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Communications:

A Secret of Water Quality Management as in Islamic Aspect of Life

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Abstract: As a creature created by the Only God, Allah, The Merciful, water is very important element for most living things, and since, water had become a necessity for human being. There are a lot of approaches, philosophically and or conceptually, for training and education based on our traditional values that have not been utilized in the right systematic way. Since the mentioned process is facing problems as a result of various situations, obstacles and environment, this paper will present an approach toward a solution that based on Malay traditional values which is in line with our philosophy of national education simplified as JERI (Physical, Emotional, Spiritual and Intellectual). It is the intention of this paper to deliver an integration of traditional and modern values that could become the foundation of strength for human capital development. In principal, the JERI development should be in balance. The balancing process based on our traditional values in conjunction with modern educational trend will be discussed in this paper. Hopefully it will be an alternative approach that may be employed for enhancement of human capital development and strength in training and educational system of modern science and technology.

Keywords: *Human capital*, *Islamic perspective*, *Pollution*

1. Introduction

Allah has created the universe as a unique creature that very systematic, beautiful, and complete. As a human being, the whole of the universe won't be meaningful unless those who believe in Allah as the Creator. Since everything in this universe is a creature of Allah, the knowledge about it, which includes the knowledge on environment and it's related issues, is also the knowledge about the creature and the Greatest of Allah. One studies such knowledge means he/she studies science which consists of visible and invisible creatures.
Almighty Allah created everything in the universe in such harmony that the order and balance, the skies and on the earth is plainly visible. The Al Qur'an states:

> "Verily, all things We have created in proportion and measure"(al-Qamar, 54:49); "Every single thing is before His sight, in (due) proportion"(al-Raad, 13:8); "And the firmament He has raised high, and He has set up the balance"(al-Rahman, 5 5:7); and "That ye may not transgress balance"(al-Rahman, 55:8).

If this Divine warning is ignored and some harmful deeds cause the balance to be disordered, the consequences may be catastrophic for man and nature. This environment may be so distorted so far as to make the planet unsuitable for life. Within this boundless universe, the earth is a part of this divinely established balance and proportion. The role of man in this context is to protect that balance and proportion while trying to civilize the world in the best pattern as commanded by the verse of "*In order that ye may not transgress balance*" (al-Rahman, 55:8). The environment may be distorted so far as to make the planet unsuitable for life. A major warning sign is disharmony (mischief) on land and sea;

> "Mischief has appeared on land and sea because of what the hands of men have earned, that He may give them a taste of some of their deeds: in order that they may turn back" (al-Rum, 30:41).

Signs of this kind have been very conspicuous in recent times. Industrial wastes, threatening, even eliminating in some cases, the living organisms in the water, have damaged seas and rivers. On land: forests have been cut down without proper planning and further depleted by fire. The resulting threat to the ecological balance of the earth is the fare of daily news. Many forms of animal and plant life have been brought close to extinction. Loss of plant cover has reduced the water table levels and resulted in severe soil erosion making once fertile areas into scrub or desert. Simply, it is a water crisis.

2. The Art of Water

It is needed for every individual living thing, as God mentioned in the Book [Al-Qur'an, AlAmbiya, 21:30]:

> "Do not the disbelievers see that the heavens and the earth were one solid mass which We tore asunder, and that We made every living thing of water ?Will they not have faith?"

There is a typical summary on some of the art of water as shown in the following table and tabulated in Table 1.

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3. Environmental Problem and Pollution

The main problems of the environment, where water is one of the most prominent components of the polluted environment, are pollution. Pollution is a nuisance of human activities (Fadil 1996). In the Environmental Quality Act of 1974, Malaysia, pollution strictly means any direct or indirect alteration of the physical, thermal, chemical, biological or radioactive properties of any part of the environment by discharging, emitting or depositing wastes so as to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety, or welfare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to cause a contravention of any condition, limitation or restriction to which a licence under this Act is subject.

The term of pollution means dirty, and the dirty is a nuisance. The nuisance is normally caused by human activity himself or herself. Some examples of the nuisance are noise, smell, disease, deterioration of water quality, air pollution *etc*. There are lots of human activities that caused nuisance to the environment. The Bhopal gas leak, the Chernobyl nuclear accident, the ozone layer depletion, the destruction of the earth's forest and natural resources - these are just some of the major environmental disasters that have happened or are happening in the world, disasters are caused mainly by human activities.

Table 1. A Summary on typical Examples of the art of Water.

Typical attributes of water	**The quatum of the attributes**
Scientific name	Hydrogen dioxide
Molecular structure for each molecule of water 	Two hydrogen atoms are attached with covalent bonds to a single oxygen atom, and symbolized as chemical formula H_2O, and modelled:
Existence on the earth	Form in 3 states ; solid as ice; colourless liquid as pure water on the earth such as in rivers or lakes or underground;and appear as colorless-odorless gaseous state as invisible vapour or steam in the sky.
Part in human body	More than 50% by weight of human body
Physical properties	Density of 1 g/cm^3 Low electrical conductivity, except containing a little amount of ionic material such common salt, sodium chloride.
Reaction to other substances	Good solvent for most chemical substances or compounds or salts.
The role in the Human activities,such in:	Economy, war battle strategies, politic, industrial, argricultural, navigation and religions.
The role in the Islamic Teaching	Very essential and significant.
Human daily consumption	The average in urban Malaysia is about 230 to 320 litres per person.
The role for many religions	Mostly believe as purifier or a symbol of ritual washing
Engineering, Science & Technological Training and Education	Courses in The High Education Institutions such as: Civil & environmental engineering, Water and wastewater, Hydraulic and hydrology, Coastal and marine, Aquatic Science, Water chemistry,

There are numerous examples simplified as shown in Fig.1 to show that human activities are the main cause of environmental pollution and disasters. The techniques of recombination DNA and the possibility of creating and unleashing new and deadly forms of mutant species and even cloning of human being have brought the nightmare of Frankenstein very close to reality.

Industrialization has led to a simplified, throw-it-away worldview, which encourages people to dominate and manipulate all available resources in frantic race for growth in levels of self indulgence. The causes of environmental overload or degradation are pollution of water, air and land, as well as depletion of resources. Urbanization and industrialization where large amounts of pollutants are concentrated in small volumes of air, water and land have led to the overloading and disruption of the natural dilution, breakdown and recycling of materials essential far lift. The effluent of fertilizers, pesticides, toxic heavy metals, and (partly or wholly) treated industrial waste is allowed discharge into lakes and streams. The effects are already very tangible: nauseating smells and tastes, smog causing reduced atmospheric visibility, corrosion of metal work, erosion of buildings; reduced tree and crop production; a decrease in biodiversity – each year at least 51,000 species in all become extinct, often as a direct consequence of human activity; serious damage to human health - as in the spread of infectious diseases, irritation and diseases of the respiratory

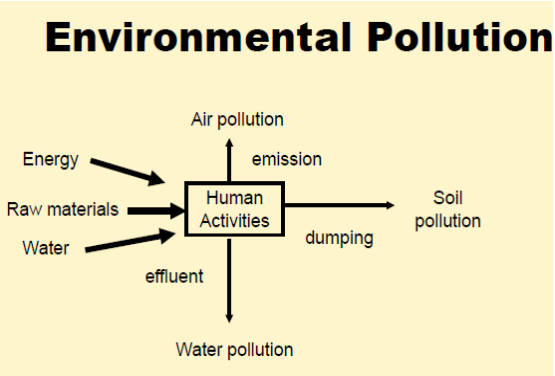

Fig.1. Exploitation of resources for human activities is the main cause of environmental pollution due to discharging wastes into/onto the air, water body and the ground.

system, genetic and reproductive defects and cancers (for example, of skin and liver).

The increasing tempo of industrialization has brought with it an increase in the generation of toxic and hazardous wastes. While in other countries, these wastes are managed in accordance with sound practices, transboundary movements of such wastes from one country to another still occurred.

As a result, various episodes of improper and indiscriminate disposal of hazardous wastes in the countries have been documented. Concerned and at the same time alarm at the uncontrolled and unregulated activities, the United Nations Environment Programme (UNEP) adopted the 1987 Cairn Guidelines on the Environmentally Sound Management of Hazardous wastes, subsequently, the Basel Convention on the control of transboundiy movements of hazardous wastes and their disposal was adopted. The main objectives are to protect human health and the environment against the adverse effects of hazardous wastes; to reduce their generation and transboundary movements; and to ensure environmental sound management of hazardous wastes.The environmental problems of major public concern in developing countries like Malaysia have been identified as follows: Rural-urban drift contribution to urban concentration and congestion with enormous pressure of water supplies, waste disposal and other public services as well as giving rise to serious squatter problems; erosion and sedimentation of rivers and canals, arising from housing development, and settlement, urbanization and infrastructure construction and logging causing perennial and recurring floods in the country; excessive deforestation and logging, shifting cultivation and dam construction for irrigation and hydropower projects which is highly able to disrupt and dislocate traditional human settlements and wildlife; and finally, indiscriminate disposal and dumping of toxic and hazardous wastes generated by industries.The environmental crisis humanity faces at this stage 'in their development is an outward manifestation of the internal crisis arising from the break with traditional beliefs and values, and their surrender to the disease of "problem denial" characteristic of modem urban, industrialized societies Anon (1989), Clark (1973), Hardin (1977). This state of mental and spiritual 'sickness takes man down a vicious and destructive spiral. Human-centered, short-term gain and economic surplus-oriented societies have led people to put their trust in science and technology to solve their problems, regardless of the cost to "others". This way of life is not sustainable and creates new and worsening problems, doing perhaps inevitable tong-term damage to "other" people, other species, and the environment as a whole.

Since the environment is complex and human activities both influence and is influences by the environment, inter-disciplinary action on a broad front is required to cope effectively with the environmental problems. The scale and rate of environmental degradation demand serious and urgent reform. We desperately need to change our attitudes and concepts to conform more to the laws of nature as ordained by Allah. Only if we do so can we hope far true success in this world and in the Hereafter.

4. Environmental Issues in Islam

Islam teaches man that he should accept and protect everything in the world as a value. In the Qur'an, Allah swears on several animals and plants and states that the bee and the ant received revelation from Him. The Qur'an describes Paradise as a garden underneath which rivers flow with an abundance of delicious fruits. Thus the philosophical background of the Islamic attitude to the environment is respect for plants and animals and the ecological balance of nature for the sake of Allah who created all things which therefore have a value.

Man has unique responsibilities to know, understand, and realise the value in the Creation, himself included. Allah created everything for the benefit of man, provided man is responsible. A Muslim is aware of this fact. That's why he/she believes that protecting the balance of nature is worthy of reward and the contrary is a sin, worthy of condemnation. There are many examples of good practice corresponding to the good principles during the first years of Islam. The area around the sacred Ka'bah, (the qibla of Muslims) is declared forbidden *i.e*. the cutting of any plants and trees and the killing of animals is prohibited

The Prophet Muhammad *sall Allaahu 'alay-hi wa-sallam* (May Allah pray on him and grant him peace) proclaimed parts of Madina and Taifnatural as conservation areas or commons. Hunting was banned during the mating season of birds. The Prophet took a district out of Madina under his protection and that district became an outing area, later named al-Ghaba, meaning wood, or forest.

The Prophet *sall Allaahu 'alay-hi wa- sallam* (May Allah pray on him and grant him peace) clearly sought to establish environmental awareness among his followers in many of his sayings. He announced that Allah would reward the one who changed and arid, infertile land into a fertile one and that person would obtain the reward of an act of charity for as long as people or animals continued to benefit from that land. Concerning water works, sanitation and waste management where mostly under the responsibility of environmental engineers, Table 2 shows some examples on

how Islam is teaching the followers to concern about environment, especially on water. In brief, Islam makes this world a better and a happier place for all creation.

To achieve those mentioned above, that we need a through and strong faith. The degree of faith that could appropriately be called "a faith in its entirety" is one possessed by the "pious man (Saleh)". It can also be called a faith as strong as steel. Any individual who wishes to join in the noble cause should adequately equip him with at least this category. The characteristic of those who possess those faith mentioned, is that his soul would always be aware that Allah is forever watching over him. There will manifest in his heart a feeling of modesty towards Allah, surrendering unto Him. There is also a feeling of love and affection for Allah, being patient for all the trials in life. The heart is full of other virtuous traits (mahmudah).

When such feelings exist in the heart then he will have true independence and strength. No power will be able to undermine these assets except Allah. Such is the priority and importance of faith in person's self. To possess faith we have to work hard for it. Among others we have to resist temptations; perform more commendable prayers; and always ponder on the greatness of Allah. To nature strength of faith one should understand and practice such functions mentioned above. Simply, engineers should be trained with education of spiritual science.

Table 2. Typical examples of Islamic tradition (asunnah) related to environmental engineering.

Islamic tradition	The Role of environmental engineers	The roles of others engineers or scientists
1.Water supply	Designing, operation and maintenance the water supply scheme and water treatment plant and facilities	Hydrologist/ civil engineers to determine the water resources Chemist and biologist to analyze the water quality under The Department of Health
2.Conservation of natural resources such land, forest, *improving greenery(trees)*, rivers, lakes, marine	Assessment of the environmental impact for activities developed on such natural resources	The Department of Environment Civil engineers, Scientists with various field of expert to analyze the quality
3.Establishment a relation of true love and harmony between mankind and all creation; *such air and animals*	Designing, operation and maintenance the system of pollution control	Department of Environment Scientists with various field of expert to analyze the quality of air or the creature
4.Cleanliness and hygienic circumstance	Designing, operation and maintenance the system of sanitation and disposal site and facilities such for wastewater and solid waste or garbage	Department of Environment and Health Scientists with various field of expert to analyze the quality of the waste
5.Nuisance free, calmness, noise free and odor free	Designing, operation and maintenance the system device for deodorant and isolation or absorption of vibration	Department of Occupational safety and Health (DOSH) Mechanical engineers Scientists with various field of expert to analyze the level of noise, vibration and odor

5. Spiritual Development for Training and Education of Environmental Engineers

Islamic civilization has its own values based on culture and belief that influence the process of achieving the target and objectives of training and education in modern science and technology. There are a lot of approaches, philosophically and or conceptually, for training and education based on our traditional values that have not been utilized in the right systematic way. Since we are facing problems as a result of human activities that polluting the environment, the following will present an approach toward a solution that based on Islamic traditional values which is in line with our philosophy of national education simplified as JERI (Physical, Emotional, Spiritual and Intellectual). In principal, the JERI development should be in balance. The balancing process based on Islamic traditional values in conjunction with modern educational trend should be fully utilized. Hopefully it could be an alternative approach that may be employed for enhancement of human capital development and strength in

training and educational system for engineers, especially for environmentalists. There are a lot of examples of policy and foundation in Islamic education viewed from current prospectus (Kamal 1986, IPPTN 2001, Ahmad 2005 and Fadil 2006), among which is: A practical educational system balances the development of one's aql, ruh, nafs and the physique so as to create mature human beings at a relatively early age of adulthood, corresponding to the Islamic concept of baligh. As one approaches the age of baligh – normally estimated at fifteen years old but may vary according to one's physical circumstances, one experiences a balanced growth of intellectual, spiritual, emotional and physical abilities

Practically, the foundations could be simplified into five principles of traditional Islamic education policy (Yunanto 2005): (i) *viz.* a 24-hour and lifelong learning process, (ii) synergy between material knowledge and human science, (iii) a caring and entertaining environment conducive to learning, (iv) priority to practical education, and (v) a close relationship between teachers and students. These foundations and principles are further translated into a curriculum which encompasses five basic courses (Ahmad 2005), *viz*. *sains insaniah* (human science) which consists of *fardu 'ain* knowledge and *sains rohaniah* (spiritual science), *sains kemahiran hidup asas* (basic vocational science) and *sains khibrah* (empirical science). Empirical science, in turn, is made up of *sains kehidupan dan teknologi* (life and technological science), *sains budaya dan media massa* (cultural and mass media science), and *sains perniagaan dan pengurusan* (business and management science).

Table 3. Development and strengthen the for elements of human being.

Elements of Human Being	Process should be taken in practice for training and education	Function of the elements
Physique	Good food and drinks with nutrient rich; Physical cleanliness; Healthy care; actively involve in physical activities, such as jogging, sports, adventures, expedition *etc*. Scheduled proper sleep Gardening, swimming, recreational activities, traveling	Good health Strong enough to be excellent Involve actively in works *As the soldier or the servants of the soul, just obey what ever asked by the soul*
Mind/intelligence	Getting knowledge through reading, learning, doing experiment, research, studying, observation, discussion *etc*	Able to be :- creative, innovative distinguish between the right and wrong view in future thinking the future *the advisor to the ruler* *Built development* *Ideas for developing civilization*
Soul (heart)	With faith, learning, mastering and practicing the teaching of ad Din Understanding the inborn nature(fitrah) of human Zikr; pray(doa),	To be good conduct As ***the ruler*** of the being
Nafs Natural desire	There are seven categories or types of the nafs which are the evil (ammarah); the regretful (lawwamah); the inspired (mulhamah); the serene (mutmainnah); the submissive (rodhiah); the accepted (mardhiah); and the perfected (kamilah) The nurture or training with care of the nafs (desires) which is exercises of the nafs (riadhatunnafs) must be carried out with guidance of special teacher, namely spiritual teacher (*mursyid, sifu*) who has the characteristic of "taqwa" (fear of Allah).	Sabar, calm, patient Sin free Brave, be determined in carrying out the true Optimistic

6. Development of Global and Integrated Personality

Within the self of man, there are four elements that are very important namely the physique, the mind, the nafs (lust) and the soul (heart). We must be aware of these elements, which should be cultivated, developed and promoted in such a way that one could have an integrated personality. We must take care of them and administer them the best way possible, so that mankind can be aware of his humanity and can appropriately act as the servant of Allah and as His vicegerent on earth. Otherwise, mankind will only appear to be human but his attributes and behaviour will be that of animals and satan. They will ruin themselves and other people and in fact will destroy all life and civilization on the face of this earth. As such, Islam strongly advocates that the four elements in the self of man be taken care of, nurtured, administered and put in the proper place in accordance to its roles. This is such, that the four elements can contribute to the good of the individual self and to the universe as a whole congruent to the demands of Allah upon humankind as His servant and vicegerent on earth. To do so, one should be consistently encouraged and motivated to have the feeling of God fearing besides the knowledge of God's Greatness. It will be the vital force that make one be dynamic, energetic, intellectually creative and wisdom to be God's vicegerent on this earth, manage the life with harmony, caring and love and care. It needs teachers or educators who have five basic personalities; knowledgeable master (teacher), leadership, fatherhood, motherhood and friendship (Fadil 2004).

7. Balancing the Four Human Being Elements

The process of balancing the four elements in human being is simplified as in Table 3. Each element should be developed in balance such a way that they would be in healthy condition and having attributes as required in the teaching of Islam.

For example, when the physique falls ill, it becomes weak. This renders the physique inactive so much so it cannot strive and work. If ones have the mind falls ill, he or she cannot think properly, it becomes forgetful, it cannot comprehend knowledge and information or it may even make one lose his mind totally. When the nafs falls ill, one will have no appetite for food nor the desire to be together with his wife. When the soul falls ill, one loses interest to do good, becomes inconsiderate, loses sympathy for others, dislikes helping and doing service to other people, does not feel sinful, does not feel regret for any wrong doing, loses his fear of sins and finds it difficult to accept criticisms. Most people are unaware and will not realise it if their souls fall ill. If someone else notice it and tell them so, they find it difficult to accept. In fact, they will be enraged if told that their souls are ill or diseased.

8. Conclusion

Integrated personality is very important. Therefore. balancing the four elements, physique, the mind, the nafs (lust) and the soul (heart), in human being is a compulsory effort in education of modern science and technology. It should be taken seriously. Our traditional values, namely spiritual science, should be employed in generating integrated personality. Finally, special attention should be focused on cultivating or promoting vigorously in harmony the Godliness and realizing that human being as servants of God and as His vicegerents on the earth that would yield the integrated personality with pietistic (*muttaqin; taqwa*), and successfully produce civilized and globalized future generation without pollution.

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