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ISLAMIC WATER LAW AS AN ANTIDOTE FOR MAINTAINING WATER QUALITY

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This article analyzes traditional law regulating water pollution in Muslim countries and societies. It shows, from the attitude of the law toward the environment in general, and the development of water resources and subsequent allocation of water rights in particular, that water may not be reduced to the domain of private proprietorship. It argues that maintaining the public character of water is the best way to

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reclaim its quality and enhance optimum utilization of available resources in those societies.

I. INTRODUCTION

The water laws of many developing countries are still based on or influenced by Islamic law.[1] Considering the traditional worldview of Islam on water resources and water quality maintenance, it is a paradox that in Muslim countries water quality continues to deteriorate without any appreciable effort either by the public or the authorities to abate it. Islamic law treats water as distinct from other environmental elements, removes it from the pack of normal legal entitlements, and assumes its constant purity. Available data shows that water quality in Muslim nations is deteriorating due to enormous development challenges and rapid growth.[2] Thus, water quality degradation is an emerging pollution problem in these countries that needs to be arrested quickly.

This article attempts to examine that part of Islamic law relevant to the maintenance of water quality. Its premise is that when modern codes are strengthened in accordance with the Islamic water law scheme and its enforcement procedures, the quality of water resources will improve considerably. This article, therefore, focuses on water pollution or damage to water, rather than water availability, its utility, procedures for resolving conflict among competing users, or obligations regarding its operation and maintenance.[3] This article does not address damage done *by* water.[4]

The simplicity of the water pollution aspect of Islamic law, together with the effective regulation of the hydrological cycle, presents an alternative viewpoint for maintaining water quality to the wider international community. This article outlines the nature of Islamic law and sources of water law. Next it examines the basic rules regarding water pollution. Finally, these rules are applied to current trends and compared to relevant principles in other jurisdictions, especially those in the United States.

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1. DANTE A. CAPONERA, PRINCIPLES OF WATER LAW AND ADMINISTRATION: NATIONAL AND INTERNATIONAL 68 (1992) [hereinafter PRINCIPLES OF WATER LAW] ("In spite of subsequent written water laws introduced by external powers or other governments, the basic principles of Islamic water law are still observed and strictly followed, as local customs and usages, by the population.").

2. THE WORLD BANK, MIDDLE EAST AND NORTH AFRICA ENVIRONMENTAL STRATEGY: TOWARDS SUSTAINABLE DEVELOPMENT, at vi, The World Bank Rep. No. 13601-MNA (Feb. 1995). According to estimates, water quality degradation will escalate rapidly, especially the concentration of dissolved salts, heavy metals, and toxic organic substances. Due to the shared water resources in the Middle East, degradation of freshwater quality in one country will adversely affect others. *Id.* at 16.

3. Each of these issues is effectively discussed in D. A. CAPONERA, WATER LAWS IN MOSLEM COUNTRIES (1973).

4. This is more appropriately addressed by traditional Islamic tort law (*ta'addi*) or property law.

II. ORIGINS AND FOUNDATIONS OF ISLAMIC WATER LAW

Before the advent of Islam, the Arab Bedouins largely settled near watercourses and water was a constant source of tribal feuds.[5] Islam changed the concept of water by introducing a new doctrine focusing primarily on rights of use. The source materials for Islamic law are known to be the Holy Qur'an and the *Hadiths* (recorded sayings and practices of the Prophet Muhammad). These are developed in detail by jurists to meet the demands of the specific time and age. The principal objective of Islamic law is the approval of God;[6] thus, seeking harmony between the temporal and the spiritual.[7] The age-old notion of law was re-echoed recently by the Director of the Center for Islamic and Middle East Law School of Oriental and African Studies:

> Strictly speaking, the whole of the Quran is law in the Islamic sense of law as belief and as a set of obligations on the individual as to the ideal conduct required by God. Little distinction is therefore made between the moral and the legal in the western sense. The Quran - the word of God - purports to regulate the whole of a man's life; the word 'Muslim' refers to submission to the religion of Islam and its concomitant obligations.[8]

Obligations in Islamic law are broadly twofold: one owed to God, generally referred to as *'ibadat* (rituals—these are the five pillars of Islam: faith, prayer, fasting, almsgiving, and pilgrimage) and the other owed to society, referred to as *mu'amalat* (laws governing human relation).[9] According to a widely accepted classification, all human actions are subsumed under five categories: the strictly commanded (*fard*), the recommended actions (*mandub*), acts to which the law is

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5. CAPONERA, PRINCIPLES OF WATER LAW, *supra* note 1, at 69.

6. The approval of God as the principle objective of Islamic law contrasts sharply with the object of law in Western countries. Law in Western countries is widely considered utilitarian. *See* JEREMY BENTHAM, THE THEORY OF LEGISLATION 2 (C. K. Ogden ed., Richard Hildreth trans., 2nd ed. 1950) ("*Utility* is an abstract term. It expresses the property or tendency of a thing to prevent some evil or to procure some good."). It can also be seen as a morally-neutral command in the Austinian sense. *See* W.G. FRIEDMAN, LEGAL THEORY 14-16 (5th ed. 1967) ("[T]he concept of law means a norm of conduct set for a given community—and accepted by it as binding—by an authority equipped with the power to lay down norms of a degree of general application and to enforce them by a variety of sanctions."). If we must extend it to contemporary Muslim communities, the Austinian philosophy of law must be divided into two broad segments. First, it is true that in Islamic countries law is a command of the 'sovereign.' However, the sovereign is God. He alone is the lawgiver; state apparatuses are enforcers. The second segment of Austinian philosophy, separating law from morality, cannot be accommodated under Islamic law. God, much less His representatives, will not command what He considers immoral.

7. The technical term for Islamic law is *Shari'ah*, meaning the right path.

8. ISLAMIC LAW AND LEGAL THEORY at xvi-xvii (Ian Edge ed., 1996).

9. C.G. WEERAMANTRY, ISLAMIC JURISPRUDENCE: AN INTERNATIONAL PERSPECTIVE 31 (1988) ("It is important to remember, of Islamic law, that it deals with two broad aspects of regulation. First there is the set of laws dealing with man's duties towards God .... There then follow the laws governing human relations (*mu'amalat*) such as marriage, divorce, succession.").

indifferent (*ja'iz*), acts that are advisable to refrain from (*makruh*), and finally acts that are strictly prohibited (*haram*).[10] Islamic law is strictly concerned with the activities that fall under the first and last categories.

To a large extent Islamic law is not molded by society because human minds can easily be led astray; rather, law controls society. The will of God, not public opinion, is the source of law. In this regard the Islamic doctrine of certitude (*'ilm al-yaqin*) applies. The doctrine implies that in the matter of Good and Evil, we as humans lack the ability to differentiate. What is absolutely beautiful and moral and what is absolutely ugly can only be determined for certain by God.[11] For that reason divine law shows humankind the "right path" (*Shari'ah*) to be traveled in order to achieve salvation.[12] The ideal life was that lived in conformity with this law. The sources of Islamic law in general, which also invariably serve as sources of water law, will be considered next.

A. SOURCES OF ISLAMIC LAW

Islamic law sources fill two broad categories: primary sources, comprised of both the Qur'an and *Hadiths*; and secondary sources, which are means for discovering the law as expressed in the primary sources. The secondary sources are comprised of *ijma'* (consensus) and *ijtihad* (reasoning). Various modes of exercising *ijtihad* include the generally accepted *qiyas* (analogy), and less accepted *'istislah* (welfare of the community) and *'istihsan* (choice of one out of two *Hadiths* bearing on the same subject).

1. The Qur'an

All periods of Islamic legal history and all strands of Islamic jurists hold the Qur'an as the foundation of Islamic jurisprudence. A United Nations document summarizes its position thus: "The Qur'an, the word of God, is perfection itself—it is unchallengeably true, infallibly just."[13] Each text of the Qur'an contains layers of meaning which only learning and devotion can reveal.[14] Few books in the history of

10. J.N.D. ANDERSON, ISLAMIC LAW IN THE MODERN WORLD 3 (1959). For instance, fulfillment of terms of agreements is *fard*, additional prayers are *mandub*, certain kinds of fish are *makruh*, eating pork, drinking wine, or dealing in usurious transactions are *haram*, and a host of other things such as air travel are *ja'iz*.

11. ASAF A. A. FYZEE, OUTLINES OF MUHAMMADAN LAW 15 (4th ed. 1974) ("We in our weakness cannot understand what Good and Evil are unless we are guided in the matter by an inspired Prophet.").

12. "Law, therefore, does not grow out of, and is not moulded by, society as is the case with Western systems. Human thought, unaided, cannot discern the true values and standards of conduct.... In the Islamic concept, law precedes and moulds society; to its eternally valid dictates the structure of State and Society must, ideally, conform." N. J. COULSON, A HISTORY OF ISLAMIC LAW 85 (1995).

13. WEERAMANTRY, *supra* note 9, at 32 (quoting UN Doc. Vol. XIV at 375-79 based on the UN Conference on International Organization (1945)).

14. WEERAMANTRY, *supra* note 9, at 34.

mankind have received such attention and arduous and continuous learning as the Qur'an. It is not uncommon that one verse of a few lines takes a whole treatise to expound.[15]

Islamic law is founded on the teachings that are contained in the Holy Qur'an. The Qur'an is the apex of authority not only on legal affairs of Muslims, but also on their social and political matters. The primacy of the Qur'an on the orderings of Muslims' daily affairs cannot be overemphasized. Proper recognition of this simple fact will help in appreciating the labor that Muslims, over the past fourteen centuries, have striven with candor to espouse. It is mentioned in the Qur'an that the substance of this law existed in its perfect and most complete form in the "Mother Book."[16] The only difference is that norms of natural law exist in nature, to be discovered by reason, while "the norms of Islamic law were 'discovered' by (or revealed to, in Islamic conception), Allah's Apostle."[17]

It is not an afterthought that the Qur'an stands so high—Islamic law is a part of the whole culture of Islamic faith. It is a fundamental tenet of the faith that mankind completely submits to the will of God. "Law," then, in any sense that a Western lawyer recognizes the term, is but a part of a combined whole of the Islamic system. It is true that most legal systems have sometime in their history been connected with religion but, as rightly observed, "the two great Semitic systems—the Jewish and the Islamic, are probably unique in the thoroughness with which they identify law with the personal command of a single Almighty God."[18]

2. The Hadiths

The second primary source of law is the Prophetic Traditions, known as either Sunnah or Hadith. Technically, *Hadith* refers to the sayings, deeds, and acquiescence of the Prophet. On the other hand, *Sunnah* means the rule of law deduced from *Hadith.* Nevertheless, both terms have generally been used interchangeably to mean the "practice" of the Prophet.[19] Both the Qur'an and *Hadith,* compositely referred to as *nass* (binding ordinance), are considered to be revelations from God. The difference is that the Qur'an is a direct revelation while the *Hadith* is an indirect revelation, since they are

15. "The foreign observer is continually surprised at the number of scholars who know the Qur'an by heart, from cover to cover, carrying every word in their minds, together with the principal interpretations placed upon it over the centuries." *Id.* at 55.

16. Majid Khadduri, *Nature and Sources of Islamic Law,* 22 GEO. WASH. L. REV. 3, 8 (1953) [hereinafter *Nature and Sources*]. The Qur'an states: "And verily, it [this Qur'an] is in the Mother Book, before Us, indeed exalted, full of wisdom." Qur'an 43:4.

17. Khadduri, *Nature and Sources, supra* note 16, at 8.

18. S.G. Vesey-Fitzgerald, *Nature and Sources of the Shari'a, in* LAW IN THE MIDDLE EAST, 85, 85 (Majid Khadduri & Herbert J. Liebesny eds., 1955).

19. FYZEE, *supra* note 11, at 20.

expressed in the words of the Prophet.[20] The *Hadith* is a source of law that is to be consulted if the Qur'an is silent or requires interpretation. The Prophet also rendered decisions on specific matters and all these became binding.

3. Ijma'

The third source of Islamic law, absent a passage from the Qur'an or the *Hadith*, is consensus among Islamic scholars of a particular age.[21] Such consensus cannot be inconsistent with the Qur'an or *Sunnah*. A rule so arrived at becomes part of law binding on subsequent generations. The authority for consensus as a means for determining the law is a *Hadith* from the Prophet saying, "My nation will not agree unanimously in error."[22]

An obvious limitation to utility of consensus, despite its potentiality in law development, is that it has been difficult to put into practice since scholars have always been scattered throughout the Islamic empire.[23] Thus, consensus has seldom been used in Islamic history. However, it still poses tremendous challenges to the present generation of jurists; even as the advantages of technology are utilized, the procedure for achieving unanimity has not been defined and articulated.

4. Qiyas

If for any reason the above three sources do not address a particular issue of concern, then scholars resort to the *qiyas*, reasoning by analogy and logical inferences.[24] Only scholars who are familiar with the law and are highly learned can perform this process of *ijtihad*, or reasoning.[25] Consequently, the Qur'an, *Hadith*, consensus (*ijma'*), and analogy (*qiyas*) are the four main sources of Islamic law agreed upon and employed by jurists as they attempt to distill positive rules in

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20. *Id.*

21. However, to Imam Shafi'i, consensus is that of the community at large. "So we accept the decision of the public because we have to obey their authority, and we know that wherever there are sunnas of the Prophet, the public cannot be ignorant of them, although it is possible that some are, and we know that the public can neither agree on anything contrary to the sunna of the Prophet nor on an error." MUHAMMAD IBN ISMA'IL AL SHAFI'I, ISLAMIC JURISPRUDENCE: SHAFI'I'S RISALA 286 (Majid Khadduri trans., 1961).

22. WEERAMANTRY, *supra* note 9, at 39.

23. Khadduri, *Nature and Sources*, *supra* note 16, at 16.

24. This is not dissimilar from the common law notion of precedent. *See* John Makdisi, *Legal Logic and Equity in Islamic Law*, 33 AM. J. COMP. L. 63 (1985) (citing authority for legal deduction in Islam).

25. The Prophet sent Mu'adh Ibn Jabal as a judge to take charge of legal affairs in Yemen and asked him on what he would base his legal decisions. "On the Qur'an," Mu'adh replied. "But if that contains nothing to the purpose?" asked the Prophet. "Then upon your usage," answered Mu'adh. "But if that also fails you?" asked the Prophet. "Then I will follow my own opinion," said Mu'adh. Then the Prophet approved his method. DUNCAN B. MACDONALD, DEVELOPMENT OF MUSLIM THEOLOGY, JURISPRUDENCE AND CONSTITUTIONAL THEORY 86 (1965).

accordance with God's command. For obvious reasons, legal reasoning was bound to give rise to differences of opinion among jurists and this gave rise to schools of law in Islamic jurisprudence.

B. SCHOOLS OF LAW

Due to the position they occupy in development of the law, jurists need special mentioning in any analysis of the development of Islamic schools of law. Jurists have employed the above sources in a unique manner so that their teachings later crystallize as distinct from each other. An understanding of jurists and their schools of law in Islam is important to grasping their continued impact on Islamic jurisprudence. As in most legal systems, differences of opinion do occur among jurists on different legal issues.[26] The difference in Islamic law is that jurists occupy a unique position probably unfamiliar to other legal traditions. In the absence of any formal council or body whose pronouncements would carry authority, as in the Christian tradition, or in Buddhism, which also has a sacred law, individual Muslim jurists came to earn respect and prestige solely on account of their great learning and piety.

This absence of institutionalization meant that divergent opinions could not be unified through a majority poll effectively discarding that of the minority. Each view carried the force of law. Pupils of the founders of each school thereafter applied the rules in their respective territories according to their established norms. Historical data points to the fact that most of the founders of these schools did not know in their lifetimes that they were establishing formal and distinct schools; the charisma and erudition of their later pupils identify and distinguish these founders.[27]

The first and largest school of law today is that of Abu Hanifa (699–766 A.D., 80–150 A.H.—Muslim calendar) in Kufa (Baghdad, Iraq). Named after the founder, the Hanafi School is considered the most liberal of all due to its extensive reliance on *qiyas* or analytical deduction. Hanifa had two great disciples who extensively elaborated on his teachings: Abu Yusuf—who became the Chief Judge, and Muhammad al-Shaybani—the foremost proponent of Islamic international law. It should be noted that *qiyas* represents a structured

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26. Weeramantry posits in *Islamic Jurisprudence*:

> In Greek philosophy for example Aristotle pointed out (Nichomachean Ethics, Book V) that the general language of a statute must always be tempered by equitable interpretation to meet the particular needs of a case. In China there was a bitter debate between legalists who argued for a strict and stern interpretation of the law and the Confucians who argued for a flexible and equitable interpretation. The Romans were divided between the Proculian and Sabinian schools who differed on the question of literal and liberal interpretation. Today in modern common law we see different judges contending for different approaches to interpretation.

WEERAMANTRY, *supra* note 9, at 47.

27. Abu Hanifa, founder of the first school, left no legal writings for posterity. His views were organized and expounded by his immediate pupils. MACDONALD, *supra* note 25, at 96.

process of the wider doctrine of the use of *ra'y* (systematic reasoning), which the Hanafis were credited to have developed.[28] They and other Iraqi jurists were referred to as "people of opinion" (*ahl al-ra'y*) while their contemporary jurists in Medina were referred to as "people of tradition" (*ahl al-hadith*).[29]

It is hard to contest the reason given by Fyzee as responsible for this reliance: the science of *Hadith* had yet to fully develop and therefore there were no recognized collections available.[30] Historical facts tend to support geographical factors as a reason for the school's heavy reliance on *ra'y*. The jurists of Arabia were not under pressure to resort to personal opinion because the traditions and customs of Arabia, as approved by Islam, were known to them. In Iraq, Arabs came in contact with different civilizations and customs. This intermingling exerted enormous pressure on jurists there to be creative and sometimes speculative. A new and developing capital of the Islamic state, Iraq was a melting pot of various people, and interpolation of *Hadiths* was more probable in Baghdad than in Medina.

The Maliki School, named after Imam Malik Ibn Anas (713–795 A.D., 90–179 A.H.), developed in Medina, Saudi Arabia. Unlike the Hanafi School, it de-emphasized *ra'y* and placed heavy reliance on *Hadith* or tradition.[31] His book, *The Beaten Path* or *Al-Muwatta'* is the first book of law in Islam.[32] It is a reflection of the practice of Medina and, since most of his followers were practicing lawyers, the book addressed practical issues rather than speculative ones (as Abu Hanifa did).[33]

The third school is that of Imam Shafi'i (767–820 A.D., 150–204 A.H.), known as the Shafi'i School. A pupil of Imam Malik, Shafi'i is regarded as the founder of classical Islamic jurisprudence known as *'usul* (literally meaning the "roots" of the law; in comparison with *furu'* or positive law). His work has attracted a great deal of attention from Western scholars. He carried technical legal thought "to a degree of competence and mastery which had not been achieved before and was hardly equaled and never surpassed after him."[34] His greatness lies in striking a balance between the extreme views of the Iraqi rationalists, and the Medinese traditionalists. The former do not pay sufficient attention to traditions while the latter aspire to a thorough traditional foundation of their doctrine so much that they accept traditions from transmitters from whom it would be better not to accept them.[35]

The Hanbali School was founded by Imam Ahmad Ibn Hanbal

28. WEERAMANTRY, *supra* note 9, at 50.
29. Khadduri, *Nature and Sources*, *supra* note 16, at 18.
30. FYZEE, *supra* note 11, at 34.
31. JOSEPH SCHACHT, ORIGINS OF MUHAMMADAN JURISPRUDENCE 6 (1950).
32. FYZEE, *supra* note 11, at 34.
33. WEERAMANTRY, *supra* note 9, at 51.
34. SCHACHT, *supra* note 31, at 1.
35. *Id.* at 36.

(780–855 A.D., 164–241 A.H.), who was sometimes considered more of a theologian or traditionalist than a jurist.[36] It is regarded as the strictest of the schools, holding that the only roots of the law were the Qur'an and the Sunnah.[37] The door of *ijtihad* or independent reasoning was thought to have been closed in the fourth century of Islamic era and jurists merely became exponents of one of the canons of one of these schools. The books of these founders became the standard law texts and later jurists could only annotate these works. Muslims of one school may cross over to another without remorse since all the schools are considered orthodox.

Apart from the four Orthodox or Sunni schools of law, another group that is considered as distinct is the Shi'ah. The fundamental difference between the Shi'ite and Sunni notion of law is the Shi'ite doctrine of *imamate*, entitlement to the Caliphate only by descendants of the Prophet.[38] The imam is infallible and sinless (*ma'sum*) and is the repository of Islamic truth. This makes the Shi'ite concept of law more authoritarian than its Sunni counterpart.[39] However, the Shi'ah also accepted that the Qur'an is the primary source of law without question, and the *Hadith* is also accepted, but only if it is relayed by an imam.[40] "The differences between the Shiite and Sunni law in matters of detail (*furu'*)," writes Khadduri, "are hardly more marked than those between one Orthodox Sunni school of law and another. Apart from the doctrine of the *imamate*, . . . the Shiite system might have constituted a fifth *madhhah*, or school of law."[41]

III. WATER POLLUTION LAW

A. ISLAMIC PHILOSOPHY OF THE ENVIRONMENT

A thorough analysis of water quality is necessary to comprehend the manner in which Islamic law constructs the whole phenomenon of nature or environment.[42] The word "environment," strictly meaning

36. FYZEE, *supra* note 11, at 35.

37. A latter Hambali scholar who elevated the school from 1260-1327 A.D. was Ibn Taymiyyah, who improved quality of reasoning by analogy.

38. Khadduri, *Nature and Sources*, *supra* note 16, at 20. The division between Sunni and Shi'ite Muslims became open after the demise of the fourth Caliph, Ali, in 622 A.D. (40 A.H.). Ali was the cousin and son-in-law of the Prophet. The Caliphate should have gone to one of the sons of Ali instead of the Umayad dynasty. The doctrine of the imamate holds that the Prophet designated Ali and after him his descendants in direct line as Caliphs. Accordingly, the twelfth imam, Muhammad ibn al-Hasan al-Askari, became an imam but mysteriously disappeared in 874 A.D. No other imam has been selected since then because his *ghaybah*, or absence, is temporary and he will return as a messiah to dispense justice. During the Imam's absence, scholars may interpret the law as agents of the Imam. *Id.* at 20-22.

39. *Id.* at 22.

40. *Id.* at 23.

41. *Id.*

42. *See* James P. Pinkerton, *Enviromanticism: The Poetry of Nature as Political Force*, 76 FOREIGN AFFAIRS 2, 5-6 (1997). Presently, it has become fashionable to extol the virtues

the aggregate of land, water, and air, including their organisms (or its current connotation in Arabic, *bi'ah*), does not appear as such in the Qur'an.[43] However, the various components that constitute the environment receive abundant mention. Sea, land-locked water, rain water, land and its varied vegetation and organisms, and outer space are detailed therein. Scholars have also referred to human environment as *tabi'a*, also a non-Qur'anic term. Despite its apparent similarity with *bi'ah*, *tabi'a* is not derivative but is sometimes also known to mean nature.[44] The most extensively used word in the Qur'an that encompasses the environment is *kaun*, literally meaning the thing that exists, presuming that it was preceded by non-existence. *Kaun* is based on Islam's worldview of existentialism, the manner in which God ordered the existence of the universe from the command, *kun* or "be!," God's act of initiating all that exists.[45]

Islamic environmental philosophy indicates that all creatures exist independent of their utility to human beings.[46] The universe, and every thing therein, is a creation of God, and humans must love and admire the objects of the world, human and non-human. The reason for this love is the fact that the world's objects are made by God.[47]

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of natural resources conservation. Some strands of the current biocentricism stress equality between humans and other forms of life, *see id.* at 5, and others emphasize innate and emotional affiliation of human beings to other organisms, which has been referred to as 'biophilia,' *see id.* at 6.

43. *Bi'ah* has been used in Arabic to connote surrounding, as in a fetus' womb, a house, the globe, or the universe. It is now used specifically to mean environment. RASHID AL-HAMD & MUHAMMAD SA'ID SABARINI, AL-BI'AT WA MUSHKILATUHA 14-29 (3rd ed. 1986).

44. There is no consensus over the meaning or nature of *tabi'a*. The meaning ascribed to it reflects the debate about "nature" as an intelligible, independent being that possesses volition and reacts to effects. Consequently, *tabi'a* has many uses either as a philosophical term or as a universal function. Avicenna sees it as an essential first principle (*mabda' awwal*). To the Ikhwan al-Safa, (a group that was concerned about the structure of the universe) *tabi'a* is one of God's angels who carries out God's orders. Unlike the philosophers, theologians used the term *tabi'a* in the context of causality to mean natural disposition of the physical entity that determines its behavior. *See* S. NOMANUL HAQ, ENCYCLOPEDIA OF ISLAM 25-28 (1998) (defining the word *tabi'a*).

45. "But His command, when He intends a thing, is only that he says unto it: Be! [*kun*] and it is." Qur'an 36:81. The universe is therefore a thing that "is" through this command.

46. "The Seven Heavens and Earth and all beings therein celebrate His praise, and there is not a thing but hymns His praise." Qur'an 17:44. All organisms such as bees, ants, trees, and mountains hallow the praise of God in their own way though humans do not comprehend this. *Id.* *See* SEYYED HOSSEIN NASR, RELIGION & THE ORDER OF NATURE 281 (1996).

47. Islam is entrenched with the notion that every creature is a symbol (*ayat*) revealing an attribute of God, enjoining Muslims to contemplate the wonders of God in nature. *See* Seyyed Hossein Nasr, *Islam and the Environmental Crisis*, *in* SPIRIT AND NATURE 86, 88-89 (Steven C. Rockefeller & John C. Elder eds., 1992). Therefore, the purpose of creation, apart from being an avenue for appreciating the beauty and order of nature, is related to knowing God and submission to him, and nature is the contemplative symbol of this reality just as the Qur'an represents the intellectual sign. "Those who . . . think deeply about the creation of the heavens and the earth, (saying): 'Our Lord! You have not created (all) this without purpose.'" Qur'an 3:191.

Humans must not condemn any object since they, their acts, and all other creatures derive from God. Humans must be justified in depriving any organism of its primary habitat by lofty ideals that are consistent with their role as stewards or vicegerents of God. Excessive exploitation of the environment driven by insatiable consumerism, individual economic gain, or limitless development, is hardly consistent with the trusteeship of humankind over all other matters.[48]

Islam insists that humankind, despite its recognized elevation, is closely interrelated with all other organisms, and rejects the notion that no other creature, apart from humans, matters.[49] Islamic environmental philosophy is not merely about romanticizing wilderness, pantheism, equating other organisms with humans, or demeaning nature as a dead matter. Islam views protection of the environment as a sacred duty of humankind based upon the exalted position the environment occupies as a higher authority responsible for the treatment of lesser creatures.[50]

B. PUBLIC CHARACTER OF WATER

Based on the holistic nature with which Islam constructs the universe and the interrelationship of all organisms, it is not surprising how it seeks to regulate water quality. The development of water law in Islam has been thoroughly studied by Muslim jurists. Much of the interest may be due to the fact that the law permits only unpolluted water for use in all rituals. Regulation of water quality therefore is not a domain where one finds substantial divergence in jurists' opinions. Islamic law adopted a system of water law that recognizes riparian rights, establishes a community of water use, and strictly controls appropriative rights.[51]

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48. Islam considers humans to be a part of a single structure of the universe that is intimately interrelated. Humans are at the apex of this structure on earth wherein they are to act as representatives of God, taking God's due and giving them their own due. Qur'an 2:30. The Qur'an also states, "[w]e offered the Trust to the heavens and the earth and the mountains, but they drew back from bearing it and feared to do so. It is Man who bore it." *Id.* 33:72. Man's position in this structure does not imbue him with the power to destroy, to re-create, or to rule over nature; otherwise, man would have taken ultimate authority.

49. SEYYED HOSSEIN NASR, MAN AND NATURE: THE SPIRITUAL CRISIS OF MODERN MAN 94 (1968).

50. It is reported from the Prophet Muhammad that one of the previous prophets once sat down under a tree and was bitten by an ant whereupon he ordered the tree and the ant colony to be burnt. Allah reproached him, saying, "Have you destroyed a whole community that glorifies Me because of an ant that bit you?" 4 SAHIH AL-BUKHARI, THE TRANSLATION OF THE MEANINGS OF SAHIH AL-BUKHARI 162 (Muhammad Muhsin Khan trans., 1985).

51. CAPONERA, PRINCIPLES OF WATER LAW, *supra* note 1, at 69.

> No one can refuse surplus water without sinning against Allah and against man. Also animals must not be allowed to die of thirst, and the water which remains after a man has quenched his thirst must be given to them. It would seem that the Prophet Mohammed declared that water should be, together with pasture and fire, the common entitlement of all Moslems, that he prohibited the selling of it, and that he had established a community of water use among men (citations omitted).

Generally, the law requires a person to exercise a higher standard of care where his action adversely affects the interest of the public or may cause injury to it.[52] Thus a person may undertake any kind of activity on his land to the extent that he does not degrade it or expose any beings, human or non-human, to danger.[53] This requirement is more pronounced in the case of water which, unlike land, is a resource held in common by society. "The fundamentals of Islamic water law purport to ensure that water is available to all members of the Moslem community. This is why in many modern Moslem countries water legislation considers water resources as belonging to the whole community, i.e., the state, or the public domain."[54] An individual's water right is limited by its priority of use, and it is not a commodity for exclusive ownership, despite personal expenses in its acquisition or purification.[55]

The *Majallah* provides that people have the right to use water from all sources, including those on private property.[56] Private acquisition or sale of water or water rights is still uncommon in the Islamic world. Although water may be acquired through ownership of land on which it is located, the right of the public to use such water for specific purposes cannot be denied.[57] Water is considered common property. Therefore, exclusive proprietary interests are not ordinarily permitted. If an ownership right entitles one to an exclusive use, and to freely dispose of a commodity, then under Islamic law water cannot be the

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Id.

52. It is obvious also that a private injury is tolerated in order to ward off a public one. MAJALLAH, art. 26. *Majallah* is the first compilation, and codification as such, of civil Islamic law. It was promulgated by the Ottoman Empire in 1869 for the use of the newly established Civil Courts, and was later found in various forms in most Islamic territories of the time. F. M. Goadby, *The Moslem Law of Civil Delict As Illustrated by the Mejelle,* 21 J. COMP. LEGIS. & INT'L L. 62, 62 (1939). *See* ALI IBN BAKR, THE HEDAYA, OR GUIDE: A COMMENTARY ON THE MUSSULMAN LAW (Charles Hamilton trans., Islamic Book Trust 1982).

53. ABUBAKAR AHMED BAGADER, ET AL., ENVIRONMENTAL PROTECTION IN ISLAM 9 (2nd ed. 1994).

> For to cause the degradation of this gift of God, upon which so many forms of life depend, is to deny His tremendous favors. And because any act that leads to its destruction or degradation leads necessarily to the destruction and degradation of life on earth, such acts are categorically forbidden.

Id.

54. CAPONERA, PRINCIPLES OF WATER LAW, *supra* note 1, at 68.

55. Jurists laid down in great detail the priority of water usage in various circumstances, such as drinking, domestic, and industrial rights. For instance, the order of priority for riparian users begins with users nearest to the water, followed by earlier established water rights, and ending by lands located on a higher ground. *Id.* at 71-72.

56. MAJALLAH, art. 1263. *Majallah* is the first compilation, and codification as such, of civil Islamic law. It was promulgated by the Ottoman Empire in 1869 for the use of the newly established Civil Courts, and was later found in various forms in most Islamic territories of the time. F. M. Goadby, *The Moslem Law of Civil Delict As Illustrated by the Mejelle,* 21 J. COMP. LEGIS. & INT'L L. 62, 62 (1939). *See* ALI IBN BAKR, THE HEDAYA, OR GUIDE: A COMMENTARY ON THE MUSSULMAN LAW (Charles Hamilton trans., Islamic Book Trust 1982).

57. D. A. CAPONERA, WATER LAWS IN MOSLEM COUNTRIES 38-39 (1973).

subject of private appropriation.[58] The Prophet set forth the principle when he said: "All members of the community are equal partners in three things: water, fire, and pasture."[59]

C. WATER QUALITY

Having established that water may not be exclusively appropriated, the next concern lies in examining rules of Islamic law that regulate sources and discharges of pollutants into water bodies. In its natural condition, all water is presumed clean. Water must be conserved. Further, the government must place water pollution prevention in high priority. As a common resource, everyone is obliged to keep all waters clean. Regarding the water of rivers, the Prophet said, "Its water is clean."[60] In this regard, clean water does not necessarily suggest suitability for human consumption. Water is clean (*tahir*) when it is in its natural state or distilled form.[61]

Jurists extensively elaborate on water quality that may be utilized for ritual purposes. Water loses its purity when a contaminant changes its color, taste, or odor and, therefore, pollutes it (*najis*).[62] Accordingly, the law has classified water into four categories with respect to its quality. According to Sayyid Sabiq, the first is *mutlaq* water and is constituted by rainwater, snow and hail, sea water, altered water, and water from the Zamzam Well in Mecca.[63] All other natural bodies of water are also *mutlaq*, even where they become altered. However, the alteration must be due to long-term storage resulting from its natural course or location. Altered water also includes water that is mixed with natural substances that cannot be removed, such as algae or tree leaves. The second classification of water is used water, which refers to water that has been used for ablution (*ghusl*). Third is water that is mixed with pure elements. All water mixed with pure elements is legally clean. Finally, there is water that is mixed with impure elements. This last classification is further divided into two

58. Reviews of water laws of leading Muslim countries reflect this principle. "It appears that in Moslem countries modern codifications of water law aim at institutionalizing, in one form or another, the concept of community of interest in water resources which constitutes the traditional basis of Moslem customary water law." CAPONERA, PRINCIPLES OF WATER LAW, *supra* note 1, at 75.

59. BAGADER, *supra* note 53, at 7; *see also* CAPONERA, *supra* note 1, at 69.

60. This was said in the context of questioning cleanliness of rivers. One of his companions, apparently a seaman, complained about the inadequacy of potable water on the high seas for ritual washing. MALIK IBN ANAS, AL-MUWATTA', § 27 (Abdel-Magid Turki ed., 1994).

61. "And We send down pure water from the sky." Qur'an 25:48. "And He caused rain to descend on you from heaven to cleanse you therewith." *Id.* 8:11. In their natural state, different waters perform different functions: "It is He Who has made the sea of service, that you may eat thereof flesh that is fresh and tender, and that you may bring forth from it ornaments to wear, and you see the ships therein that plough the waves, that you may see His bounty." *Id.* 16:14.

62. J.C. Wilkinson, *Islamic Water Law with Special Reference to Oasis Settlement*, 1 J. ARID ENV'TS 87, 89 (1978).

63. SAYYID SABIQ, FIQH US-SUNNAH 1-2 (Muhammad Sa'eed Dabas & Jamal al-Din M. Zarabozo trans., 1991).

subcategories. First is impurity that does not alter any of its characteristics (taste, color, and odor). This is also considered clean for ritual purposes. Second is impurity that overwhelms the water such that one of its characteristics of taste, color, or odor is adversely affected. Only this subcategory is considered unclean and polluted under the law.[64] The presumption of Islamic law is that water cannot be anything but clean. "The rationale is simple: everything that falls under the general term of water, without any further qualifications, is considered pure . . . ."[65]

Good management and water conservation are express requirements of the law. There is no acceptable reason to engage in water waste, not even for what is considered the most important of all uses—washing for prayer. An encounter between a companion who was washing for prayer and the Prophet himself illustrates this point. The Prophet observed his companion's extravagance in his use of water and asked, "What is this wastage, O Sa'ad?" Sa'ad said, "Is there wastage even in washing for prayer?" "Yes, even if you are by a flowing river!" the Prophet replied.[66]

By its status as common resource, water belongs to the realm of matters that are technically referred to in Islamic law as *huquq Allah,* or rights of God.[67] These rights are so called, not because they are eschatological or next worldly in enforcement but because their enforcement is highly emphasized by God. Compared with *huquq al-'ibad,* or rights of humankind, which are mainly contractual or tortious, the rights of Allah cannot be remitted, pardoned, relaxed, or compromised. The judge, plaintiff, or the state has little discretion on their strict enforcement. The rights of Allah include those that touch and concern public interests as a whole, with no specific attachment to any one person.[68] The same requirement of enforcement is demanded, albeit with a modicum of discretion for the judge (or in appropriate cases the plaintiff) where the rights of Allah and those of humankind become entwined.

The importance of these rights to water pollution is that waters, especially those that run on public land such as rivers and bays, cannot be anything but part of the rights of Allah. If not, then at least a mixture of both categories of rights. Historically, water has been accorded a higher priority for management and protection. Inviolable rights such as those conferred by incidences of proprietorship are made subservient to water rights. In one case a plaintiff, al-Dahak, wanted to acquire water by digging a canal. The only way he could reach the water was by digging through the land of Muhammad Ibn Muslimah, the defendant. The defendant strongly opposed the idea of

64. *Id.* at 4.

65. *Id.* at 2.

66. BAGADER, *supra* note 53, at 6.

67. ABUL HASSAN 'ALI IBN MUHAMMAD IBN HABIB AL-BASRI AL-MAWARDI, AL-AHKAM AL-SULTANIYYAH WA'L WILAYAT AL-DINIYYAH 273 (1978).

68. *Id.*

a canal passing through his property. Caliph Umar decided in favor of the plaintiff, notwithstanding the defendant's strong objection.[69]

Similar concern should be used to prevent the misuse of water, notwithstanding that it offends individual proprietary rights. The authorities have a higher responsibility in protecting water as a resource than they do in enforcing other laws. This responsibility is discharged once the state takes positive steps to clean polluted waters or maintain them in their natural condition by regulating polluters' activities. In any event, the law requires that water be kept free from pollution so that it may continue to perform its social and religious functions, as well as serve as habitat for a great number of creatures. A polluted body of water cannot be used for any lawful purpose such as drinking, swimming, washing, and navigation.[70]

The laws for maintaining water quality are not premised on property law or even on tort law. They are ecocentric, based solely on the character of water. For instance, landowners where groundwater is located are liable for polluting it without further inquiry. It is immaterial whether the polluting activity occurred on private or public property. Liability is contingent on the simple notion that, strictly speaking, one cannot "own" water and is, therefore, liable for polluting public property. One's state of mind is irrelevant to the question of liability, thereby barring intent-based defenses. Preventing water pollution on public land is even less complicated under Islamic jurisprudence. Therefore, unlike the state's insignificant power of control over pollution on developed private lands, its authority over water is tremendous. This is because water is not ordinarily susceptible to private ownership. Since such right is non-existent, the state's power to effectively regulate water pollution is theoretically without limit. Indeed the legal requirement for *harims*, or protective areas for water bodies, further strengthens the need to prevent water pollution.

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69. IBN ANAS, *supra* note 60, 36 BOOK OF JUDGMENTS § 36.26.33, at 346.

70. In its natural form water serves various purposes some of which are known and others yet unknown to humankind. "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." Qur'an 25:50. Fishing is also part of it. "Lawful to you is the pursuit of water-game and its use for food - a provision for you, and for those who travel." *Id.* 5:96. "It is He Who subjected to you the sea, that you may eat thereof flesh that is fresh and tender, and that you may extract therefrom ornaments to wear; and you see the ships therein that plough the waves, that you may seek of the bounty of God and that you may be grateful." *Id.* 16:14.

According to Dr. Bakhashab, that water pollution is punishable by God should be sufficient deterrence against pollution. Additionally, water pollution is an infringement against the right of the innocent public to utilize the resource:

> Pollution of water such as that caused by the disposal of vast quantities of waste created by industry and other developments of modern life may also infringe upon this right [the right of public to use] and is thus also a transgression of the rights of all, which is a clear contradiction of the will of the Almighty and, while it is sinful to refuse water to a wayfarer, for which one deserves to be sorely punished on the day of judgment, spoiling water by polluting it is also punishable by the wrath of God.

Dr. Omar A. Bakhashab, *Islamic Law and the Environment: Some Basic Principles*, 3 ARAB L. Q. 287, 293 (1988).

D. *HARIM* OR PROTECTIVE ZONE

Harim is a devise that was first developed by the Prophet and expounded by jurists to protect water from being polluted, among other things.[71] The Prophet "recognized that the ownership of canals, wells and other water sources entailed the ownership of a certain extent of bordering land or *harim* on which it was forbidden to dig a new well . . . ."[72] *Harim* is mainly associated with watercourses and rivers, but is also applicable to lands.[73] It is the land that immediately adjoins all the corners of a well or the bank of a river.[74] It is the buffer zone surrounding a water body within which human activities, apart from the lawful use of water, are prohibited. The cardinal rule of *harims* adjoining waters is that they must remain undeveloped.[75]

Literally meaning an area or zone that is protected, *harim* has been defined legally in size and distance according to the type of water it protects. The issue of fixing suitable buffer zones for each water body is left to experts in the field of hydrology. There is no fixed diameter or size of zones abutting these waters. The base requirement for the diameter is such width as will prevent pollution. Furthermore, a *harim* on privately owned property surrounding a water source, such as a well, belongs to the owner of the property and the government cannot allocate it to a third party.[76]

IV. ISLAMIC REGULATORY REGIME CONSIDERED

River Harims are often referred to as "wetlands." When establishing practical regulatory regimes to maintain water quality and regulate the use of wetlands, contemporary Muslim governments are at liberty to set limits for a particular wetland depending on experts' understandings of area's hydrology and its aquatic ecosystem.[77] This is

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71. 'UTHMAN IBN FUDI, BAYAN WUJUB AL-HIJRA 'ALA 'L-'IBAD 72 (F.H. El Masri ed. & trans., 1978).

72. CAPONERA, PRINCIPALS OF WATER LAW, *supra* note 1, at 69.

73. By its broadest connotation, *harim* is a site associated with a developed area that must itself remain undeveloped. Every developed area such as a residence, a farmhouse, a well, or a bay, has its own *harim*.

74. IBN FUDI, *supra* note 71, at 73.

75. *Id.* at 72.

76. *Id.* at 73. "None of [the *harims* have] any specific limit. For instance, "[t]he *harim* for a well used for irrigation or the like is the area around it which might cause harm to its water or to one taking water from it." *Id.* "Those knowledgeable in this matter should be consulted about it." *Id.* However, articles 1281-1291 of the *Majallah* fix different limits for different *harims* as follows: the *harim* of springs is 500 cubits, of wells it is 40 cubits, and of rivers it is one half of its width. MAJALLAH, *supra* note 52, arts. 1281-91.

77. In the U.S., "[t]he term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support . . . a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." 33 C.F.R. § 328.3(b) (1998). Private individuals may own wetlands but they must obtain permits before discharging dredged or fill material into such wetlands that are adjacent to waters and their tributaries. *See id.* § 323.3.

because jurists set different dimensions and sizes for wetlands. The purpose of fixing limits on wetlands, as stated by Imam Malik, is to prevent pollution of the water. Different limits will serve different waters.[78] An argument may be made for a conditional lease (*'ijarah*). However, regulation by permits effectuate better protection due to a presumption that permits (*'ijazah*) are issued after regulators consider a host of factors, such as social and economic benefits of a given project to society. Such consideration may not be necessary or required by a lease. The added fact that wetlands cannot be subjected to private ownership makes permit-based regulation appealing.

However, criteria for issuing permits must reflect the principles governing each medium of pollution. A remarkable feature of wetland permits under Islamic law is that, although the authorities may not revoke a permit when a permitee fully complies with the conditions, they may revoke one that was issued in contravention of Islamic rules on wetlands. Thus, offshore oil spills must be cleaned and compensated for by oil companies because, under Islamic law, their permit or agreement cannot license them to pollute. It is noteworthy that oil and other mineral resources are owned by the state, according to the prevailing view of Muslim jurists.[79] Like the Regalia system in Europe, ownership of land does not include ownership of the subsurface minerals.[80] The only issue of concern is to put a credible mechanism in place to respond to emergencies so that irreparable damage is not done to marine life.

From the foregoing, it is clear that in regulating water pollution, Islamic law adopts a command-and-control mechanism, by which is meant a scheme that prohibits certain conduct without reservation and stipulates a penalty for those who contravene it. It is immaterial that society benefits immensely from the activity that breeds the pollution. In comparison with other known systems, this mechanism is possible under Islamic law because of the few avenues that exist for exclusive private appropriation of water resources.

Of course, there is nothing under the law restricting one mechanism to any one medium of pollution. However, given the current policy on water resources, economic regulatory techniques cannot be the bedrock for controlling water pollution in Islam, in contrast with the United States, where economic regulation of land and all other pollution is far more pervasive. This is consistent with the theory of private ownership prevalent in the United States. However, polluters who would have escaped liability have been

78. The size of a *harim* may be delimited but this may be changed as the need arises. Sahnun and others actually fixed sizes of *harims* as follows: the *harim* of a well that is being used for irrigation, a house, and a valley in unoccupied land, are twenty cubits. Ibn Shihab stated that the *harim* of a spring is five hundred cubits and the *harim* of a river is a thousand cubits. IBN FUDI, *supra* note 71, at 73. A cubit is 0.758 meters. *See* CAPONERA, PRINCIPLES OF WATER LAW, *supra* note 1, at 74.

79. WALIED M.H. EL-MALIK, MINERALS INVESTMENT UNDER THE SHARI'A LAW 55 (1993).

80. *Id.*

consequently contained in legislation through the concept of strict liability.[81] Because it is also important to derive rules from other non-Islamic sources as a shortcut for environmental protection, these sources need to be reconciled with Islamic legal principles.[82] Otherwise, if contrary to *Shari'ah*, these mechanisms will not be implemented effectively. For example, the strict liability principles embedded in the United States "Superfund" law or CERCLA, are too divergent from the Islamic norm to be introduced into the scheme of Islamic law.[83]

In Muslim countries, water is polluted mainly through identifiable industrial activities, oil spills, and agricultural runoff from non-point sources. The legal response of governments in controlling water pollution depends on ascertaining facts about pollutants. Such facts, necessary to determine potential harmful effects, include identification, concentration, and quantity criteria. Depending on the cost of enforcement, the susceptibility of a pollutant to detection, and the characteristic or nature of water use, authorities may chose between regulating discharges of pollutants to the waters (a technology-based regulation) and protecting the water's natural quality (water quality-based regulation). In any event, maintaining water quality in Islam is a legal decision, rather than a political one.[84]

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81. For instance, under section 107(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), as amended by Superfund Amendments and the Reauthorization Act of 1986, the standard of liability is without regard to intent, fault, or negligence. 42 U.S.C. § 9607 (1994). In other words, liability is strict. An owner or operator of a regulated conduct is liable unless his pollution meets the narrow "federally permitted release" as defined under section 101(10). His liability still stands even where the release was perfectly legal and without negligence at the time it was carried out. *See* Bruce Howard, *A New Justification for Retroactive Liability in CERCLA: An Appreciation of the Synergy Between Common and Statutory Law*, 42 ST. LOUIS U. L.J. 847, 849 (1998).

82. Non-Islamic sources may include statutes such as the Resource Conservation and Recovery Act of 1976 ("RCRA"), which the legislature intended to regulate active disposal of hazardous waste. 42 U.S.C. § 6901 (1994). However, RCRA failed to address the problem of inactive or abandoned waste sites. Irene C. Warshauer & Lynn Ann Stansel, *Analyzing the Relationship Between the Civil, Governmental, and Criminal Obligations and Liabilities for Hazardous Waste*, 22 TORT & INS. L.J. 37, 51 (1986). As a consequence, the Comprehensive Environmental Response Compensation and Liability Act of 1980 was enacted with the intention "to establish a program of response to the release of hazardous substances from any type of facility, regardless of time of disposal." *Id.*

83. These principles are embedded in CERCLA and have been consistently reaffirmed by the United States courts. *See, e.g.*, United States v. Northeastern Pharm. & Chem. Co., 810 F.2d 726 (8th Cir. 1985), *cert. denied*, 484 U.S. 848 (1987) (holding that "(1) CERCLA applies retroactively, (2) the government can recover its pre-enactment response costs under CERCLA, (3) RCRA imposes strict liability . . . [and] (6) appellants had the burden of [proof] . . . ."). *Id.* at 749.

84. Another set of fundamental rules which is often ignored in discussion of Muslim water concerns water quality. This is probably because they are elaborated in connection with ritual ablution (*tahara*). These recognize that only water in its original state, or distilled, is pure (*tahir*); it is polluted (*najis*) if it has changed in colour, taste or smell, but may be considered clean (*tahir*) if it is flowing or in a sufficiently large body . . . . Such rules provide an adequate legal framework for agricultural purposes also, and traditional irrigation systems ensure that the primary

The authorities are obliged to keep water clean not so much for hygiene but for ritual cleansing and for preserving marine habitats.

Authorities in Muslim countries are under a higher obligation than contemporary governments to maintain the chemical, physical, and biological integrity of their water. Given the legal status of water, they need not completely adopt a permit-based scheme in regulating effluent. [85] Considering the improvement in water quality in the United States, nothing is wrong with a permit-based system that is efficiently utilized.[86] Nevertheless, it is highly doubtful that a pervasive permit scheme can be efficiently operated in Muslim countries without extensive inspection institutions and a complicated body of laws and subsidiary legislation. However, this may be unnecessary given the fact that governments in Muslim countries are not as constitutionally constrained as the United States Congress in regulating water or water pollution.

Susceptibility of an environmental element to exclusive private ownership sometimes restricts general government regulation of the element. In the United States, Congress needs to balance its concern for regulating pollutants with the constitutional restriction on infringement on private property rights.[87] The power of Congress to acquire and dispose of property of all kinds is limited by the requirement that compensation must be paid for such takings.[88] Thus, in *Kaiser Aetna v. United States*, the United States Supreme Court held unjustified the argument that the public be given free access to a privately owned and developed waterway without payment of

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channel system remains uncontaminated by seepage from water that has already been used for cultivation . . . .

Wilkinson, *supra* note 62, at 89.

85. In the United States, for instance, direct discharges of pollutants from point sources is possible through a scheme of permitting. 33 U.S.C. § 1342 (a)-(b) (1994). A permit may be water quality based or, in most cases, technology based. *Id.* § 1314(a). Accordingly, there are three phases of guidelines governing effluent limitations that are technology based, depending on whether a pollutant is: (1) conventional (*e.g.*, oil and grease industry that employs "best practicable control technology"); (2) non-conventional; (3) or toxic (*e.g.*, iron and heavy metals industries that employs "best available demonstrated control technology"). Separate effluent limitations are based not on the available technology but on the water quality. Setting water quality standards is a separate program whereby a state designates appropriate uses for its waters, and criteria or ambient pollutant levels that will allow such uses. A total maximum daily load of particular pollutants necessary to maintain the water quality standards is then established. *Id.* § 1313(d).

86. Some of the statutes include the Rivers and Harbors Act of 1958, Pub. L. No. 85-500, 72 Stat. 297 (codified as amended in scattered sections of 33 U.S.C.); the Ocean Dumping Act, 33 U.S.C. § 1401 (1994 & Supp. III 1997); the Coastal Zone Management Act of 1972, 16 U.S.C. § 1451 (1994 & Supp. III 1997); the Oil Pollution Act of 1990, Pub. L. No. 101-380, 104 Stat. 484 (codified as amended in scattered sections of 33 U.S.C., 43 U.S.C., and 46 U.S.C.); and the Federal Water Pollution Control Act, 33 U.S.C. § 1251 (1994 & Supp. III 1997).

87. "The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States . . . ." U.S. CONST. art. IV, § 3.

88. The takings clause of the United States Constitution states "nor shall private property be taken for public use, without just compensation." U.S. CONST. amend V.

compensation.[89] Although the case involved proprietorship of a bay and continued power of the United States to regulate it, the case demonstrates that the government may not impose regulations that infringe upon such rights without compensation. In contrast, Islamic law provides the government with liberty to regulate waters and water pollution. Muslim governments have wider scope in regulating water pollution than that of land.[90] Consequently, there is no reason for a complicated scheme regulating the hydrological cycle in its entirely.

V. CONCLUSION

In Islamic countries a government that is uncommitted to sustained enforcement and monitoring of water quality standards is in error. Polluted water is not only harmful to humans, but also endangers all aquatic life that exists in it. Governmental obligations are not limited to humans but include all life. The scheme of the law in helping to fulfill this high responsibility is remarkable. By excluding water in all its important forms from the dominion of exclusive ownership, Islamic law disposes of the usual problem of balancing proprietary rights, which is no less sacrosanct, with conflicting public interests.

The above understanding of the law on maintaining water quality needs to be incorporated into current efforts by Muslim governments to strengthen their environmental legislation and enforcement procedures. There is no good reason for partial application of Islamic water law in these communities; unless governments are the biggest water polluters, in which case they have little incentive to adopt these principles. As it were, however, these water law principles constitute a legal requirement binding on Muslim governments.

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89. Kaiser Aetna v. United States, 444 U.S. 164 (1979) (holding that the government may not, without invoking its eminent domain power and paying just compensation, require owners of a marina that had, as result of improvements, become a navigable water of the United States, to allow free access to the marina).

90. Islamic law requires minimum effort by a committed government to enforce water regulation because individuals have little protected rights on the matter. Recently, based on the revived understanding of its responsibilities to the environment as prescribed by Islamic law, the Saudi Arabian Government, through its National Commission for Wildlife Conservation and Development, embarked on a plan to protect the water quality of the Red Sea, among other things. It has designated thirty-three marine reserves in the Red Sea and fourteen in the Arabian Gulf. *See Saudi Wildlife Conservation,* WHOLE EARTH: ACCESS TO TOOLS, IDEAS, AND PRAC., Winter 1997, at 43 (citing Information Office of the Royal Embassy of Saudi Arabia). On the other hand, government is not endowed with similar liberty and must respect private ownership of land in regulating land pollution. Damage suffered by or through dangerous objects on a property, without contribution or negligence of the owner, does not amount to a legal wrong. Thus an independent contractor may not recover damages from an owner of a mine or asbestos factory should he suffer injury to his body or health, for the Prophet said injuries inflicted by animals, wells, and mines are to be overlooked. *See* 3 AL-BUKHARI, *supra* note 50, at 318.