime, social ethical illnesses spread out in the society at the expense of innocent, sincere faiths and beliefs which are undeniable elements towards better standards of life. At times human beings found themselves at the amidst of chaos and irreversible social, economic and especially environmental unrest and deteriorations. Of course, later it is understood that even the most advanced scientific techniques and technologies are insufficient to restore the genuine original aspects of the environment as they used to be naturally in the past. Furthermore, a new concept as “natural conservation without technological restoration and aid” started to spread within the social, scientific and administrational circles.

From the beginning of the scientific thought, human beings are integrated with nature both as subject and object ends so as to harmonize their mutual consciousness. Similar to one of the Turkish sayings as “healthy mind exists in a fit body” we can infer that “emotionally and socially comfortable human beings exist in a healthy environment”. This is tantamount to saying that as the environment is rendered into an unhealthy surrounding with pollution in its genuine properties so will the human beings be affected from these pollutions and they will tend to lose their ambition, eagerness and finally thrust in the scientific and technological achievements for preservation of the ecological life and environment. Besides, recent scientific findings regard the human being not as a distinct part of nature but a part of
nature actually active in its change especially related to environmental issues. Hence, social, cultural, moral and faith affairs should be considered as prerequisites in an effective environment and ecological sustenance and control.

Educators, engineers, planners, designers, administrators and managers must consider in their nature interactive designs not only materialistic but equally human internal, spiritual, moral, ethical and social ingredients. This is the only way to minimize the side or after effects that might lead to social and physiological instabilities as well as degradations in the ecology and environment.

Moreover, in developing countries and transitional societies from the rural to urban areas, the town planning might not conform with human settlement standards so far as the infra and super structures are concerned and furthermore the children cannot find proper play grounds for the development of their mental abilities. In fact, in underdeveloped suburban areas, youngsters and old generation cannot feel that they are within natural environment for mutual interactions, but all they can see are the blue sky only at episodes of nonpolluting during day time and in the night, stars which are only a small fraction of the whole nature. Therefore, in big metropolitan areas at times of holiday there are big migrations to resort areas where individuals feel themselves in natural environment and then apart from the television screen actually they feel and inhale the gifts available in the nature by Allah and subsequently contemplate upon metaphysical and cosmic environments of which they might not have stimulus in their dwelling places. As a result of unprecedented technological and scientific advancements, especially those who live in big mega poles become seekers for natural environments and within their internal worlds they start to question the pollution of water, noise, air, ethics, atmosphere and even the mutual relationships. Only then one can realize that the scientific and technological achievements are not the magical solution keys for every and each human problem. Although materialistic advancements are thrusted by the scientific and technological efforts but spiritual, ethical, social, cultural and peace environments are not affected by these advancements and they need faith first in Allah and then in His creatures including nature and universe as a whole. Consequently, a rightly question about what are the vehicles of immaterialist stability and hence salvation? will have answers outside the scientific scope and technology whereby the faith, religion and ethical codes come into view. After all the corruptions ignited by the materialistic well-being and improvement, recently all over the world, there are visible shifts towards religious affairs more than ever and the main reason for this is the environmental and ecological deteriorations.

In the past, human beings had many emotional and intuitive feelings from natural environmental qualities such as quietness, greenery, forestry, mountain harmony, mind igniting natural scenarios, etc. Many poets, philosophers and scientists alike preferred to go far away from the society where there were pollutions of many kinds including human friction and some of them isolated themselves from such environments and gave all their materialistic and spiritual existence into natural environments at remote points from mega-pols and reached to their trace-leaving reflection outputs at these locations. For instance, Newton had an opportunity due to social unrest to be away for two years from the university in his hometown where natural environment led him to ponder without any side effects genuinely and consequently he set forward the basic mechanistic laws of nature. On the other hand, Iman Al-Ghazali had to isolate himself from the corrupted society not because of materialistic environmental destructions such as air, water or any other pollution but because of the social environmental unrest and gave himself to a natural environment and he then came out with philosophical ideas which even influenced Albertus Magnus, Roger Bacon, Rene Descartes, Immanuel Kant and many other thinkers and philosophers in the western world.

3. HUMAN FAITH

Unfortunately, environmental deterioration including the pollution sources of any kind had impacts on many cultural and social lives of many nations and due to such a situation even poets and real artists do not emerge as they used to be in the past. This is to a certain extent as a result of environmental destruction which brings to one’s mind the question of “is the environmental degradation reversible or not?” In fact, technological advancements especially after the industrial revolution at the turn to the eighteenth century, started to throw all the wastages and pollutants into unprotected natural environments in an inconsiderable manner and consequently an unexpected pollution started many environmental issues including short and long distances in addition to short and long term periods. Now again, similar scientific and technological achievements are expected to provide remedial solutions in order to reverse the environmental and ecological pollution. However, so far it is understood that this is not an effective way because once something is polluted or altered
from its original or natural form, then it is not possible to revert the process to reach the original standards as gifted by Allah in the first place. Therefore, recently supportive aids are sought from ethical and religious foundations to protect the nature. The greatest support is expected from the great religions of the world including Islam and they have been interactive with each other on the Asian, Africa and European continents for many centuries. Consequently, the issues of tolerance, mutual understanding and cooperation between various religions, covering different cultures, are becoming daily topics in an increasing rate recently.

It must not be forgotten that majority of the environmental and ecological degradation originate from the internal and inert ambitions of the human beings. Especially, their desire to have higher standards of life; economically to earn more; to become more dominant on nature, environments and their subunits such as ecologies of many types; and, to open the ways of luxurious, extravagant and wasteful life styles more than ever. Today, the amount of bread thrown out in advanced societies is enough for starving societies in some parts of Africa and Asia. In fact, there is a direct relationship between the increase of wastage and pollution production with the well-being increment of the society. On the other hand, such ambitious feelings and desires trigger the production because the more the production the more the wastage without recycling. In this manner, there appears a vicious circle whereby the more production leads to more exploitation without recycling but wastage and the more the wastage the more the production. It is not a steady vicious circle but inflates and enlarges with time which implies spatially the coverage of more landscapes and hence destruction of the ecological and environmental facilities. Not only has this, but also in such an enlarging vicious circle, the population becomes more eager to exploit more than actual basic needs. Added to this, also the world population is increasing and finally, there are many factors that cause the enlargement of this vicious circle. There remains the question of how to break the expansion of such a vicious circle at least to control at a rate that the natural environment and ecological facilities can cope with this enlargement? One of the key answers to this question is the human faith and ethical behaviors along with firm beliefs.

4. ENVIRONMENTAL FACTORS AND HUMAN

The term "environmental refugees" is becoming recognized officially in many parts of the world. United Nations Environmental Protection unit defined environmental refugees as "people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption - either natural or human induced - that jeopardized their existence and/or seriously affected their quality of life" (El-Hinnawi, 1985). Continuous and accumulated environmental degradations in many forms such as soil erosion, air and water pollution, stratospheric layer pollution, deforestation, desertification, water shortages and pollution, etc., are widely spread and often associated with both population growth and migration. The environmental degradation impacts are enormous and mediated through social, economic and political structures. Population movements take place due to either environmental factors such as the climate change, desertification and extreme natural disasters on the one hand, and due to social, political and economic causes on the other. For instance, the climate change might cause human migration because of the (i) diminishing agricultural productivity; (ii) sea level rise subjected coastal areas; (iii) droughts, wind storms and floods; (iv) exacerbation of environmental problems including resource depletion, thereby increasing future conflict factors.

So far environmental problems are caused by the industrial, technological and scientific developments which are all regarded as the improvement indicators of a society but their consequent undesirable effects are on the social events down to the physiological existence of human individuals. The consequences are not on the materialistic world only but rather on the spiritual and metaphysical worlds. These, so to speak, metaphysical pollutions cannot be alleviated by materialistic scientific remedies. Their cements require ethical, emotional, spiritual and physiological prescriptions that would involve trust, believe and on the top of all these, the faith. These principles pave the ways into the human nature of exploring what are the means to convince each individual from preventing various types of environmental and ecological pollutions that lead to natural imbalances. Then the role of religious principles and codes even though they might be regarded as dogmas are necessary prerequisites to reduce wastage, social inter-support between different cultures, societies, communities, groups and individuals. There are others affairs directly concerning the ecological protection and preservation of natural life on the earth. For instance, everybody may cheat others and steal, but the majority of the world populations are refrained from these affairs
because they are abiding with religious or at least social ethical codes. However, at the very basis of these ethical behaviors, there are traces of religious and theological principles. In the world as a whole although it is known that alcohol drinking is dangerous to society and harmful to health except for some medical cures there is extra alcohol consumption in many parts of the world. However, according to Islam alcohol drinking is forbidden and consequently in Muslim countries the consumption is rather relatively less than many other countries.

The prophet Mohammad (p.b.u.h.) urges useful scientific activities for the humanity. If the scientific achievements are sought for the happiness of the humanity one should then refrain himself to advance techniques that are harmful for the other individuals directly or to his surrounding indirectly including ecological balance and environmental order.

5. ISLAMIC FAITH AND ENVIRONMENT

Even scientific developments have indicated human as a part of the nature not only materialistically but with all his consciousness. This consciousness is the root for all human being deeds during their intercourses with other creatures, nature, universe and Allah. Whoever is faithful will hesitate to give any sort of harm to the environment, in general, and to other creatures in particular for the sake of Allah. According to Islamic way of life, each individual belongs at times to one of the three stages of consciousness (see Figure 2). The very lowest level is to surround to any system of religious guidance so as to regard oneself as a member of that community.

Those who belong to Islam should admit as the minimal prerequisite that “there is no Allah but Allah (Allah) and Prophet Mohammad (p.b.u.h.) is His messenger”. Whoever admits this parlance is a Muslim. In fact, the etymological and epistemological meanings of the very word “Muslim” comes from Arabic and its English equivalent is “the one who submits himself to Allah”. It is necessary but not a sufficient title of becoming a good Muslim because this very original requirement might not convey a strong tie with the Creator, natural environment or other individuals whatever their believes are. As Husaini (1980) says, Islam means a state of health or of nature. In fact, Muslim submits himself or he enters into peace. Islam is the primordial state of health or nature in which Allah created man and the universe. The whole realm of nature is a revelation of the will of Allah. The divine will is manifest in the creation of heavens and earth, the alternation of day and night, and in the variety of flora and fauna or in the hydrodynamic law which governs the interface between fresh and salt waters, and keeps them apart (Husaini, 1980). This submission may be based on intelligence without belief from the heart with approval. When one talks about the number of Muslims in a society it is possible to give percentages. Existence of Muslims in a society is a prerequisite for an Islamic community but not yet sufficient enough for common interest of humanity. Hence, being a Muslim is just enough to have tides with Allah as his servants. What about his duties towards other creatures animate or inanimate.

Still a better stage in the Islamic consciousness is obtained by admitting and then approving by very heart Allah’s angels, books (Tevrah and Bible in their original form and Qur’an); prophets (including Adam, Moses, Jesus and Mohammad, p.b.u.t.); the day of judgment and all the good and bad deeds from Allah. If these imprints exist in one’s heart then he is said to be Believer (Mu’min) in addition to being a good Muslim. In any society the number of Mu’mins is less than Muslims and it is not possible to talk about the percentages of Mu’mins as it can be done quite easily for Muslims. If one arrives at the stage of Mu’min then he/she is not only connected
with Allah but also with all His other dependents. This stage also teaches one the purpose of his/her existence in this world and what their duties towards other creatures including the nature are. This second stage brings one closer to the Creator with more responsibilities towards other individuals and the environment of any kind for the betterment and preservation of intact order in the nature.

However, there is still a final stage which is the best of all and anyone who reaches this stage has the full faithfulness. The person belonging to this stage is referred to as Mohlis. This stage in Islam is the stage of sincerity who is so faithful, sincere and unadulterated that he/she thinks as well as feels in every deed the existence of Allah either as he/she sees Him or if he/she cannot see Him, then he/she thinks that Allah sees him/her everywhere continuously. If one arrives at the stage of Mohlis, then he/she will carry out each and every deed according to the betterment of the society, nature and cosmos always. In such a stage one is not able to violate the divine orders and he/she contemplates that he/she is a part of the nature and cosmos, in general, and any harm or damage on them will in turn mean harm for the humanity. Such integrity with cosmos will give him/her extra pleasure and he/she will not run after the sole personal materialistic benefits in extravagant scales. This stage will refrain him from unprecedented extravagance, luxuriate and wastage which are the sicknesses of the modern societies. Unfortunately, science is not by itself sufficient for the control of these humanly qualities, and therefore, faith is a must in any natural, human, societal and behavioral conduction. There comes the role of religions not at the level of just being a member but actually and actively one of the living organisms with faith inscriptions as a human being. Not only the optimum but very perfect and complete preservation of natural order is possible with this sort of cosmic consciousness with a sincere faith as a Mohlis coupled with science and technology.

6. ISLAM AND ENVIRONMENTAL ISSUES

In short, Islam does not have static status for believers but it is a dynamic faith process active in every aspects of the life. Hence, a Muslim should have continuously progressive development in order to become a better and perfect Muslim by trying to bring his/her-self wills in accord with Allah’s wills. This is the main reason as explained in Figure 2 why there is various status of Islamic self-progress until one reaches the state of Mohlis. Although etymologically the word “Islam” means “submission to Allah” in order for anyone to gain eternal life through intercourse in this world with its epistemological implications penetrating into every aspects of human and societal activities. Similar to religions of Books (Judaism and Christianity), Islam has faith affairs, ritual practices, and duly mutual interactions with other creatures and nature which is means similar to planting seeds in agriculture but the fruits and every benefit from such plantations are expected not in this world but in the hereafter as rewards from Allah. So the expectations in the long run are from Allah and these expectations, mutual consultations in addition to deeds are not for the sake of humans only but overwhelmingly for the sake of Allah. Although these are the different parts of Islamic faith but the saying of Prophet Mohammad (p.b.u.h.) as “Indeed, Islam is mutual treatment and intercourse” covers all the human deeds under an Islamic umbrella. The treatments should be based on tenderness, mutual understanding, tolerance, agreement, good feelings and deeds about other creatures, cultures, religions, beliefs and nature.

On one hand scientific and technological developments and advancements will provide extraordinary means for the exploitation of the material existing in nature but on the other hand, the faith affairs stop these achievements from transgressing the measures and balance as they are set there by Allah. This exposes the utmost significance of faith for the integration in this worldly life with nature and other creatures and the more the human beings are integrated into such a belief system the more will be the public pleasure and global dialogues, tolerances, mutual understandings leading towards global fraternity with preserved environments and ecology. This mutual understanding and consequent corporation are the main ingredients in Islam by recognizing others’ faith in a manner that is stated in the Holy Qur’an as

“To you be your way,
And to me mine” (Sura Kafirun, 6)

This verse implies that one having been given the Truth cannot come to others false ways and he, having his vested interests, will not give them up. One has no right to ask somebody to abandon the Truth. The Truth must prevail in the end. This is the altitude of Faith then but it is true for all time.
There are many verses in Qur’an where Allah has indicated that many living creatures and natural elements have holiness and their own virtues. Hence, a sincere believer, i.e., Mohlis, with faith approval in the heart will try and conduct his/her behaviors and treatments with these features so as not to harm them to the extent that they cannot renew themselves naturally. Among these verses are

“The seven heavens and the earth, And all beings therein, Declare His glory: There is not a thing But celebrates His praise; And yet ye understand not How they declare His glory ! Verily He is Oft-Forbearing, Most Forgiving !” (Sura Isra 44)

All creatures, animate or inanimate, are signs of Allah’s praise and they all celebrate His glory. Hence, all nature bears witness to His power, wisdom and goodness. However, some deny faith and the whole trend of nature because they have limited choice and free will. Although many creatures understand each other with joy and pride the disbelievers does not want to understand. In a way they degrade not only themselves but also the nature near environment and ecological balance for their own interests.

“And the herbs and the trees - Both (alike) bow in adoration”. (Sura Rahman 6)

This sure declares that all nature adores Allah. In this respect any harm to the herbs or trees indirectly is an unwanted deal because it is harmful to the creatures of Allah.

“Seest thou not that To Allah (Allah) bow down in worship All things that are In the heavens and on earth, - The sun, the moon, the stars; The hills, the trees, the animals; And a great number among Mankind ? But a great number Are (also) such as are Fit for Punishment : and such As Allah shall disgrace, - None can raise to honor : For Allah carries out All that He wills”. (Sura Hajj 18)

All animate and inanimate created things are dependent on Allah for their existence and in order to show their dependence they bow down in worship. In fact, their very existence proclaims their dependence on Allah. So how could a Mohlis give damage to these creatures with scientific and technological developments? In fact, these developments should be controlled such that their consequences do not harm all what are created in the nature and universe.

“And to Allah doth obeisance All that is in the heavens And on earth, whether Moving (living) creatures
Or the angels : for none
Are arrogant (before their Lord)". (Sura Nahl 49)

In this verse, moving creatures are used in the sense of living creatures and in the heavens and on earth covers every created thing. In the verse, there are three types of created features these are inanimate things, ordinary living things and the angels. Even the highest angels are not arrogant and they bow down and obey their Lord as all the creatures.

“Seest thou not that it is
Allah whose praises all beings
In the heavens and on earth
Do celebrate, and the birds
(Of the air) with wings
Outspread ? Each one knows
Its own (mode of) prayer
And praise. And Allah
Knows well all that they do”. (Sura Nur 41)

“Whatever is in
The heavens and on earth, -
Let it declare
The praises and glory of Allah :
For He is the exalted
In might, the wise.” (Sura Hadid 1)

The literal meaning of “Hadid” which is the name of this sura is “Iron” in English. So iron represents the strength and reliability which should be implemented in all real virtues such as real humility, whole-heartiness and charity as opposed to monasticism, load and niggardliness.

“Whatever beings there are
In the heavens and on earth
Do aprostrate themselves to Allah
(Acknowledging subjection), - with good-will
Or in spite of themselves :
So do their shadows
In the morning and evening.” (Sura Ra’d 15)

They obey the wish of Allah whether they wish or not. They would like to get away from the influence of Satan and the spirits of evil and not destroy the existence created by Allah.

“Whatever is
In the heavens and
On earth, let it declare
The praises and glory
Of Allah : for He is
The exalted in might,
The wise.” (Sura Hashr 1, Sura Saff 1, Sura Jumu’a 1)

Besides there are scales, measures and equilibrium properties which are engraved in the natural events by Allah and if these limits are approached or transgressed then there are many dangers not only for the human kind but for all the living creatures. Within these limits the natural events can renew themselves but if the balance is not cared for then the natural events may take other directions of either
losing renewability property completely or renew itself after many years. For instance, carbon dioxide, oxygen and nitrate cycles are basic ingredients for sustaining environmental balance in the lower atmosphere which is the most essential sphere for living creatures.

In pollutant intact atmosphere naturally available gases, namely, nitrogen, oxygen and carbon dioxide are replenished through many-year duration cycles due to the natural phenomena that take place between various spheres in a balanced manner (McAlester, 1973). Figure 3 shows the interaction between the atmosphere, biosphere, lithosphere and hydrosphere for nitrogen cycle that is the main agent in the atmosphere and it completes its renewal process about once every 100 million years. Nitrogen is the dominant element in the lower atmosphere but is among rarer elements both in the hydrosphere and lithosphere. It is a major constituent not only of the atmosphere, but also the animals and plants of the living world or it is a principal element in proteins, the basic structural compounds of all living organisms. Certain microscopic bacteria converts the tremendous nitrogen supply of the atmospheric nitrogen into water soluble nitrate atom groups which can then be used by plants and animals for the protein manufacturing. The nitrogen reenters the atmosphere as dead animals and plants are decomposed by other nitrogen-releasing bacteria.

Figure 3 Natural Nitrogen Cycle

The second next major constituent of the lower atmosphere is oxygen which is the most abundant element in the hydrosphere and lithosphere. Most of the uncombined gaseous oxygen of the atmosphere is neither the hydrosphere nor the lithosphere but photosynthesis by green plants. In the photosynthesis process sunlight breaks down water into hydrogen and oxygen. The free oxygen is utilized by animals as an energy source being ultimately released into the atmosphere combined with carbon as carbon dioxide which is taken up by plants to begin the cycle as shown in Figure 4. Such a cycle recycles the whole oxygen available in the atmosphere in only
3000 years. Thus the free oxygen like nitrogen is closely interrelated with the life processes of organisms. Hence, any unbalance in their concentrations will end up with harmful effects on animate existence.

Figure 4 Natural Oxygen Cycle

Although carbon dioxide is the minor constituent of the lower atmosphere, it plays a fundamental role in the atmospheric heat balance like ozone within the stratosphere, and is a major controlling factor in the earth's patterns of weather and climate. The carbon dioxide cycle is shown schematically in Figure 5. Green plants directly use atmospheric carbon dioxide to synthesize more complex carbon compounds which, in turn, are the basic food for animals and non-green plants. The carbon is ultimately returned into the atmosphere as a waste product of animal and plant respiration or decomposition just as free oxygen is contributed by green plant photosynthesis. The cycling of carbon dioxide through living organisms is only 35 years for the relatively small quantity in the atmosphere to pass once through this cycle.
Almost 70% of the earth’s surface is covered by water bodies which are referred to collectively hydrosphere. Although there are not extensive human activity in the hydrosphere itself the intensive activities on lands threatens biological richness of oceans and especially in the beginning the coastal areas along which about 60% of the world population live. Although legislative measures are taken but their applications cannot be achieved due to lacks in reliable data, planning, management, international coordination, technology transfer and inadequate funds. The hydrosphere is polluted by sewage, agricultural chemicals, litter, plastics, radioactive substances, fertilizers, oil spills and hydrocarbons. Land born pollution gets into the major hydrosphere through rivers and atmosphere. The hydrosphere is vulnerable to climate and atmospheric change including ozone depletion.

Foreign materials that man releases into the atmosphere at least temporarily and locally change its composition. The most significant man-made atmospheric additions (carbon monoxide, sulfur oxides, hydrocarbons and liquid and solid particles) are gases and aerosol particles that are toxic to animal and plant life when concentrated by local weather conditions such as inversion layer development, orographic boundaries and low pressure areas. The principal pollution sources of toxic materials are automotive exhausts and sulfur-rich coal and petroleum burned for power and heating. Fortunately, most toxic pollutants are rather quickly removed from the atmosphere by natural weather processes depending on the meteorological conditions they do not have long-term effects. As a result of burning coal and oil as fuel, the level of carbon dioxide has risen significantly in the last 100 years. Since carbon dioxide has one of the large gas molecules that traps long-wave radiation to warm the lower atmosphere by the so called ‘greenhouse effect’ atmospheric scientists and meteorologists alike suggested that increase in the carbon dioxide might be causing a general warming of the earth’s climates. Recent studies have indicated that carbon dioxide-climate change does not yet pose a serious threat to the balance of atmospheric processes. However, worries about carbon dioxide effect on the climate gave rise to further detailed studies and investigations to focus attention on the complex interactions between man’s activities and the atmosphere that surrounds them and thus may prevent still more serious problems from arising in the future.

The Qur’anic verses concerning the natural balance of the constituents are as follows

“Verily, all things
Have We created
In proportion and measure.” (Sura Qamar 49)

Allah did not create features in the universe haphazardly without harmony and balance. In fact, everything occurs by law, proportion and measure. These are the basic concepts in any scientific philosophy which should be cared for any time.

“And the earth We have spread out
(Like a carpet); set thereon
Mountains firm and immovable;
And produced therein all kinds
Of things in due balance.” (Sura Hijr 19)

The main meanings in this verse are that order, beauty and harmony are shown in all Allah’s creation. Allah cares for man in such a harmony and His goodness is shown in the creations of the earth. The earth is spread out like a carpet on which the hills act as weights to keep it steady. It is also stressed in the verse that everything is produced on the earth in balance and measure. The minerals in the lithosphere support the vegetables in the biosphere and they in turn support the animals and there is a mutual linkage between these spheres. Excesses are eliminated so as to keep balance and measure. In such a linkage the waste of one implies the necessity for the other in an infinite chain of gradation and their inter-dependence. However, this gradation must not be converted to degradation for the selfish benefits of human beings by science and technology without boundaries.

“And there is not a thing
But its (sources and) treasures
(Inexhaustible) are with Us;
But We only send down
Thereof in due and ascertainable measures.” (Sura Hijr 21)

Treasures in this verse means store-houses and places where valuable things are accumulated from which supplies are distributed in the time of need arises. According to this verse, all the wonderful gifts and forces and energies that are around us in this world have their sources with Allah who is the Creator and Sustainer of the Worlds. We can perceive only a small portion of what exists. The sources are strictly limited according to Allah’s plan and rule. However, the sources of Allah are unlimited and inexhaustible.

“And the Firmament has He
Raised high, and He has set up
The balance (of Justice).
In order that ye may
Not transgress (due) balance.
So establish weight with justice
And fall not short
In the balance.” (Sura Rahman 7-9)

The balance of justice in this verse means that men may act justly to each other and observe due balance in all their actions following the golden mean and not transgressing due bounds in anything including rights of other creatures, nature and universe. A man should be honest and straight in every daily matter and in all the highest dealings, not only with the other people, but with himself and in his obedience to Allah’s law. Avoidance of both excess and defect in conduct keeps human world balanced just as the heavenly world is kept balanced by mathematical order.

“Mischief has appeared
On land and sea because
Of (the meed) that the hands
Of men have earned,
That (Allah) may give them
A taste of some of their
Deeds: in order that they
May turn back (from Evil)." (Sura Rum 41)

All creatures of Allah are good and clear in themselves. The consequences of Evil must be evil and this should be shown in such a partial punishment as "the hands of men have earned", so that it may be a warning for the future and an invitation to enter the door of repentance.

The evil introduced by the possession of a limited free-will should be eliminated by the education and purification of man’s own will.

One of the main sources of scientific extravagance is that human spend more than what is needed for the time being and therefore the rights of even the future generations are being exploited due to the missing of saving principles but continual existence of wastage. The Qur'anic verses about the control of such an approach are as follows

“O children of Adam !
  Wear your beautiful apparel
  At every time and place
  Of prayer : eat and drink :
  But waste not by excess,
  For Allah Loveth not the wasters.” (Sura A’raf 31)

In this verse there is the caution against excessive manners and people should not use existing resources extravagantly without limits.

“Verily spendthrifts are brothers
  Of the Evil Ones ;
  And the Evil One
  Is to his Lord (Himself)
  Ungrateful.” (Sura Isra 27)

This verse means that those who misuse or squander Allah’s gifts are also ungrateful to Allah.

The natural resources must be exploited gratefully to Allah in a needed scale.

“He may say (boastfully) :
  Wealth have I squandered
  In abundance !” (Sura Balad 6)

The man who forgets his responsibility to Allah boasts of his wealth and scatters it about, thinking that he can thus purchase the support of the world. For a time he may. He spends his substance on self-indulgence and at the end he destroys himself.

“Those who, when they spend,
  Are not extravagant and not
  Niggardly, but hold a just (balance)
  Between those (extremes) ” (Sura Furqan 67)

Even in charity in which we give of our best, it is not expected that we should be extravagant. We should certainly not be niggardly, but we should remember everyone’s right including our own and strike a perfectly just balance between them.

“There is the type of man
  Whose speech
  About this world’s life
  May dazzle thee,
  And he calls Allah to witness
  About what is in his heart ;
  Yet is he the most contentious
Of enemies” (Sura Sura Baqara 204)
“When he turns his back,
His aim everywhere
Is to spread mischief
Through the earth and destroy
Crops and cattle.
But Allah loveth not mischief.” (Sura Baqara 205)

It is natural to expect from a faithful and sincere Muslim who is also Mohlis to recognize the limits of science and other social, ethical, religious affairs at their right places and in proportionately harmonious orders and contributions for prosperous future societies and their mutual understandings. It might seem that today science has further advancements without caring what are the final consequences on the human and natural life on the earth?, in particular, and in the universe, in general. It is not that the faith or any religion that gave rise to international and inter-spherical environmental issues but the scientific, industrial and technological developments that have not heeded for the preservation of natural and even moral orders in different communities. Science does not have any spiritual faith or belief basis that can be shared even by the common people and, therefore, it started to be owned by intellectual media providing big gaps between various layers in a society. Scientific and technological achievements as magical wonders might make feel every individual in the world but unfortunately it is not that every individual is capable of controlling the scientific and technological achievements. Since, the goal of science is materialistic achievements only accordingly its control might also seem to require materialistic methods and algorithms. However, after all what the humanity started to suffer from the environmental and ecological pollution it became clear that metaphysical, ethical, moral, religious and faith ingredients are essentials for the sustenance of nature and universe in order to attain safe, peaceful and continual survival of the creatures in the earth.

All scientific and religious affairs are related to Allah’s creations and accordingly they interact with each other as opposed to the common idea that religion is against the science (see Figure 6). In order to preserve what Allah has created, it is necessary to keep an optimum beneficial combination and proportion between religion and science. Except during

![Figure 6: Religions and Science](image)

the transition period of scientific activities to the West from the old Greek and Islamic civilizations science and religion did not fight especially in Islam they both had their right places which flourished philosophical and scientific involvements alike after about 150 years from the rise of Islam. In fact, since science is a humanly created activity then in its very basis there are human desires, ambitions and
spiritual feelings, ethics, moral and behaviors. Consequently, the control of science is equivalent with the control of human-self and since self is an unmaterialistic commodity, its control is possible only by moral and belief based affairs such as faith and religion.

Although there are many verses in Qur'an and sayings of Prophet Mohammad (p.b.u.h.) for the preservation of materialistic, moral and spiritual environments, unfortunately if they are not implemented by each and every individual in a society these principles remain in writings and sayings only without applications or fruitful results from their implementations. For instance, one of the sayings of Prophet Mohammad (p.b.u.h.) is that "the cleanliness is fundamental principle for faith" but unfortunately this saying is written on the walls in front of which there are polluted water or destructed environment. These signs indicate that even today administrators are rightly seeking help from the faith. It is, therefore, necessary to enlighten individuals towards religious virtues and especially faith.

7. IBN SINA'S PERSPECTIVE

Although the Middle Age is regarded as the Dark Age in the West it has never been so in the Islamic world and in fact it was the Enlightenment Age for the Muslims in every aspect of philosophical and scientific basements. After the foundation of constitutional state basis, Islam entered an enlightenment era especially 150 years from its appearance in the Holy City of Makkah in 622 A.D. The superiority of Islamic science during the middle Ages was first documented in great detail by Sarton (1927-1948). Especially, after 900 A.D. the former society and the caliphate were replaced by a constantly expanding, linguistically and culturally international society ruled by numerous governments in Asia, Africa and later in the Iberian Peninsula, Europe. Islamic society was certainly the most widely spread and influential on the globe. In fact, activities during this period gave birth to modern science later in Europe but unfortunately after the thirteenth century it apparently declined. Since, Muslim scholars were aware of the fact that scientific but at that time then philosophical thoughts are not the property of any race or culture, they gathered every type of knowledge and technological achievements from the previous cultures and societies. Towards the end first in Bagdad "Bait-ul Hikmah" (House of Wisdom) is established similar to modern time research centers. During this period, old Greek, Egyptian and Indian thoughts and basic works are translated into Arabic including the works by Aristotle.

With these initial conditions and heap of knowledge, Muslim scholars became top philosophers, scientists, craftsman, statesman, artists, chemist and leaders almost in every aspect of the scientific knowledge and technology. It cannot be denied that Europeans in particular and Westerners in general owe very much to Muslim scholars for reaching the collected, assessed and developed knowledge for their society starting from the thirteenth century onwards in a creeping manner and then in an unprecedented rate explosively after 15th century. It is not surprising why rather than any other religion Islam embraced with the knowledge, technology and scientific achievements after a very short time from its appearance. This is due to the fact that there are many verses in the Qur'an that urge knowledge, observation, ponder, contemplation, reflection, use of mind and see what Allah created in this universe. These verses and Prophet's sayings motivated Muslims towards intellectual directions. However, other religions have taken comparatively very long time, trouble and unrest for their support to scientific and technological achievements. Driven by both curiosity and religious motives, Muslim world from eight to thirteenth century achieved significant heights of scientific advances, but thereafter went into decline and even retrogression (Huff, 1993).

The most notable philosophers of Islamic civilization were among many al-Kindi, al-Farabi, al-Razi, Ibn Sina (Avicenna), al-Biruni and Ibn Rushd (Averroes). They made significant contributions in the philosophy domain by critically considering old Greek philosophers' works, especially Aristotle. Medieval Islam produced many great philosophers on the one hand some depending extremely on the Aristotle logic as al-Farabi and others on the Islamic principles as al-Ghazali. Two very similar views in their means about the human achievements in this world are provided by al-Ghazali and Rene Descartes. Their means were alike but targets are totally different towards the nature and environment. Al-Ghazali as a Muslim scholar argued that all rational and philosophical activities in this world should be towards gaining of paradise in the next world but Rene Descartes had the same view with creating paradise in this world. Hence, one can think about the consequent effects of these views on the ecological balance and environment. Avicenna (Ibn Sina) can be regarded as a mediator between al-Farabi and al-Ghazali so far as the natural philosophy is concerned. Although he is regarded as the greatest physicist of all centuries he was also a philosopher and scientist. In all his writings he was not extremely rationalist as in the West based on Aristotle's view, but Islamic religion ingredients were always laid the foundations in his approaches. He recommended seven golden rules
for the healthy and prosperous community. These are ingredients of ecological and environmental setup in these rules. He holds the opinion that human beings have dual existence as body and spirit. Furthermore, he gave emphasis in almost all dealings first priority to spiritual existence. This indicates why among the list of rules he put the spiritual cleanliness at the top. His seven rules are, (i) health in spiritual life; (ii) selection of proper food and drinks; (iii) avoidance of unnecessary weights; (iv) fitness of the body; (v) convenience of dresses and clothing; (vi) cleanliness in the atmosphere and hence inhaled air and finally, (vii) healthiness in the thinking and contemplation activities. In his famous book “al-Qanun fi-Tip” (Law in Medicine), he investigates the effects of air and atmosphere on human and environment. He related the pureness of the air intact of foreign materials without pollution to the protection of human health. Otherwise, the air becomes dangerous and dameful on the health. The air should be intact of smokes and vapors. In closed spaces the air stales and becomes harmful for the health.

8. CONCLUSIONS AND RECOMMENDATIONS

Protection of the ecology and total environment between various spheres has been foreseen so far through the scientific and technological means but unfortunately as can be witnessed today by everybody these materialistic approaches did not succeed although billions of dollars are spent on very diversified projects. Nobody should deny that the scientific measures and controls are necessary for combating the ecological and environmental pollutions and destruction but they are not sufficient because in the very basis of these activities are the human ambition, desire and intentions for domination on nature and extra benefits. The very purposes of the science and technology lie within the human intention, intellect and heart. It is, therefore, necessary prior to anything to control and improve these spiritual ambitions for the sustainable achievements in the environmental issues. It must not be forgotten that although science brought materialistic achievements for the comfort of human in this world, but in the meantime it did not care about other virtues for the sustenance of human race in this globe among which are the ethical, moral and cultural well beings depending on faith. Due to the religion-science fights in some cultures, for the last 5 to 6 centuries the religious virtues including belief, moral conduct, behavioral manners and especially faith were not cared for the sake of scientific and technological achievements. It was thought that positivistic scientific activities which excluded metaphysical, religious and ethical virtues should suffice for the prosperity of human comfort and happiness. Consequently, the societies and societal lives become miserable with many spiritual illnesses and their cures are not possible by materialistic medicines suggested by medical doctors only but also by unmaterialistic medicines provided by faith and religion. The basic philosophy in scientific and technological advancements was considered to be the intellect in a rational and limitless manner and experimental knowledge only. Islam orders intellect and the use of rationalism but there are limits for its use as mentioned in Qur’an. These limitations are imposed through the faith and belief virtues that should be heeded by any Muslim. During the scientific achievements heartily affairs are ignored completely giving sole weight to mind, intellect, rationality and their various combinations. The love for science comes through the intellect but it is not welcome to say that “One loves other by his/her mind”. The love for almost everything is by heart and in Islam love for knowledge and scientific achievements are through the restricted rationalistic activities of the mind but supplemented by faith they become knowledge or science after the approval in the heart. Without such an approval the science is destructive and there are not long term benefits from it. In our modern times, this becomes very evident that for a long time activity in the materialistic scientific affairs starting almost from the 16th century onwards, furnished in front of the eyes that the side effects of gigantic scientific achievements are damaging not only the ecology and environment but additionally the morality and faith. Knowledge and science are supported in Islam but with restrictions based on the moral, faith and spiritual virtues.

The final goal of many activities should be under the light of sayings of prophet Mohammad (p.b.u.h.) as “the best of a human being is to serve other human beings”

It is needless to say that human beings care for benefit whatever affair they execute, but there is a difference in the types of the benefits. In general, it is possible to divide the types into two categories as materialistic benefits and the rest. Herein, the rest includes the benefit of the community, humanity and society as a whole. In Islam, the benefit for oneself is also accounted in the materialistic category after the basic rational and materialistic survival benefits are excluded. If this principle is worked out with the advancement of science and
technology then the scientific achievements should have restrictions coming from the preservations of balances in and among different spheres such as atmosphere, hydrosphere, lithosphere, biosphere and human relationships.

Another saying of the Prophet Mohammad (p.b.u.h.) concerning the benefit of science and knowledge is that extends not in this world but even after death until the Day of Judgment. “After the death of a Mu’min there are three things that provide his connection with this world. These are the pious children, alms giving and to leave useful scientific knowledge for the use of others”. Even in this saying beneficial knowledge and science is implied as almost everlasting benefit for the man who has performed them in his/her worldly life. After all what have been explained in the aforementioned sections, it is possible to derive out the following perspective and further research needs for better protection and conservation of the environment according to Islamic virtues.

(i) In the preservation of environmental surrounding not only the materialistically oriented targets but at the very basis faith, belief and religious orientations must be considered

(ii) The scientific and technological achievements are very mechanistic if they are not coupled with metaphysical basis especially faith and ethics.

(iii) In the long run it has been observed all over the world that religious thoughts are becoming asymptotically convergent to each other and from now more effort is necessary for the achievement of such togetherness.

(iv) Modern time without spiritual faith have almost every material for the comfort and extravagant life but it is not without surprise to observe that within the same societies moral and ethical values are devoid of faith and consequently depressions, stresses and suicide rates increase. On the other hand, in the traditional societies although materialistic well beings are not abundant but internal peace prevails. It is therefore necessary to combine the qualities of both societies for the sake of better future peace and fraternity.

(v) Since, religions provide common basis for the faith foundations there should be approach between great religions of the world within dialogues and mutual understanding for the purpose of nature preservation and ecological balance restoration.

(vi) Rather scientific and technological developments to control the nature they should be controlled for the common interest of human safeguard on the world through faith virtues. So ways towards to this end should be sought through gatherings and critical discussions among different cultures and religions.

(vii) Believers in different religions and also in Islam should try and come to the stage of Mohlis as explained in this paper.

(viii) Education circles in different universities and even secondary schools should include in their curriculum ethical, moral and faith principles with the purpose of fulfilling their duties to the humanity in general and to Allah in particular.

(ix) Medieval and other era scholars’ and philosophers’ views should be reevaluated with the present day ecological and environmental issues.

(x) The life of human beings on the earth should be coupled with the balance and order in the universe and nature as created by Allah. For this purpose, the human beings should think not only on their daily and worldly deeds only but on the long term and even about the hereafter expectations with the future generations right to live on this planet.

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