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Environmental Sustainability in Islam and Responsibility of Man as Allah's Vicegerent on the Earth

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Abstract

Environmental sustainability is one of the major responsibilities of man. It means that the man is responsible to maintain balance between utilization of natural resources and conservation of natural environment of this planet. A healthy and hygienic environment can develop healthy and strong body and mind. The divine obligation of vicegerency of man demands preservation of the environment and a prudent approach to utilize natural resources. The exalted Book of Allah and the blessed Seerah of His Messenger Muhammad (peace be upon him) offer comprehensive guidelines and solutions to protect the constantly deteriorating environment of our planet. A descriptive and analytical methodology will be utilized in this research. The present work aims to highlight the causes of one of the major types of environmental pollution i.e water pollution as well as wasteful utilization of water and their alarming consequences like global scarcity of water, drought, endangered wildlife and marine life and numerous health issues. The purpose of this research is to explore the practical solutions to maintain environmental sustainability in the light of the Qur'an and Prophetic Seerah. The responsibility of man as Allah's vicegerent of the Earth regarding conservation and restoration of water resources will be focused as per Islamic directives.

Keywords: *Environmental Sustainability, Water Pollution, Conservation of Water Resources, Responsibility of Man, Islamic Guidelines*

1. Introduction:

Human beings have certain responsibilities towards natural environment which include environmental cleanliness, conservation of water as a natural resource and major source of preservation of human life and other organisms on this planet. These responsibilities have to be carried out by human beings due to their particular role and Divine obligation i.e. their vicegerency (خِلاَفَة).

This research aims to discuss very important environmental issues faced by our planet i.e. water pollution and water scarcity. The study highlights some major causes of water pollution like agricultural and industrial pollution and inappropriate disposal of waste as well as their devastating impact like spread of infectious diseases and depletion of aquatic ecosystem. It also exhibits the chief causes of water scarcity like overpopulation, wasteful utilization and poor water management which result into water crisis, food crisis, desertification and biodiversity depletion. The research presents some strategies for the protection and conservation of surface and groundwater resources both from being polluted and diminished from the perspective of the Qur'an and the Blessed Seerah of Allah's Messenger peace be upon him.

2. Environmental Sustainability:

Environmental sustainability refers to sustainable consumption of all natural resources including water resources, marine life; restoration of utilized natural resources; and protection of the environment from all kinds of pollution. It also includes plans, programs and course of actions for the preservation of environment.¹

3. Water; A Primary Source of Life:

In Arabic, the word "ماء" is used for water which has been occurred 63 times in the Qur'an. Rain, clouds, wind, rivers, oceans are various references used for water in the Qur'an.² Undoubtedly, water is the primordial element and origin of all living beings in the world as Allah said:

وَاللَّهُ خَلَقَ كُلَّ دَابَّةٍ مِنْ مَاءٍ فَمِنْهُمْ مَنْ يَمْشِي عَلَى بَطْنِهِ وَمِنْهُمْ مَنْ يَمْشِي عَلَى رِجْلَيْنِ وَمِنْهُمْ مَنْ يَمْشِي عَلَى أَرْبَعٍ يَخْلُقُ اللَّهُ مَا يَشَاءُ إِنَّ اللَّهَ عَلَىٰ كُلِّ شَيْءٍ قَدِيرٌ³

“And Allah has created from water every living creature. Some of them crawl on their bellies, some walk on two legs, and some walk on four. Allah creates whatever He wills. Surely Allah is Most Capable of everything”

Not only water is essential for the survival of all creatures but it also performs numerous functions in our lives e.g. as a central component of society; in household, agricultural and industrial use; and as an inhabitant for marine life. Regarding this life-sustaining blessing, our Sustainer has stated in His Book:

وَاللَّهُ أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَأَحْيَا بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا⁴

“And it is Allah Who sends down water giving life to the earth, even after it has been lifeless”.

وَهُوَ الَّذِي أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَأَخْرَجْنَا بِهِ نَبَاتَ كُلِّ شَيْءٍ فَأَخْرَجْنَا مِنْهُ خَضِرًا نُخْرِجُ مِنْهُ حَبًّا مُتَرَاكِبًا وَمِنَ النَّخْلِ مِنْ طَلْعِهَا قِنْوَانٌ دَانِيَةٌ وَجَنَّاتٍ مِنْ أَعْنَابٍ وَالرُّيْبُوتِ وَالرُّمَّانِ مُشْتَبِهًا وَغَيْرَ مُتَشَابِهٍ انظُرُوا إِلَى ثَمَرِهِ إِذَا أَثْمَرَ وَيَنْعِهِ إِنَّ فِي ذَلِكُمْ لَآيَاتٍ لِقَوْمٍ يُؤْمِنُونَ⁵

“And He is the One Who sends down rain from the sky causing all kinds of plants to grow, producing green stalks from which We bring forth clustered grain. And from palm trees come clusters of dates hanging within reach. (There are) also gardens of grapevines, olives, and pomegranates, similar (in shape) but dissimilar (in taste). Look at their fruit as it yields and ripens! Indeed, in these are signs for people who believe.

4. Major Environmental Issues faced by our planet:

4.1 First Environmental Issue; Water Pollution:

Water pollution is one of the four major kinds of environmental pollution.

Water pollution is the result of harmful substances e.g. trash, chemicals,

parasites and microorganisms getting mixed into water recourses and turning them into toxic water which makes it unusable for the purpose of drinking, cooking, making ablution and bath as well as detrimental for the environment.⁶

4.1.1. Causes and Effects of Water Pollution:

According to the Global Climate Risk Index 2017, Pakistan has been ranked as the eighth most vulnerable country to environmental pollution. Some of the major causes of water pollution are as follows:

➤ Industrial Pollution:

Since the beginning of the Industrial Revolution, human activities in the name of Technological development, have polluted the atmosphere and created numerous issues for the earth's climate and water pollution is one of them. Several toxic solvents e.g., Volatile Organic Compounds (VOCs), Hexavalent Chromium (Cr6), Cadmium (Cd) and arsenic are released by industries like the leather tanning industry, food industry, paper industry, distillery industry, textile industry, iron and steel industry, lead and battery industry, pigments industry, plastics industry during the process of production. Water bodies are contaminated due to the discharge of these pollutants.⁷ In Pakistan, the second largest industry i.e. sugarcane-based industry has played a critical role in spreading water pollution as out of 76, only 2 industries have installed wastewater treatment mechanisms.⁸

Discharge of Volatile Organic Compounds in water may cause cancer, kidney and liver failure, and damage to the immune system and nervous system.⁹ Cadmium, a toxic metal may cause kidney stones and disruption in bone composition.¹⁰ Exposure to Hexavalent Chromium may lead to reproductive disorders, ulcers and stomach cancer.¹¹

➤ **Agricultural Pollution:**

Technological advancement in agricultural practices has indeed played a crucial role in fulfilling the food demand of rapid population growth and hampering the worldwide food crisis. However, it resulted in inappropriate modern agricultural practices which contributed to degrading the quality of soil and crops as well as polluting the water.

❖ The excessive use of chemicals like fertilizers, pesticides and neonicotinoids to yield enough vegetation and protect plants from harmful insects and unnecessary weeds has defected especially underground water sources.¹²

❖ Contaminated water, due to mismanagement of agricultural and industrial waste, used to irrigate the farms also pollutes and poisons the crops with its toxic substances.

❖ Soil erosion as a result of inefficient farming practices not only causes a lack of soil fertility but also sediments in undesirable areas like rivers, seas and coastal waters and causes muddiness as well as interferes with aquatic organisms.¹³

❖ Germs and parasites from the waste of livestock dissolved into drinking water are also hazardous for human and marine life.

Contaminated water as a result of agricultural pollution plays instrumental role in depleting oxygen, endangering marine life; and health problems in humans such as Blue Baby Syndrome which is caused by decreasing the amount of oxygen around the body due to drinking contaminated water.¹⁴

➤ **Poor Waste Management:**

• **Solid Waste:**

Dumping solid waste including trash i.e. plastic bags, soda cans, bottles, glass, metal, wood, fishing nets, fishing lines, debris and waste from electronics (containing highly toxic matter); all from individual or collective human

activities poses a great threat to human health, wildlife and particularly ecosystem of marine life as the solid waste plays a pivotal role in injuring, suffocating and strangling marine life.¹⁵ According to an estimate, more than 800 species of aquatic life have been inflicted due to solid waste.¹⁶ According to the U.S. Geological Survey:

*“Landfills, mixture of solid and liquid waste, are another major source of water pollution. Leachate, which is produced overtime by decomposing the waste in landfills, is an odorous liquid and mixture of chemicals and metals and highly hazardous if contacted with surface water sources or seeped into soil and reached underground water”.*¹⁷

- **Wastewater:**

Domestic sewage water from sinks and toilets; or wastewater from agricultural and commercial activities from cities and towns brings debris, grease and chemicals and defiles water bodies. In developed countries, more than 80% of wastewater and in under-developed countries, almost 95% of waste water is not recycled properly due to poor sewage treatment systems which corrupt the aquatic environment. Leakage of sewage lines is also a reason for mingling dirty water with bore water or water supply and spreading diseases.¹⁸ Wastewater contains putrescible substances and pathogens which decrease the oxygen in water, deteriorate water quality and threatens human health as well as the survival of marine life. Vomit, human excrement especially of a sick person, animal excreta and throwing carrions in streams, lakes and rivers are conducive to a variety of diseases such as cholera and typhoid due to bacteria; schistosomiasis due to parasite worms penetrating the skin while swimming, bathing, washing clothes or drinking polluted water; and ancylostomiasis a hookworm infection causing sharp abdominal pain and chronic weakness.¹⁹

➤ **Ineffective Disposal of Radioactive and Nuclear Waste:**

The radioactive waste consists of electronics like TVs, computers, cell phones, microwaves, and batteries; medical equipment like MRI, and X-rays;

nuclear weapons which release certain radioactive gases; chemicals such as Tritium (^3H), Polonium (^{210}Po), Uranium (^{238}U), Carbon (^{14}C); radioactive materials such as Thorium, Radium and Actinium; and disinfectants, acids, adhesives, polish remover and so on. Dumping this radioactive waste in surface water sources contaminates it. Radioisotopes and radiological pollutants formed by nuclear power plants and nuclear reactors present in coastal areas as well as nuclear submarine accidents release atomic wastes e.g. radioactive chemical spills in water.²⁰ Caesium-137 and Strontium-90 were released as a result of the Chernobyl Nuclear Power Plant disaster in 1986.²¹ After World War II, around 40,000 tons of chemical ammunition dumped into the Baltic Sea is still polluting its ecosystem.²²

The life-threatening effects of radioactive substances in water include heart issues, anaemia, haemorrhage, cancer, short life expectancy in human beings; and extreme production of carbon dioxide and other hazardous elements in water which destroy the inhabitants of marine life.²³

➤ **Leakage of Petroleum:**

Oceans are polluted with oil spills which occur in case of accidents of oil tankers as happened in the case of the Exxon Valdez oil spill in the Prince William Sound, Alaska in 1989 which resulted in almost 10.8 million US gallons of crude oil spill, polluted 1,300 miles of coastline and massacred approximately 253,381 sea birds, otters, bald eagles, salmon and orcas.²⁴

It also happened due to land-based sources like roads (gasoline from vehicles), factories and gas stations. This petroleum reaches the aquatic environment and leads to oil pollution in water bodies.²⁵

According to World Health Statistics of WHO (World Health Organization), 25-30% of patients in the world suffer from different diseases due to water pollution which is also a reason for the demise of 50% of infants in the world.²⁶ Countless diseases of the lungs, stomach, eyes and skin; infections;

nervous system and immune system disorders; and epidemics have been proven to be appalling outcomes of water pollution. An ecosystem of marine organisms (plants and animals) is badly damaged due to aquatic pollution and the extinction of diverse species disturbs an entire sea food range.

5.1.2. Strategies to Deal with Water Pollution and Responsibility of Man as Allah's Vicegerent on the Earth:

Allah Almighty is the Creator and Master of everything in this world, we are here only as His trustees and so accountable for utilization of all of His blessings including water. There are numerous preventive measures in the Qur'an and Blessed Prophetic Seerah to thwart water pollution:

1. ²⁷ وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا

“And make no mischief on the earth after it has been set in good order.”.

2. Allah's Apostle peace be upon him said: *“You should not pass urine in stagnant water which is not flowing then (you may need to) wash in it”.*²⁸

3. To protect water bodies and water sources, the Messenger of Allah peace be upon him said: *“Be on your guard against three things which provoke cursing: easing in the watering places and on the thoroughfares, and in the shade (of the tree).”*²⁹

Principles have been formulated to protect water for household purposes to be safeguarded from various diseases:

4. Narrated Hazrat Abu Huraira that Allah's Messenger peace be upon him said: *“Whoever wakes up from his sleep should wash his hands before putting them in the water for ablution because nobody knows where his hands were during sleep.”*³⁰

5. Hazrat Jabir reported Allah's Messenger peace be upon him as saying: *“Cover vessels, waterskins, close the doors and extinguish the lamps, for the Satan does not loosen the waterskin, does not open the door and does not uncover*

the vessels. And if one amongst you fails to find (something) to cover it well, he should cover it by placing (a piece of) wood across it."³¹

6. Narrated Hazrat Ibn Abbas: *"The Messenger of Allah peace be upon him prohibited breathing in the vessel, or blowing into it."*³²

7. Not only Allah Almighty has made water bodies a source of amazing benefits but He has also made them inhabitants of various organisms:

وَهُوَ الَّذِي سَخَّرَ الْبَحْرَ لِتَأْكُلُوا مِنْهُ لَحْمًا طَرِيًّا وَتَسْتَخْرِجُوا مِنْهُ حِلْيَةً تَلْبَسُونَهَا وَتَرَى الْفُلْكَ مَوَاجِرَ فِيهِ وَلِتَبْتَغُوا مِنْ فَضْلِهِ
وَلَعَلَّكُمْ تَشْكُرُونَ³³

"And He is the One Who has subjected the sea, so from it, you may eat tender seafood and extract ornaments to wear. And you see the ships ploughing their way through it, so you may seek His bounty and give thanks (to Him)".

That's why, as vicegerents of Allah, human beings should be responsible and considerate enough to respect and protect the natural inhabitants of other creatures and not to defile and destroy them.

8. Human activities near shorelines should be restricted. For example, throwing garbage should lead to heavy fines and penalties by the concerned authorities.

9. Strict rules should be made for fishing vessels, boats, cruise ships, cargo ships and oil tankers in order to use their equipment appropriately, not to throw fish lines or trash in the water and to practice precautionary measures to prevent accidents and damage marine life.

10. The relevant authorities need to take immediate steps to protect the underground water sources from being polluted by toxic substances as a result of individual, industrial, commercial and agricultural activities.

11. Segregation of solid waste, trash dumping activities and landfill sites should be observed through competent staff; and the contamination level of water sources should be supervised through a monitoring system regularly by the environmental department authorities.

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- 12.** Public awareness should be raised by educating people in educational institutions through organizing cleanliness activities (hand washing, disposing of garbage,); in religious institutions by informing them about the significance of cleanliness and purity in Islam;³⁴ and through print media and electronic media to take precautionary measures like boiling water, chlorination, filter³⁵ and eliminating open stagnant water containers to prevent dengue mosquitoes which spread dengue virus.³⁶
 - 13.** Waste production especially hyper-consumption of plastic should be under control.
 - 14.** Garbage disposal facilities should be provided within the shortest distance. A fixed waste disposal site and properly designed bins with strict compliance rules will help to improve the behavior of a community regarding waste management.³⁷ For non-organic wastes like plastic and cans; organic wastes like food, vegetation and bones; and hazardous wastes like batteries, cleaning solvents, and paints, there should be three different marked disposal bins.³⁸
 - 15.** Strict laws should be made and penalties should be inflicted upon those who do not follow sanitary principles and spread pollution.³⁹
 - 16.** Increase the use of biodegradable cleaners instead of regular cleaning chemicals or oil products as through drainage system, they may enter underground water sources.⁴⁰
 - 17.** Maintenance of vehicles to prevent oil leakage and proper disposal of expired medicines and pets' litter.⁴¹
 - 18.** According to Section 70 and 73 of The Canal and Drainage Act 1873, fine and 3 months of imprisonment will be enforced in case of polluting any canal water.⁴² The Factories Act 1934 enforces fine of factory owners with poor management of industrial wastewater.⁴³ The Hospital Waste Management Rules 2005 deals with the underground water pollution due to hospital waste.⁴⁴ Karachi Joint Water Board Ordinance 1949 protects water supplies and water tanks etc. Territorial Waters and Maritime Zone Act 1976 deals with the prevention of aquatic pollution.⁴⁵ Agricultural wastewater and disposal of irrigation is supervised under West Pakistan Water and Power Development Authority Act

1958.⁴⁶ However, much more effective legislation and much improved techniques are required to be utilized for waste management, recycling of waste-water and supervising water contamination level.⁴⁷

19. Underground pipelines of fresh supply water and wastewater must not be installed side by side, rather should be at five yards distance according to Maulana Abdul Hayy Lakhnawi.⁴⁸ However, it would be safer to install fresh supply water pipelines above wastewater pipelines and at sufficient distance in order to prevent form least effect (odor, colour, taste, germs) of polluted water.⁴⁹

5.2. Second Environmental Issue; Water Scarcity:

“Non-availability of fresh, sufficient and affordable water to an individual for drinking, bathing, washing and other livelihood purposes is called water insecurity. Therefore, water insecurity faced by a large number of people for an abnormally long period of time is known as water scarcity”.⁵⁰

5.2.1. Causes and Effects of Water Scarcity:

Water scarcity is one the greatest environmental issues of this century. Allah Almighty has blessed Pakistan with a variety of natural resources and water is one of them. However, due to lack of education, modern and improved technology and poor management, currently our country is facing severe water crisis. Pakistan ranks 76th out of 107 countries in Global Food Security Index and 15th with impending extreme water stress. Water availability in Pakistan is less than 1,100 cubic meter of water per person.⁵¹ Some of the major causes of water scarcity are as follows:

➤ Overpopulation:

Each year, the global population is growing at the rate of 80,000,000. According to Pakistan Council of Research in Water Resources (PCRWR), by the year 2025, the population of Pakistan will increase to an alarming rate i.e., 227 million people and water crisis situation will reach dangerously high level. Right now,

only 3% population of the country has access to fresh and clean drinking water which comes from glaciers (70%), underground sources (24%) and rivers and water channels (1%).⁵² The increasing population growth will be a predominant cause of water scarcity as well as food insecurity at global level.

➤ **Wasteful Utilization of Water Resources:**

In a healthy society, 35-gallon water per person is required for livelihood purpose. Hence, in Pakistan around 12–17-million-acre feet of water is required to fulfill the daily needs of 207 million population.⁵³ In our country, examples of wasting water more than one's needs; or on unnecessary things include:

- a. Wasting water during ablution, bathing, washing dishes, clothes and cars, cleaning and watering plants.
- b. Leaving the water taps running during or even after use.
- c. Leaving the water pipes unsupervised.
- d. Sprinkling water on roads and streets which may cause discomfort for the passengers.
- e. Sprinkling water on old graves.⁵⁴

➤ **Agricultural and Industrial Use:**

For agricultural and irrigation purpose, 90% of total water resources are utilized, out of which 80% is utilized from groundwater sources like tube well water. According to the Ministry of Water Resources, about 60% of the population of Pakistan is involved in agricultural sector. For growing demand of food due to vigorous population growth eventually leads to more production of crops, livestock and forestry which pressures already diminishing water resources.⁵⁵ Industrial needs of Pakistan can be fulfilled with 8–10-million-acre feet of water. However, since partition, we have utilized 1,206,000,000-million-acre feet of water in different domestic, agricultural, commercial and industrial purposes while squandered 12000-

million-acre feet of water due to our irresponsible behavior, lack of technology and poor management.⁵⁶

➤ **Poor Management and Inefficient Technology:**

Rivers, rain water and other surface and groundwater bodies are the source of 145-million-acre feet of water in Pakistan, yet the irrigation system in the country is one of the most ineffective irrigation systems in the world. In our country, 104-million-acre feet of water is being utilized to fulfill the demand of food. By deploying the same amount of water, Indian Punjab's agricultural production is 30% higher, California's agricultural production is 50% and Israel's agricultural production is 70% higher as compared to Pakistan.⁵⁷ In our country, 60% water for irrigation, 93% water for drinking and almost 100% water for industrial purpose is acquired from groundwater sources. Due to the absence of "groundwater regulatory framework", unjustified amount of water can be obtained by people anytime (in form of supply water) or for irrigation purpose. This unsystematic pumping of water is resulted into rapid groundwater depletion.⁵⁸

➤ **Inadequate Storage of Water:**

Indus River System Authority estimates that each year 145-million-acre feet of rain water is received by Pakistan out of which only 13.7-million-acre feet of water is stored due to lack of facilities.⁵⁹ Along with facing the catastrophic impact on people, farm animals, vegetation and infrastructure during the floods of 2010, 2012 and 2014, Pakistan also lost 120 billion cubic meters of water. The three major reservoirs in Pakistan Mangla, Tarbela and Chashma can store water for up to 30 days only as their water storage capacity has been reduced to 13.1-million-acre feet due to sedimentation.⁶⁰

➤ **Lack of Water Dams:**

There is total 155 dams in Pakistan which can store water for 30 days while as per international standards, water storage should be enough for at least 120 days.⁶¹ Construction of dams and reservoirs are of paramount significance in the progress of a country. There are 150 dams in Pakistan with the height greater than 15 meters, they include Mangla and Tarbela dams which were constructed in 1967 and 1974. After 1970s, no large dam could be constructed. Kala-Bagh dam has become a political controversy. Diamer-Bhasha dam construction is still in its initial stages. It is the largest dam ever to be built, extremely costly and this project is impossible to complete with the help of mere funds.⁶²

➤ **Deforestation:**

Today, in order to prevent environmental pollution and preserve water resources, forests are of substantial value. Their absence is resulted into water scarcity, desertification and biodiversity depletion. Experts have asserted that one-fourth (and some have proclaimed that one-eighth) of total area of a country should be under forests. They help increasing in rainfall, reducing surface temperature, regulating river flow and thus controlling water scarcity.⁶³ Unfortunately, Pakistan is a forest-deficient country with a very low ratio of forests which is 4.5% of the total area of the country for example, Northern Areas with 27.0%, KPK with 15.6%, AJK with 11.0%, Sindh with 4.5%, Punjab with 2.7% and Balochistan with 2.1%.⁶⁴

5.2.2. Strategies to Deal with Water Scarcity and Responsibility of Man as Allah's Vicegerent on the Earth:

Allah Almighty is the soul Sustainer of everyone and everything in this world however, He has appointed human beings as His representatives, made everything subjugated to them and entrusted the responsibility of protection of natural resources to them as a Divine obligation:

أَلَمْ تَرَوْا أَنَّ اللَّهَ سَخَّرَ لَكُمْ مَّا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ وَأَسْبَغَ عَلَيْكُمْ نِعْمَهُ ظَاهِرَةً وَبَاطِنَةً⁶⁵

“Have you not seen that Allah has subjected for you whatever is in the heavens and whatever is on the earth and has lavished His favours upon you, both seen and unseen?”

Following attempts can be made regarding water resource management in the light of Qur’an and Blessed Seerah of the Prophet peace be upon him:

1. *Israaf* (spending excessively) and *Tabzeer* (spending on items not beneficial) both are prohibited in Shari’ah. Nature itself has maintained balance in everything as stated by Allah:

وَأَنْزَلْنَا مِنَ السَّمَاءِ مَاءً بِقَدَرٍ فَأَسْكَنَّاهُ فِي الْأَرْضِ وَإِنَّا عَلَى ذَهَابٍ بِهِ لَفَاعِدُونَ⁶⁶

“We have sent down water from the sky in right measure and caused it to stay in the earth and We have the power to cause it to vanish”.

2. Human activities have been tempering with natural water cycle for a very long time period. Example of Cape Town (port city and capital of South Africa) water crisis can be presented in this regard which is a result of extravagance, poor water management, unequal distribution and droughts:

وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ⁶⁷

“And eat and drink but waste not by extravagance, certainly He (Allah) does not like the extravagant (people)”.

3. One of the best examples of conservation of water in Islam is that in case of water scarcity, the relaxation of Tayammum (dry ablution with pure dust) has been given instead of performing Wudu or Ghusl so that people could use it for drinking and cooking purpose.⁶⁸

4. The Messenger of Allah Muhammad peace be upon him has been sent as (رَحْمَةً لِّلْعَالَمِينَ) *“mercy for the whole world”*⁶⁹. His exalted Seerah consists of countless precedents and illustrations (أُسْوَةٌ حَسَنَةٌ) *“perfect role model”*⁷⁰ which teaches us to show mercy to all creatures and be beneficial and a guardian of environment and natural resources as a human and as a Muslim. Wasteful

utilization of water is not allowed even in the ritual practices of Wudu and Ghusl. The Messenger of Allah peace be upon him passed by Hazrat Sa'd when he was performing ablution and he said: "*What is this extravagance, O Sa'd?*" He said: "*Can there be any extravagance in ablution?*" He said, "*Yes, even if you are on the bank of a flowing river*".⁷¹

5. Right after the arrival to Madinah, the Prophet peace be upon him paid attention and took immediate steps for provision of water services. After hearing the glad tidings about forgiveness of sins by Allah's Messenger, Hazrat Uthman (may Allah be pleased with him) bought the well of Rumah for the people of Madinah⁷². On the occasion of the Battle of Badr, he took the water streams in his possession on the advice of his Companion Hazrat Habab (may Allah be pleased with him) in order to hinder the water source for the disbelievers of Makkah.⁷³ He also appointed some of his Companions as incharge of the wells to look after them.⁷⁴

6. Keeping the significance of water as a major source of preservation and continuation of life, sustainable and effective strategies should be adopted by the government to deal with the challenge of water scarcity. For public welfare, examples of building several canals, water streams and wells are found the in the era of Rightly-Guided Caliphs.⁷⁵ One of the remarkable features of Caliph Umar's (may Allah be pleased with him) administration was his initiatives in the field of agriculture. He laid foundation of irrigation system and fair distribution of water to all provinces.⁷⁶ He also constructed dams, out of which two dams were specially built to protect Ka'bah from flooding.⁷⁷

7. Forestation and plantation have been commended in many Ahadith. Allah's Messenger peace be upon him said: "*There is none amongst the Muslims who plants a tree or sows seeds and then a bird or a person or an animal eats from it but is regarded as a charitable gift for him*".⁷⁸ Even during the period of war, certain ethical principles were established, one of them was: "*Do not cut down fruit-bearing trees*".⁷⁹

8. The scarcity of water as a result of extravagant behavior of humans will affect the future of entire planet. Not only will it create water starvation at global

level, extinction of marine life and reduction of a wide range of sea-food but also geo-political tension and water war-like situation between developed and under-developed countries:

وَمَا أَصَابَكُمْ مِنْ مُصِيبَةٍ فَبِمَا كَسَبَتْ أَيْدِيكُمْ وَيَعْفُو عَنْ كَثِيرٍ⁸⁰

“And whatever affliction befalls you, it is on account of what your hands have wrought”.

9. Water should be equally accessed and distributed to everyone. Government authorities should strictly supervise and regulate the supply of water to residential area, industrial area and for agricultural purpose on fair basis. In this regard, issuance of water permits and water metering (pricing)⁸¹ would be a good approach for an individual or a group for drilling water bore, installing water pumps or constructing tube wells, whose violation should lead to heavy penalty.⁸² Allah’s Messenger said: *“There are three persons whom Allah will not look at on the Day of Resurrection, nor will He purify them and theirs shall be a severe punishment”*. Among them one is: A man who possessed surplus water on a way and he withheld it from travelers. Allah will say to him: Today I will withhold My Grace from you as you withheld the surplus of what you had not created.⁸³

10. Instead of constructing high-budget dams and then waiting for their completion for many years, small dams with lower budget, swift construction, improved design and water storage capacity would be a practical approach.

11. Strategic investment should be done in building dams and reservoirs, water storage facilities for rainwater and flood water, freshwater supply sources and water treatment plants for filtration and recycling sewage-water, flood water, saline groundwater, industrial and agricultural wastewater, better and efficient irrigation mechanism and forest conservation.⁸⁴

12. Our government institutions and relevant water authorities can also learn the water infrastructure, water conservation and restoration strategies from other countries and enforce them if they are applicable to the atmosphere and effective to deal with water-stress situation in Pakistan. For example, Electrolysis and

Mobile Surface Water Treatment have been introduced in Indonesia for filtration and elimination of microorganisms and pathogens in flood water.⁸⁵

13. A nation-wide campaign on every platform and through every means possible is indispensable to inculcate the importance of water conservation and alarming situation of water-stress in the country among people. In this regard, people are required to be educated on conservation practices both at home and at public places.⁸⁶

14. Self-closing taps should be in trend for private and public places. Water pipes should be supervised to check leakage.⁸⁷

15. Innovation of modern and alternative technologies instead of sticking with the old systems and redefining the policies is a demand of time.⁸⁸ According to Dr. Ishrat Hussain: *“We do not have a water crisis; we have a failure of governance with regard to water issues”*.⁸⁹ Michael Kugelman, Asia Program Deputy Director said: *“First of all, Pakistan’s leaders and stakeholders need to take ownership of this challenge and declare their intention to tackle it. Simply blaming previous governments, or blaming India, for the crisis won’t solve anything”*.⁹⁰

16. Water is a globally shared-right of all living beings. The Messenger of Allah peace be upon him said: *“Three things cannot be denied to anyone: water, pasture and fire”*.⁹¹ Everyone needs to make efforts on individual, communal, government, national and international level on preservation of this precious natural resource as Allah helps only those who help themselves.⁹²

6. Conclusion:

Sabotaging the equilibrium of the universe by exploiting, destroying and wastefully utilizing natural resources will have a deep impact on the future of mankind itself. Our Earth’s environment, ecological system and natural resources are blessings of Allah. Preserving and restoring the natural cycle of environment has been commanded and expected from human beings as their status as ‘خَلِيفَةُ اللَّهِ’ and ‘the noblest of all creatures’. To safeguard the interest of everyone is the

objective of Shari'ah. That's why, all those activities which contribute to improvement, prosperity and peace are substantial. Construction of dams, better infrastructure, improved irrigation system, desalinization, filtration, watersheds and educating people to abstain from polluting water or showing extravagant behavior in utilizing water are the solutions to maintain environmental sustainability and to achieve these goals, Islam provides best practical and ethical paradigms.

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