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## **Ethics of Water Technology**

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Ethics are set of moral principles that distinguish what is right from what is wrong. Religion was the mother of all ethical principles. Religion is also the mother of modern technology. Hence religion should play a major role in defining ethics of water technology today.

Water on earth is increasingly becoming more valuable day by day. It is becoming more ethical to conserve water for the benefit of mankind. Poor nations in general are more affected by water shortage due to limited resources used for protecting, developing and conserving water resources. Development of water technology is more on the burden of developed nations. Hence an international code of ethics related to water technology is needed so that a global benefit should be the target rather than national or private benefits.

Western point of view towards ethics is biased to Economic survival. It intends to persuade audience to purchase products and services. Ethics is given great emphasis to secular aspects. On personal level it is inclined towards Image creation and protection with limited personal liability at the corporate level. There is often a conflict between organizational and personal goals. Ethics in the west changes with time (based on transient values and standards). It took centuries to reach a code like human rights.

In Islamic terms fundamentals of ethics are based on Quran and practical examples are given in life and action of Prophet Mohammed (pbuh) and the way his companions understood and implemented his teachings. These ideals are based on the belief in God and the Day of Judgment, personal accountability at the metaphysical, purity of intent to serve just causes. Moral courage is required as well as compatibility between organizational consensus and personal consensus due to clarity of core values. Methods to create new solutions to modern problems based on Islamic principles are inherited in its teachings e.g. it accepts changing of habits as part of legal interpretation.

As for the situation in the Muslim countries, legal aspects are in a developing stage and the import of Technology is accompanied by import of

western values with poor ethics. Adaptation of technology locally is sometimes in conflict with local values. In spite of high respect to Islamic principles, sometimes they are neglected in practice. Local habits sometimes are against Islamic principles. However Muslims are trying slowly to bring into practice new rules based on Islamic Principles.

Islam has a great effect on life, behavior and values of Muslims. Islam has a unique phenomena of not being spiritual religion alone but it has a code of life which has a strong relations to normal life and behavior of Muslims. As Islam is the most misunderstood religion on earth, it is necessary to clarify its teachings in every aspect of life.

Water is very important in the Islamic faith. Prophet Mohammed (pbuh) said: "Cleansing is half the faith". In Islamic faith use of water for religious purposes includes: Ablution (Wudhu), Bath (Ghusul), cleansing (in toilets, other places, clothes..) , washing hands and clothes, and cleanness. All these are considered as some kind of worship.

In Quran a mention of water in many verses eg. :

- "We made from water every living thing."
- "And We send down pure water from the sky, thereby to bring to life a dead land and slake the thirst of that which We have created-cattle and men in multitudes."
- "Say: Have you considered, if your water were one morning to have seeped away; who then could bring you clear-flowing water?"
- "He has set free the two seas meeting together. There is a barrier between them. They do not transgress".
- "He is the one who has set free the two kinds of water, one sweet and palatable, and the other salty and bitter. And He has made between them a barrier and a forbidding partition".

During the Islamic Civilization, Muslim scientists paid lot of attention to water technology. Al-Jazari a Muslim scientist, wrote his book on machines in 1206 describing a two cylinder suction piston pump which can be said that it had a direct significance in the development of modern engineering. This pump is driven by a water-wheel, which drives, through a system of gears, an oscillating slot-rod to which the rods of two pistons are attached. The pistons work in horizontally opposed cylinders, each provided with valve-operated suction and delivery pipes. The delivery pipes are joined above the centre of the machine to form a single outlet into the irrigation system. This pump is remarkable for many reasons and was one of more than 30 similar inventions by the same scientist. They reflect the attention paid by Muslim scientists to research in water technology.

Any technology developed should take into consideration social aspects and habits of those using it. The hammams (traditional public bathroom), were very famous in all Muslim countries and reflect very efficient way of use of water in history.

Water management in Islam is an important aspect. Culture, including religion influences how people perceive and manage a resource such as water, and must be considered during policy development. This covers water-management policies, including water demand management, wastewater reuse, and fair pricing. Water technology for water reservation should include: leakage control, water efficient appliances, water efficiency programmes, communication/education and habits oriented equipment design.

Conservation is fundamental to the preservation and continuation of life in its various forms, plant, animal, and human. It is therefore obligatory, in Islamic law to do whatever is indispensable to fulfill the imperative obligation of preserving life as if this is in itself is obligatory. Any action that obstructs or impairs the biological and social functions of this element, whether by destroying it or by polluting it with any substance that would make it an unsuitable environment for living things or otherwise impair its function as the basis of life; any such action necessarily leads to the impairment or ruin of life itself, And the juristic principle is, "What leads to the prohibited is itself prohibited". Prohibition in religious terms is not enforcing by law only but creation of accountability inside believers that such action is a sin and the person is liable to punishment by God in the Day of Judgment. Owing to the importance of water as the basis of life, God has made its use the common right of all living beings and all human beings. All are entitled to use it without monopoly, usurpation, despoilment, wastage, or abuse. God commanded with regard to the people of Thamud and their camel, " And tell them that the water shall be shared between them," and the Prophet (pbuh), said, "Muslims are to share in these three things: water, pasture, and fire, "Extravagance in using water is forbidden; this applies to private use as well as public, and whether the water is scarce or abundant. It is related that the Prophet (pbuh), passed by his companion Sa'd, who was washing for prayer, and said, "What is this wastage, O Sa' d?" "Is there wastage even in washing for prayer?" asked Sa' d; and he said, "Yes, even if you are by a flowing river!"

In order to achieve that: Water should be held in the public domain, as a common good, Nations or neighbors should not go to fighting over water, Water resource management should be based on the perception of water as

an integral part of the ecosystem, a natural resource, and a social and economic good.

Products should be designed for users' environment not designer's environment. Reason for export for water technology should not be basically commercial but a humanitarian factor should be within. It is not ethical to export products which are not suitable for developing nations.

Since Globalization is in process, Why thinking about research and development for local benefits?. It rather should be developed on global level. If a certain technology is directed towards consumers in specific society, it should take belief, ethics, and local traditions of that society in its design. Ethics of water technology should then be looked at on new bases with the world becoming more and more one village.