

For Body, Soul, or Wealth: The Distinction, Evolution, and Policy Implications of a Water Ethic

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I. INTRODUCTION

Ethicists and legal analysts have considered both environmental ethics and human values extensively; however, they have neglected to separate water ethics from environmental ethics. A water ethic is the way a community or an individual views water usage, allocation, and existence. Legislators developing water policies often cannot reconcile conflicting water interests because they do not understand their region's water ethics, and thus should educate themselves on their region's water ethics before writing policies or lobbying for policy changes related to water use.

This Article discusses the history of the water ethic, explains how it plays a role in policy development, explains why private entities should consider a region's water ethic, and provides examples of where people can look to discover their regional water ethic. Part II describes a few prominent environmental ethics approaches and explains the need for a separate water ethic. Part III traces the history and origins of water ethics in religions, laws, human rights organizations, economics, aesthetic interests, and conflicts. Part IV explains the policy implications inherent in the fact that water ethics in developed countries center primarily around economics and, to a lesser extent, aesthetics, while developing nations value water mainly for domestic uses and economic gain through feasible commercial agriculture. Also, Part IV draws on France both to demonstrate why water ethics are important to policy development and to exemplify how a regional water ethic can be found.

II. ENVIRONMENTAL ETHICS

A. *Why Ethics?*

Since the beginning of the twenty-first century, humans have faced historically unparalleled environmental challenges.¹ Human population is increasing exponentially while life-sustaining natural

1. JOSEPH R. DES JARDINS, ENVIRONMENTAL ETHICS, AN INTRODUCTION TO ENVIRONMENTAL PHILOSOPHY 5 (3d ed. 2001) (noting that through human activity, life on Earth "faces the greatest mass extinctions since the end of the dinosaur age 65 million years ago").

resources are depleted at alarming rates.² In 2006, the estimated world population was over 6.5 billion.³ While the world population did not reach one billion people until 1804, the most recent increase of one billion took only 12 years.⁴ As the world population continues to grow, the risk of further environmental depletion and degradation increases.⁵

Faced with these imminent environmental and demographic challenges, humans are confronted with momentous decisions. Before making these decisions, we should step back and reflect on our decision-making process, which is the essence of philosophical ethics.⁶ “Ethics involves a self-conscious stepping back from our lives to reflect on what we should do, how we should act, and what kind of people we should be.”⁷

Many evolved ethics have rested upon the dominant theory that humans belong to a community of interdependent parts. While our instincts prompt us to compete for our place in the community, our ethics prompt us to cooperate, even if just to *preserve a place* for which to compete.⁸ Because of our direct impact on the availability of resources in the future, humans ought to be morally compelled to consider environmental ethics. The following section discusses the history and prevailing theories of environmental ethics.

2. *Id.*

3. U.S. Census Bureau, World Population Information, <http://www.census.gov/ipc/www/world.html> (last visited Aug. 24, 2006).

4. DES JARDINS, *supra* note 1, at 5.

5. *See id.* Des Jardins states:

Toxic wastes that will plague future generations continue to accumulate worldwide. The world's wilderness areas, its forests, wetlands, mountains, and grasslands, are being developed, paved, drained, burned, and overgrazed out of existence. With destruction of the ozone layer and the potential that the “greenhouse effect” will lead to global warming, human activity threatens the very atmosphere and climate of the planet Earth.

Id. *See also* Wetland Habitat Fund (WHF), WHF Wetland Statistics, <http://www.whc.org/wetlandfund/en/about/wetstats/wetStats.html> (last visited Apr. 14, 2006) (noting that in the United States, only approximately 47% of original wetlands remain).

6. DES JARDINS, *supra* note 1, at 5.

7. *Id.*

8. Aldo Leopold, *The Land Ethic* (1949), *reprinted in* ENVIRONMENTAL ETHICS, AN ANTHOLOGY 39 (Andrew Light & Holmes Rolston III eds., 2003).

B *Environmental Ethics Theories*

The passionate writings of authors and philosophers in the 1970s serve as the foundation for modern environmental ethics theories.⁹ In addition to academic work, that era also gave rise to public attention to environmental issues because of the use of fungicides and pesticides, the nuclear arms race of the 1960s, and the ethical issues spurred by toxin usage in the Vietnam War.¹⁰ Environmental ethics has branched into several different theories over the last ten years. Three of these theories appear most frequently in ethical discussions: (1) the ecocentric approach, (2) the anthropocentric approach, and (3) the deep-ecologist approach.¹¹

In the ecocentric (often called land ethic) approach, humans should not view themselves as conquerors of the land-community—they are simply members of it.¹² Ecocentrists believe that ethicists should include land, plants, and animals in their ethical reasoning.¹³ Land and water should no longer be viewed as mere objects, “as dead matter that can be used and shaped in any way that humans desire,” but as living organisms “that can be healthy or unhealthy, injured or killed.”¹⁴ Aldo Leopold, the leading philosopher behind the land ethic, concedes that land and water should be used as resources for human benefit.¹⁵ However, Leopold suggests that we view the land holistically, as a community that has its own moral standing.¹⁶ Proponents of this theory would not support any actions that would alter the integrity, stability, or beauty of water resources.¹⁷ In the water context, for example, a

9. ROBIN ATTFIELD, ENVIRONMENTAL ETHICS 37 (2003). Attfield credits American Holmes Rolston III, Australian Richard Routley, Norwegian Arne Naess, and John Passmore for forcing environmental ethics into the public spotlight. *Id.* See also JOHN PASSMORE, MAN'S RESPONSIBILITY FOR NATURE: ECOLOGICAL PROBLEMS AND WESTERN TRADITIONS (1974).

10. ATTFIELD, *supra* note 9, at 37.

11. Other common ethic theories include biocentric ethics (which considers all life forms to possess intrinsic value) and ecofeminism (which analyzes environmental ethics along a gender axis). My discussion, however, focuses the three most prevalent theories. DESJARDINS, *supra* note 1, at 135, 249.

12. Leopold, *supra* note 8, at 38. According to this theory, humans have “no privileged status in the ecological community.” DESJARDINS, *supra* note 1, at 189.

13. DESJARDINS, *supra* note 1, at 186. See also Leopold, *supra* note 8, at 38.

14. DESJARDINS, *supra* note 1, at 186-7.

15. *Id.* at 187.

16. *Id.*

17. *Id.* at 190.

farmer can use river water to irrigate as long as he returns the water to the river in its natural form without run-off pesticides.¹⁸ Aquifer withdrawals for bottling or domestic usage are acceptable until the withdrawal rate exceeds the recharge rate.¹⁹ Essentially, ecocentrists believe that all waters can be owned and managed as long as they are maintained in their original form without damming, pollution, or reduction.²⁰

The second prevailing environmental ethic theory is the anthropocentric (human-centered) approach, which unlike the ecocentric approach, places human interests first.²¹ While anthropocentrists recognize that humans may have some responsibilities to natural ecosystems, these responsibilities are only in place to protect the world for human survival.²² In other words, humans “have no obligation to promote or protect the good of non-human living things” unless the end goal is to promote human life.²³ An anthropocentrist would likely have no problem supporting any type of water legislation as long as the legislation was designed with human interests in mind.

The third prevailing environmental ethic approach is that of the deep ecologists—often called environmentalists.²⁴ Deep ecologists focus on the ecosystem as a whole, not on the individual entities that comprise it.²⁵ They believe that healthy ecosystems are balanced, diverse, and sustainable, while unhealthy ecosystems lack one or more of these characteristics.²⁶ Within a healthy ecosystem, entities are expendable.²⁷ For example, some water pollution is acceptable as long as water management programs are in place to prevent excessive pollution, which would tip the ecosystem off balance.²⁸ Additionally, dams and water diversions are acceptable

18. *See id.*

19. *See id.*

20. *See id.*

21. Paul W. Taylor, *The Ethics of Respect for Nature*, in ENVIRONMENTAL ETHICS 3 (1981), reprinted in ENVIRONMENTAL ETHICS, AN ANTHOLOGY 74 (Andrew Light & Holmes Rolston III eds., 2003).

22. *Id.*

23. *Id.*

24. Tom Regan, *Animal Rights: What's in a Name?*, in ANIMAL WELFARE AND THE ENVIRONMENT (Richard D. Ryder ed. 1992), reprinted in ENVIRONMENTAL ETHICS, AN ANTHOLOGY 64, 69 (Andrew Light & Holmes Rolston III eds., 2003).

25. *See id.*

26. *Id.*

27. *See id.*

28. *See id.*

as long as the ecosystems originally supported by the river are not destroyed or significantly altered. Most deep ecologists would support water legislation as long as its probable effects on Earth's ecosystem as a whole are analyzed, and the ecosystem remains at the forefront of society's interests. Deep ecologists would not support water legislation that harms an ecosystem, such as draining a lake or wetland.

The popular environmental theories introduced in this section are just that—theories. Before society can answer the philosophers' calls to become more environmentally friendly and water conscious, the current water ethic must be identified. That is, we can only move toward an "ideal" water ethic if we fully understand the extent and scope of our existing ethic. The remainder of this Article focuses on analyzing the elusive water ethic by using historical, moral, and legal frameworks.

III. THE EVOLUTION OF A WATER ETHIC

Unlike the recently-expounded environmental ethics, water ethics first appeared in ancient mythology at least as early as 6000 B.C.E.²⁹ Throughout the last 8,000 years, water ethics developed alongside with societal morals via mythology, religion, and legends. Indeed, the contemporary water ethic continues to evolve with society's morals, as evidenced by recent human rights legislation. The water ethic can also be found in other areas of the legal system including national constitutions, international water sharing agreements, and property rights laws. Economics impacts the water ethic by serving as the driving force behind water policy decisions favoring agriculture, water marketing, and commercial navigation. Aesthetics also plays a role in defining the water ethic. Famous works of art, music, and poetry depict society's ideal vision of water aesthetics, and the recent explosion in waterfront real estate sales exhibits that people value the relaxing and recreational opportunities that pristine water can provide. Water conflicts, including wars and terrorist attacks, also shed light on society's ethical views of water resources. The following section discusses both historical and recent water ethic developments.

29. VERONICA STRANG, *THE MEANING OF WATER* 84 (2004).

A. *Moral Development*

1. *Mythology and religion.*

Water's role in society first manifested itself in legendary tales as far back as 6000-4000 B.C.E.³⁰ In ancient mythology, "fire [was] connected to the masculine"³¹ while water was "associated with the feminine,"³² either through "goddesses, nature spirits or nymphs."³³ Water was considered an element of fertility, life-giving just like women.³⁴ Legends and stories involving water influenced world development.³⁵ Much of European culture evolved from these

30. *Id.* Strang notes that rock art dating back for millennia often depicts water symbols and figures. *Id.* Additionally, Strang notes:

[Additionally,] some of the most well-known deities are associated with alluvial rivers whose floods were critical to the worshippers' ability to produce food. For example, the Babylonians looked to Aquarius to ensure that the Tigris and the Euphrates [fertilized] the floodplain annually. The Egyptian sun god Ra had a similar role regarding the Nile, which also became the focus of a Roman cult of Isis and Sarapis, whose devotees . . . valued Nile water for its fertility, prosperity, and familial well-being.

Id.

31. World Water Day 2006, Water and World Views: Water and Mythology, http://www.unesco.org/water/wwd2006/world_views/water_mythology.shtml (last visited Apr. 15, 2006) [hereinafter Water and Mythology].

32. *Id.*

33. *Id.* See also MICHAEL GRANT, MYTHS OF THE GREEKS AND ROMANS 290, 440-41 (1962) (discussing water nymphs). "This is particularly true of running water, such as springs or water fountains, as they represent fertility and childbirth." Water and Mythology, *supra* note 31.

Mythology does more than link water with women; in many myths and legends, water is both a source of life and a place of death. These myths call on the sensuous nature of water to tell their stories: in some cases, this is personified by a water spirit, often called a nymph, who takes the form of a beautiful young woman. She is not generally seen to have any malicious intent, but used water as a place of regeneration (sometimes miraculous) and recreation. The Greek water nymphs are the most well-known of such water spirits, but they populate the myths of a great number of civilizations . . .

Not all mythological water spirits are as well-intentioned as nymphs: Welsh, Irish, Norse and other mythologies all tell of troublesome water spirits, all young girls or women, who lure victims to their water abode and cause them to drown, like the Sirens that Ulysses encounters in the Greek epic poem, the *Odyssey*.

Id. For a variety of water myths and stories, see *id.*

34. See Water and Mythology, *supra* note 31.

35. JOHN PINSENT, GREEK MYTHOLOGY 76-77 (1969).

mythologies, in which water played a key role.³⁶

Water has also served as a foundation for many religions.³⁷ Water can clean a person externally or spiritually, readying one to enter the presence of his or her god(s).³⁸ Additionally, water is a building block of existence, possessing both the power to give and destroy life.³⁹ Ultimately, “[w]e are at the mercy of water just as we are at the mercy of our God or gods.”⁴⁰ While the significance of water varies depending on the religion, the creative and destructive abilities of water transcend our cultures and faiths.⁴¹

The primary religions, if strictly followed, that could impact water management are Bahá’í, Islam, and Hinduism. Because Bahá’í believers support a global approach to environmental issues, legislators who practice this religion may be more prone to embrace water agreements between countries. Alternately, if Muslims refused to sell water, they could impact water’s marketability both nationally and internationally.⁴²

36. See STRANG, *supra* note 29, at 85 (noting that many rivers throughout Europe are named for Celtic water gods and goddesses, including the Seine (named after Sequana), the Dee (named for the goddess Deva), and the Thames (named for Tamesa or Tamesis)).

37. Paula Abrams, *The Water Page: Water in Religion*, <http://www.africanwater.org/index.htm> (follow hyperlink “Features of Special Interest,” then click on hyperlink “Water in Religion”) (last visited Apr. 16, 2006) [hereinafter *Water in Religion*].

38. *Id.*

39. *Id.* In some cultures, water is not only a building block of life; it is the origin. World Water Day, *Water and World Views: Water and Creation of the World*, http://www.unesco.org/water/wwd2006/worldviews/water_creation_world.shtml (last visited Apr. 15, 2006).

Creation myths are stories that describe the beginnings of humanity, earth, life and the universe, and water features prominently in a large number of them. In one Egyptian myth, a chaos of churning water, called the Nu, rose up and receded again. With each recession from the turbulence of the water a hill of land would emerge, giving birth to the first sunrise

There is more than one creation myth associated with water in Egypt, and Egyptian civilization is not the only one to have made water the central element in its creation stories. It is easy to grasp the significance of water in a land where all things—transport, food, water, bathing, writing—were made possible through the Nile River, source of life and livelihood throughout the land.

Id.

40. See *Water in Religion*, *supra* note 37.

41. See *id.*

42. CIA, *THE WORLD FACTBOOK 2006*, available at <https://www.cia.gov/cia/publications/factbook/>, reprinted in *Islam by Country*, Wikipedia.com, http://en.wikipedia.org/wiki/Islam_by_country (last visited Apr. 16, 2006) (noting that 99.8% of Turkish citizens are Muslim, but Turkey has plans to sell water to many Middle Eastern

The Bahá'í faith, the newest independent religion, encompasses over five million members in 230 countries.⁴³ Bahá'í believers place "great importance on agriculture and the preservation of the ecological balance of the world."⁴⁴ Water is a fundamental resource for agriculture "and plays a key role in all the life support systems of the planet."⁴⁵ It is important for devout Bahá'ís to recognize and respect creation for its beauty and diversity, and water plays a central role in that creation.⁴⁶ Bahá'ís support a global approach to water management since "water is not a respecter of national boundaries."⁴⁷ Consequently, Bahá'í legislators are more likely to embrace and expedite water sharing agreements and treaties with other nations. Over time, as the Bahá'í faith grows, believers are likely to foster increased international cooperation with their countries' water ethics.

Islam, however, views water very differently from the Bahá'í faith. In Islam, water is significant for "purifying and cleansing."⁴⁸ "Muslims must be ritually pure before approaching God in prayer"; in fact "some mosques have a courtyard with a pool of water in the centre" while in many other mosques, the "ablutions are found outside the walls."⁴⁹ Most Islamic worshippers believe that water cannot be owned by any one person, as God owns it and humans are merely stewards.⁵⁰ Morally, therefore, Muslims cannot sell water as an economic good, which creates a problem for free-market environmentalists who believe that environmental management

countries) [hereinafter Islam by Country]. Turkey, a secular Islamic country, may be more inclined to treat water as an economic good instead of a spiritual force. *See id.*

43. *See* Bahá'í History, The Bahá'í Faith, <http://www.bahai.us/bahai-history> (last visited Oct. 20, 2006). The largest community of Bahá'ís live in Asia (3.6 million), followed by Africa (1.8 million). Encyclopedia Britannica Online, Worldwide Adherents of All Religions by Six Continental Areas, Mid-2002, <http://www.britannica.com/eb/table?tocId=9394911> (last visited Oct. 20, 2006).

44. Water in Religion, *supra* note 37.

45. *Id.*

46. *Id.*

47. *See id.* "The use, sharing, protection and management of water need to be governed by spiritual principles of justice and equity, and the fundamental concept of moderation. Decisions on water need to be taken through processes of consultation involving all those concerned or affected." *Id.*

48. Water in Religion, *supra* note 37.

49. *Id.*

50. Naser I. Faruqi, International Development Research Centre, Islam and Water Management: Overview and Principles, http://www.idrc.ca/en/ev-93948-201-1-DO_TOPIC.html (last visited Apr. 16, 2006).

should be left to the free markets.⁵¹ As a result, legislators who piously practice the Islamic faith instill in their countries a water ethic disfavoring water marketability.⁵² Private investors or other nations wishing to purchase water rights or quantities in Muslim countries should be aware of this ethic to understand the difficulties they may run into in trade negotiations.⁵³

In contrast, Hinduism is a religion whose high water values do not translate into legislative protection of a specific water ethic. In Hinduism, “all water is sacred, and holy places are usually located on the banks of rivers, which are viewed as particularly sacred.”⁵⁴ Hindus believe that “those who bathe in the Ganges River—the most sacred of rivers” will reach paradise before being reincarnated.⁵⁵ Hindi funeral grounds are always located near rivers, and human ashes are often cast into a holy river.⁵⁶ “For Hindus, morning cleansing with water is a basic obligation.”⁵⁷ Surprisingly, the Ganges River is one of the most polluted rivers in the world.⁵⁸ Although over 60,000 Hindu pilgrims dip themselves in the Ganges River daily, India has done a poor job maintaining the Ganges’ water quality.⁵⁹ The Ganges’ water quality has been tarnished by vast amounts of irrigation runoff, chemical pollution,

51. *See id.*; Richard Stroup, The Concise Encyclopedia of Economics, Environmentalism, Free Market, <http://www.econlib.org/library/Enc/EnvironmentalismFreeMarket.html> (last visited November 3, 2006).

52. *Id.*

53. Some primarily Muslim countries include: Somalia (100% Muslim); Turkey (99%); Iran (98%); Algeria (99%); Afghanistan (99%); Yemen (99%); Morocco (99%); Iraq (97%); Libya (97%); Pakistan (96%); Jordan (95%); Niger (95%); Egypt (90%); Indonesia (88%); Syria (87%); Sudan (80%); Lebanon (70%); Malaysia (60%); Nigeria (50%). *Cf.* International Religious Freedom 2006, U.S. Department of State, <http://www.state.gov/g/drl/rls/irf/2006/> (last visited Oct. 20, 2006).

54. *See* World Water Day 2006, Water and World Views: Water, Religions and Beliefs, http://www.unesco.org/water/wwd2006/world_views/water_religions_beliefs.shtml (last visited Apr. 15, 2006) [hereinafter Water, Religions and Beliefs]. Hinduism is the world’s third largest religion with 837 million followers (13% of the world’s population). B. A. Robinson, Hinduism: The World’s Third Largest Religion, <http://www.religioustolerance.org/hinduism.htm> (last visited Apr. 16, 2006). “It is the dominant religion in India, Nepal, and among the Tamils in Sri Lanka.” *Id.*

55. *Id.* Water also plays a role in the funeral rights of Buddhism, Hinduism, Islam, and Judaism, among others. *See id.*

56. *See* Water in Religion, *supra* note 37.

57. *Id.*

58. Forum on Religion and Ecology, Hindu Engaged Projects, http://environment.harvard.edu/religion/religion/hinduism/projects/sankat_mochan.html (last visited Apr. 22, 2006).

59. *See id.*

boat traffic, and damming.⁶⁰ Because of India's need to supply food to its massive population, in the case of the Ganges, religion plays virtually no role in India's water ethic. Like Turkey, economic concerns have trumped religion in developing India's water ethic.

Importantly, these religions, myths, and legends demonstrate *historical* ways that water has been regarded in a distinct manner. But for the most part, religion now plays a very small role in defining water ethics. Specifically, the impact of religious beliefs on water policy decisions may be limited to Muslim and Bahá'í legislators.

2. *Human rights laws.*

Recently, some activists have been calling for governments to acknowledge the human right to access water. Most governments recognize the responsibility to provide water, or at least a clean environment, to their citizens. The major water-for-consumption issues that developed countries like France, the United States, and Spain encounter involve water quality and distribution, not abundance.⁶¹ In many developing countries, however, access to water for consumption can be a challenge. For example, the average domestic water consumption per person per day is 47 liters in Africa, 85 liters in Asia, 334 liters in the United Kingdom, and 578 liters in the United States.⁶² In fact, it is common for water consumption in poor countries to be as low as ten to twenty liters per person per day.⁶³ Consumption is so low because many of these developing nations have little access to safe water.⁶⁴ Overall, almost one billion people worldwide do not have available sources of

60. Brian Thomson, *Swimming Blindly Down the Ganges*, WORLD WILDLIFE FUND, Mar. 15, 2005, http://www.panda.org/about_wwf/what_we_do/freshwater/news/stories/index.cfm?uNewsID=19110.

61. See e.g., *Spain's Government Sees Support Slide Away*, NEWS FROM SPAIN, Oct. 10, 2005, available at <http://www.euroresidentes.com/Blogs/2005/10/spains-government-sees-support-slide.htm> (mentioning Spain's water distribution problems); *Iberian Misery as Drought Bites*, BBC NEWS, June 13, 2005, available at <http://news.bbc.co.uk/2/hi/europe/4086864.stm>. See also HarmoniCop, Project Downloads, www.harmonicop.info/ (follow "download" hyperlink, then click on any of the hyperlinks in this section for examples of water distribution problems and analyses in Western Europe).

62. CONSTANCE ELIZABETH HUNT, THIRSTY PLANET 44 (2004).

63. *Id.*

64. *See id.*

clean drinking water.⁶⁵ This problem, coupled with the fact that two billion people lack access to sanitation, is causing death and disease throughout the world.⁶⁶ Roughly ten million people die each year because of water-related diseases like cholera and dysentery, and nearly 250 million new cases of these diseases are reported annually.⁶⁷ Governments of developing countries, when designing and implementing water policies, often do not have the resources or experience to adequately provide and preserve clean drinking water for all citizens.⁶⁸ These deficiencies, when compounded by the interests of farmers, make water policy development very difficult.

In response, several international entities are encouraging governments to acknowledge the existence of a human right to water access. In 1948, the United Nations (“UN”) passed the Universal Declaration of Human Rights, which guaranteed all people the right to a healthy standard of living.⁶⁹ In 2000, the UN Committee on Economic, Social, and Cultural Rights (“UNCESCR”) deemed the right to safe drinking water and adequate sanitation as essential to a person’s right to health.⁷⁰ In 2001, World Water Day participants further defined the right to water as “a right to access to water of sufficient cleanliness and in

65. *See id.*

66. GUERQUIN ET AL., *WORLD WATER ACTIONS, MAKING WATER FLOW FOR ALL* xviii (Earthscan 2003).

67. JEFFREY ROTHFEDER, *EVERY DROP FOR SALE* 5 (2001). Preventable water-related diseases kill between 10,000 and 20,000 children every day. PETER GLEICK, *THE WORLD’S WATER 2002-2003* 2 (Island Press 2003) [hereinafter *THE WORLD’S WATER 2002-2003*]. *See also* Amy Hardberger, *Life, Liberty, and the Pursuit of Water: Evaluating Water as a Human Right and the Duties and Obligations it Creates*, 4 N.W.U. J. INT’L HUM. RTS. 331, 331 (2005), available at <http://www.law.northwestern.edu/journals/jihr/v4/n2/3> (noting that in some developing countries, over fifty percent of citizens have little or no access to safe water).

68. Even developed countries like the United States have problems providing clean water to all citizens. *See generally* Chad West, *Show Me the Water! It is Time for Congress to Acknowledge the Human Right to Water Access*, 36 ENVTL. L. REP. 10047 (2006), available at <http://www.americanwaterlaw.com> (discussing drinking water problems in the United States, where 1.9 million Americans, mostly along the United States-Mexico border, have little or no clean water access).

69. Universal Declaration of Human Rights, G.A. Res. 217A, U.N. GAOR, 3d Sess., 1st plen. mtg., U.N. Doc A/810 (Dec. 12, 1948), available at <http://www.un.org/Overview/rights.html>.

70. JOHN SCANLON ET AL., *WATER AS A HUMAN RIGHT?* 19 (Island Press 2004), available at <http://www.waterandnature.org/pub/EPLP51EN.pdf>. *See also* West, *supra* note 68, at 10047 (discussing the human right to water access and the domestic water access and sanitation problems in poor regions of the United States).

sufficient quantities to meet individual needs.”⁷¹

In 2002, the UNCESCR recognized water access as an independent right.⁷² UNCESCR drew upon a range of international treaties and declarations, stating in General Comment 15 that “the right to water clearly falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival.”⁷³ The UN further asserted that the right to water comprises both “entitlements” and “freedoms.”⁷⁴ “Entitlements” include the right to a system of water management and supply that provides water equality for all, while “freedoms” include, among others, the right to be free from water contamination.⁷⁵

The most recent declaration of the human right to access water took place at the Third World Water Forum in March, 2003.⁷⁶ At

71. World Water Day 2001, Water, Health and Human Rights: Overview of Thematic Articles, <http://www.worldwaterday.org/wyday/2001/thematic/hmnrights.html> (last visited Nov. 29, 2006) [hereinafter Water, Health and Human Rights] (proposing that providing affordable water is not a charitable act but a state obligation and the right of each individual). “The participants also determined that, at a minimum, the quantity of water must suffice to meet basic human drinking, bathing, cleaning, cooking, and sanitation needs, while quality requirements vary depending on the particular usage, i.e., cleaner water is needed for drinking water than for sanitation water.” West, *supra* note 68, at 10050-51 (citing Water, Health and Human Rights).

72. WORLD HEALTH ORGANIZATION, THE RIGHT TO WATER 8 (Nov. 2003), *available at* http://www.who.int/water_sanitation_health/rightowater/en/ [hereinafter THE RIGHT TO WATER]. UNCESCR recognized this in General Comment 15 at its 29th session held in November 2002. UNCESCR, General Comment No. 15, U.N. Doc. E/C.12/2002/11 (Nov. 26, 2002), *available at* [http://www.unhchr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94/\\$FILE/G0340229.pdf](http://www.unhchr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94/$FILE/G0340229.pdf).

73. THE RIGHT TO WATER, *supra* note 72, at 8. UNCESCR also noted that governments should approach development from a rights perspective, as this approach would empower people to be at the center of their development and not simply recipients of aid. *See id.* at 9.

Ultimately, “a rights-based approach may deliver more sustainable solutions because decisions are focused on what communities and individuals require, understand and can manage, rather than what external agencies deem is needed.” Additionally, *Water as a Human Right* links the right to water with a list of other fundamental and natural human rights such as the right to life, the right to food, the right to self-determination, the right to adequate standard of living, and the right to health.

West, *supra* note 68, at 10051 (citing THE RIGHT TO WATER, *supra* note 72, at 10, 19-20).

74. UNCESCR, General Comment No. 15, *supra* note 72, at 4.

75. *Id.*

76. Third World Water Forum, *Ministerial Declaration*, <http://www.mofa.go.jp/>

this forum, ministers and delegation heads used General Comment 15 and other instruments to develop a water resolution: “Water is a driving force for sustainable development . . . [and is] indispensable for human health and welfare. Prioritizing water issues is an urgent global requirement.”⁷⁷

Groups such as Amnesty International and the Sierra Club criticized the UN’s lack of progress, noting that the declaration did not explicitly recognize the human right to water or prioritize freshwater ecosystem conservation.⁷⁸ Even with the alleged lack of progress at the Third World Water Forum, international doctrine still supports the human right to water. General Comment 15 cites two legally binding treaties supporting the declarations for the human right to water: the Convention on the Elimination of Discrimination Against Women (1979) and the Convention on the Rights of the Child (1989).⁷⁹ While both treaties were created to protect against discrimination, they apply to water protection and allocation. Specifically, the Convention on the Elimination of All Forms of Discrimination Against Women, Article 14(2), states that

Parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development and, in particular, shall ensure to such women the right: . . . (h) to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply. . . .⁸⁰

Similarly, the Convention on the Rights of the Child, Article 24(2), holds that parties should take measures to “combat disease and malnutrition . . . through . . . the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution.”⁸¹

Many experts disagree on the legally binding power of the

policy/environment/wwf/declaration.html (last visited Nov. 29, 2006).

77. *Id.*

78. *See West, supra* note 68, at 10051.

79. UNCESCR, General Comment No. 15, *supra* note 72.

80. G.A. Res. 34/180, U.N. GAOR, 34th Sess., Supp. No. 46, at 193, U.N. Doc. A/34/46 (1979), *available at* <http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm>.

81. G.A. Res. 44/25, art. 24(2)(c) (Nov. 20, 1989), *available at* <http://www.unhchr.ch/html/menu3/b/k2crc.htm>.

above treaties and General Comment 15. However, by participating in the formation of legislation like this, some governments recognize that water is not just a commodity to be bought and sold, but a necessity to which all people have a right. Governments that embrace this activism have a water ethic that has at least some humanistic foundations.

B. *Legal Development*

Each country's laws encompass values its citizens deem important. One can shed light on a nation's water ethic by observing its constitution's provisions (or lack thereof) relating to water and its water sharing agreements with other countries.

1. *Constitutions.*

One way for a nation to express its water ethic is through its constitution. Many national constitutions have provisions granting citizens a right to a balanced or healthy environment.⁸² Through these environmental provisions, some nations have exhibited interest in guaranteeing domestic water access for citizens and protecting water resources for the future. By adopting such aggressive legislation, these governments have shown that their water ethic has a humanistic foundation. While developed countries such as the United States and Spain chose not to explicitly acknowledge water resource protections in their constitutions,⁸³ general protections for water resources can be found in manuals for regulatory agencies like the Environmental Protection Agency ("EPA") or in state laws.⁸⁴

2. *Water-sharing agreements.*

States have historically guarded their river basin riparian powers zealously. This self-centered focus has caused states to recognize the interdependence of rivers and river basins very slowly—too slowly to influence the development of appropriate

82. For a complete table of constitutional protections of water rights, see SCANLON ET AL., *supra* note 70, at 42-46.

83. *Id.*

84. In the interest of brevity, this Article does not tackle the challenge of identifying and listing all international regulatory laws regarding water protections. However, to determine the true water ethic of a particular nation, one should certainly observe these laws.

legal principles to manage transboundary basins.⁸⁵ If governments had cooperated and allowed customary law to develop earlier, by now legislators would have perceived the united nature of river basin waters and applied appropriate legal principals to manage them.⁸⁶

Encouragingly, however, cooperation between countries seems to be on the rise.⁸⁷ In Southern Africa, Namibia, a dry sub-Saharan country, diverted Okavango River water to a network of canals and pipelines linked to its capital city in the late 1990s.⁸⁸ Although the Namibian plan only cut one percent from the Okavango's flow, Botswana initially protested, fearing that any reduction might detour tourists from visiting Botswana's lush river delta.⁸⁹ Encouragingly, the Namibian and Botswana governments avoided violence by allowing the Okavango River Basin Water Commission to resolve the issue.⁹⁰

On the other hand, a recent flare-up between Malaysia and Singapore exhibits how quickly governments can respond to a water threat.⁹¹ Malaysia is contractually bound to supply water to Singapore until well into the next century. Its veiled threat to cut-off Singapore's water in the midst of a drought sent Singaporeans into a panic.⁹² Within weeks, Singapore's water chief launched a campaign to reduce waste and increase supplies.⁹³ At the center of this campaign was a plan to build desalination plants, which would produce water at eight times the cost of current supplies.⁹⁴

Such recent surface and groundwater agreements between countries provide some insight into water ethics. Within these watercourse agreements, nations often list their water priorities. The following are some examples of water priorities that countries

85. Ludwik A. Teclaff, *Fiat or Custom: The Checkered Development of International Water Law*, 31 NAT. RES. J. 45, 45 (1991).

86. *See id.*

87. G. Pascal Zachary, *Water Pressure: Nations Scramble to Defuse Fights Over Supplies*, WALL STREET JOURNAL, Dec. 4, 1997 at A17. The Okavango runs through Angola and Namibia until it finally flows into Botswana. *Id.*

88. *See id.*

89. *See id.*

90. *See* Press Release, Republic of Namibia (Feb. 21, 2005), <http://www.grnnet.gov.na/> (follow hyperlink "GRN News"; click on "2005"; click on "February"; click on "Namibia and Botswana Water Friendly").

91. Zachary, *supra* note 87.

92. *Id.*

93. *See id.*

94. *Id.*

have included in various watercourse agreements.

The UN Convention on the Law of Non-Navigational Uses of International Watercourses provides a framework from which many other watercourse agreements have been modeled.⁹⁵ Under Part II, Article 5, the Convention outlines what constitutes equitable and reasonable utilization and participation by involved nations.⁹⁶ The overarching theme of Article 5 seems to encompass the division of water resources between countries.⁹⁷ Part II, Article 6 expands this theory by suggesting that nations should consider social and economic needs of watercourse states,⁹⁸ the population dependent on the watercourse,⁹⁹ the effects of each nation's water usage,¹⁰⁰ and the existing and potential uses of the watercourse.¹⁰¹

The Convention also recognized the importance of the protection of water resources.¹⁰² Part II, Article 6, clarifies the UN's intent to protect water resources by suggesting that nations should consider ecological factors¹⁰³ and conservation and protection of water resources.¹⁰⁴ Part IV, Article 21, of the Convention is perhaps the most aggressive environmental protection provision.

95. G.A. Res. 51/229, U.N. GAOR, 51st Sess., Supp. No. 49, U.N. Doc. A/51/49 (May 21, 1997), available at http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf.

96. *Id.* The Convention states:

1. Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with *adequate protection* of the watercourse.

2. Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the *duty to cooperate in the protection* and development thereof, as provided in the present Convention.

Id. (emphasis added).

97. *Id.* at pt. II, art. 5.

98. *Id.* at pt. II, art. 6, §1(b).

99. *Id.* at §1(c).

100. *Id.* at §1(d).

101. *Id.* at §1(e).

102. *Id.* at pt. II, art. 5, §1.

103. *Id.* at pt. II, art 6, §1(a).

104. *Id.* at §1(f).

Watercourse States shall . . . prevent, reduce and control the pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any *beneficial* purpose or to the living resources of the watercourse.¹⁰⁵

Because this provision applies to any beneficial use, the UN allows for the protection of water on the basis of aesthetic, religious, or recreational purposes.

The European Union (“EU”) established an action plan for water policies via Directive 2000/60/EC.¹⁰⁶ The EU noted in the Directive’s first clause that: “Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.”¹⁰⁷ The Directive, unlike the UN Convention, did not set out a list of priorities.¹⁰⁸ Instead, it simply stated that the ultimate aim was to eliminate hazardous substances from water resources and to restore the marine environment to its natural state.¹⁰⁹ Still, the EU determined that financial considerations often trump water quality concerns, noting that if a body of water is so polluted that clean-up is economically “unfeasible or unreasonably expensive,” then efforts should be foregone.¹¹⁰ The Directive set out these general guidelines but ultimately left most water policy and enforcement responsibilities to local river basin authorities.¹¹¹ Thus, the EU exhibits not only an overarching concern for the environment but also a concern for “diverse conditions and needs” of humans in different regions.¹¹²

The UN Convention and EU Directive represent two different approaches to water management—the Convention sets out priorities while the Directive sets out an overarching goal and lets smaller water boards figure out community-based priorities. Both represent attempts to use water ethics to balance human and ecological needs. One can use other water sharing documents

105. *Id.* at pt. IV, art. 21, §2 (emphasis added).

106. Council Directive 2000/60, 2000 O.J. (L 327) 1 (EC), *available at* <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2000:327:SOM:en:HTML>.

107. *Id.* at 1.

108. *Id.*

109. *Id.* at 3.

110. *Id.* If, however, the pollution source is identified early, that polluting nation should pay for any costs necessary to restore and preserve the ecosystem. *Id.* at 2.

111. *Id.* at 2.

112. *Id.*

similarly to clarify regional water ethics.¹¹³

3. *Property rights.*

Historically, in most societies, individuals' rights to use water and their relationship to the land have been closely linked.¹¹⁴ Specifically, people's water rights have depended on how they develop the land around the water and how they actually put the water to use.¹¹⁵ This approach, which stemmed from Roman law, gave land owners adjacent to watercourses a privileged right and had a major influence on water policies in later European countries.¹¹⁶

Roman law distinguished the more important, perennial streams and rivers from the less important seasonal water bodies. The former were considered to be common or public while the latter were private. The right to use a public stream or river was open to all those who had access to them. Roman law, however, recognized the right of the government to prohibit the use of any public water and required an authorization for taking water from navigable streams.¹¹⁷

This distinction between private and public waters long retained an influence in countries with a civil law tradition and, as a result, in most European countries.¹¹⁸ Generally, an individual needed administrative permission to use public waters but did not need any permission to use private waters.¹¹⁹ Public waters were waters considered to be "navigable" or "floatable."¹²⁰ Private water usage stemmed from land ownership and provided land owners with

113. See generally International Water Law Project, www.internationalwaterlaw.org (last visited Apr. 22, 2006), for an extensive list of surface and groundwater agreements.

114. S. HODGSON, FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, LAND AND WATER—THE RIGHTS INTERFACE §4 (2004), available at http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/y5692e/y5692e05.htm.

115. *Id.*

116. *Id.* "For example, Roman law denied the possibility of private ownership of running water. The Institutes of Justinian published in A.D. 533-34 held that running water was a part of the 'negative community' of things that could not be owned along with air, the seas and wildlife." *Id.*

117. *Id.* (citing L.A. TECLAFF, WATER LAW IN HISTORICAL PERSPECTIVE 26 (William S. Hein Company 1985)).

118. *Id.*

119. *Id.* "The distinction was maintained by the French Civil Code—the *Code Napoleon*—promulgated in 1804 after the French Revolution." *Id.*

120. *Id.*

unrestricted use of the waters on their lands.¹²¹

Common law countries such as those in North America and the United Kingdom followed the Roman tradition and developed “riparianism” in the nineteenth century.¹²² Riparian land owners had the right to make “ordinary” use of water flowing in their watercourses by using the water for reasonable uses like domestic and livestock needs.¹²³ A riparian land owner could use water for any reasonable purpose so long as it did not negatively impact other riparian land owners above or below.¹²⁴

A new water rights doctrine, the “prior appropriation” doctrine, appeared in the western United States due to the flexibility of the American common law tradition.¹²⁵ Prior appropriation “severed the linkage between land tenure rights and the acquisition of water rights,”¹²⁶ allowing one to acquire water rights “on the basis of beneficial use rather than land ownership.”¹²⁷ The development of prior appropriation spurred new water laws that brought water resources within the state domain.¹²⁸

C. *Economics*

Water property rights have been present since Roman times because water impacts commerce, such as agriculture, which serves as a foundation for many nations’ GDPs. Water’s impact on river trade can be traced back to 4000 B.C.E.¹²⁹ Recently, water sales and

121. *See id.*

122. *Id.*

123. *Id.*

124. *See id.*

125. *Id.*

126. *Id.*

127. *Id.*

128. *Id.*

129. AMY VICKERS, HANDBOOK OF WATER USE AND CONSERVATION 330 (2001).

The practice of irrigation dates back 6,000 years to the Sumerians, members of one of the earliest known civilizations in Mesopotamia. Through the ages, irrigation has transformed many sunny and fertile but arid regions of the world into useful, crop-producing lands. For 2,000 years, Sumerian farmers produced wheat and barley with irrigation water diverted from the Euphrates River. The great food-producing regions of California’s Central Valley, the Great Plains of the western United States, northern China, Egypt, and northwest India are just a few dramatic examples of the power of irrigation to coax life out of dry, sun-baked soil.

marketing have increased and continue to impact water policy decisions.

1. *Agriculture.*

The tie between water and agriculture has historical roots almost as old as humankind. Today, agriculture accounts for approximately 85% of fresh water consumption in developed countries.¹³⁰ In most developing countries, agriculture accounts for as much as 90% of fresh water usage.¹³¹ Thus, governments addressing water issues should consider agricultural concerns.¹³²

Id.

130. Dan Vergano, *Water Shortages Will Leave World in Dire Straits*, USA TODAY, Jan. 27, 2003, at 9B. In 2003, United States farmers used over 28 trillion gallons of water for irrigation. U.S. DEP'T OF AGRIC., IRRIGATION BY ESTIMATED QUANTITY OF WATER APPLIED: 2003 AND 1998 Table 12, available at <http://www.nass.usda.gov/census/census02/fris/fris03.htm> (follow "PDF" hyperlink for Table 12).

131. West, *supra* note 68, at 10058 (citing John Peet, *Priceless*, ECONOMIST, July 17, 2003, available at http://www.economist.com/displaystory.cfm?story_id=1906846). For statistical data of water quantity withdrawals from 128 developing countries, see FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, AQUASTAT DATABASE, <http://www.fao.org/ag/agl/aglw/aquastat/dbase/index.stm> (follow "Aquastat Online Database" hyperlink; perform search for desired country) (last visited Feb. 3, 2006).

The following percentages represent agriculture's contribution to the gross domestic products of each corresponding country: Afghanistan (38%); Albania (23.2%); Armenia (23.9%); Bahrain (0.5%); Belize (14.2%); Benin (31.6%); Bhutan (45%); Burma (56.4%); Burundi (46.3%); Cambodia (35%); Cameroon (44.8%); Democratic Republic of Congo (55%); Ethiopia (47.5%); Faroe Islands (27%); Gambia (30.8%); Ghana (36.6%); Guatemala (22.7%); Guinea (23.7%); Guinea-Bissau (62%); India (18.6%); Laos (45.5%); Liberia (76.9%); Morocco (21.7%); Nepal (38%); Niger (39%); Pakistan (21.6%); Papua New Guinea (35.3%); Rwanda (340.1%); Sri Lanka (17.8%); Sudan (38.7%); Syria (24.9%); Tanzania (43.2%); Uganda (31.1%); United States (1%); Zambia (22%). *Cf.* CIA: THE WORLD FACTBOOK, <http://www.cia.gov/cia/publications/factbook/fields/2012.html> (last updated Oct. 17, 2006).

132. Many agriculture concerns stem from outdated irrigation techniques or from outdated pricing schemes. While only 17% of the world's cropland is irrigated, these lands produce one-third of the world's total food supply. HUNT, *supra* note 62, at 68. "Carried out correctly, and with adequate drainage, irrigation can provide farmers with the control of water applications necessary to grow modern, high-yielding crop varieties and increase the number of annual harvests from one to two or three." *Id.* However, outdated irrigation techniques have caused a recent reduction in average crop yields worldwide. *Id.* "Irrigation, if carried out incorrectly, can cause waterlogged and salted farmland, declining and contaminated aquifers, shrinking lakes and inland seas, and the destruction of the aquatic ecosystems." *Id.*

Some environmentalists assert that governments should also consider water pricing in irrigation. See SANDRA POSTEL, LAST OASIS: FACING WATER SCARCITY 165-66 (1997). "Pricing water properly is most important in agriculture . . . [However], [g]overnments often build, maintain, and operate irrigation systems with public funds, and then charge farmers next to nothing for these expensive services." *Id.* at 166. For example, in Mexico,

2. *Water sales.*

The international sales of bottled water have skyrocketed, and there are proposals for the transfer of large quantities of fresh water across international borders, including oceans.¹³³ Proponents of water trade assert that natural resources, such as minerals, fossil fuels, timber, and agricultural goods are exported daily without generating “nationalistic anti-export sentiment.”¹³⁴ Therefore, they argue, water sales by pipelines, barges, bags, or bottles should not be any different. With this in mind, policy-makers must look to the economic benefit of water sales when crafting water policy.

Tanker and pipeline sales, often intertwined, are the prevailing methods of water transfer.¹³⁵ In 2000, for example, “Israel began negotiations to buy over thirteen billion gallons of water a year from Turkey.”¹³⁶ Until 2004, Turkish tankers, moored to giant yellow floating stations two miles offshore, awaited orders for delivery.¹³⁷ However, due to high oil prices, Israel determined that the agreement was not feasible.¹³⁸ In addition to the proposed sale to Israel, Turkey is preparing to sell water by tanker and pipeline to Malta, Libya, Cyprus, Greece, and Egypt.¹³⁹

Bottled water sales, like bulk water sales, are growing. In 2002, global bottled water sales reached 131 billion liters annually and have increased at ten percent per year since that time.¹⁴⁰ The

irrigators pay approximately eleven percent of their water’s full cost, while Indonesian and Pakistani irrigators pay approximately thirteen percent. *Id.* at 166-67. “In Egypt, a land of extreme scarcity, farmers are not charged directly for their irrigation water at all.” *Id.* at 167.

133. THE WORLD’S WATER 2002-2003, *supra* note 67.

134. *Id.* at 42. Although water has been treated as an economic good for some time now, the extent of the privatization efforts underway is growing. *Id.* at 57.

135. Maude Barlow, *The Global Trade in Water*, in BLUE GOLD, http://www.thirdworldtraveler.com/Water/Global_Trade_BG.html (last visited Feb. 2, 2006).

136. *Id.*

137. *Id.*

138. *Id.* (noting that Turkey “has the pumps and pipes to export four to eight times that amount”). This water would have been transferred through Turkish pipelines to the Mediterranean Sea, where the water will then be pumped onto the barges. *Id.* See also *Israel, Turkey Put Landmark Water Agreement Into Deep Freeze*, U.S. WATER NEWS ONLINE (April 2006), <http://www.uswaternews.com/archives/arcglobal/6israturk4.html>.

139. See Barlow, *supra* note 135. Barlow provides several more examples of water sales via barge and pipeline, including shipments to the Bahamas, Japan, Taiwan, and Korea. *Id.*

140. PETER H. GLEICK, THE WORLD’S WATER 2004-2005 17-18 (2006) [hereinafter THE WORLD’S WATER 2004-2005] (noting that the volume of fruit drink sales is only increasing at 2% per year and the volume of beer and soft drink sales is only increasing at 1% per year).

largest consumer of bottled water is the United States, followed by Mexico.¹⁴¹ Bottled water consumption in China has increased enormously, however, as China has grown from the ninth to the third largest consumer from 1997 to 2002.¹⁴² Although the price of bottled water far exceeds that of tap water throughout the world, many consumers seem willing to pay this increased price for convenience and quality.¹⁴³

The environmental impact of bottled water sales derives from the depletion of water resources. Often, companies withdraw water from aquifers. Since these withdrawals often cause reductions in both rechargeable and non-rechargeable aquifer levels, legislators should consider water marketing issues in water policy decisions. Private individuals should also consider a nation's primary religion, as some countries with primarily Muslim politicians may limit or totally ban water sales.

3. Navigational interests.

Records indicate that the first boats sailed before 4000 B.C.E. on the Mesopotamian rivers Euphrates and Tigris and before 3000 B.C.E. on Egypt's Nile River.¹⁴⁴ Since that time, these rivers have served as commercial thoroughfares, even without freedom of trade or navigation for foreign vessels.¹⁴⁵ In Egypt and Mesopotamia, pharaohs and other rulers monopolized control of navigational movement and trade.¹⁴⁶

141. *Id.* For more bottled water statistics, including consumption per capita, see Bottledwaterstore.com, Bottled Water Still Number 2, <http://bottledwaterstore.com/waterfacts2005.htm> (last visited Apr. 22, 2006).

142. THE WORLD'S WATER 2004-2005, *supra* note 140, at 18, 21.

143. See, e.g., Noel C. Paul, *Water & Gas: An American Pricing Paradox*, CHRISTIAN SCI. MONITOR, Aug. 5, 2003, <http://www.csmonitor.com/2002/0805/p11s02-wmcn.html> (noting that "Americans are willing to pay so much [for bottled water] because they prize convenience When consumers spend \$1.60 on a liter of bottled water, they are paying for a lifestyle as much as for the water itself"); Michelle Moore, *Can Public Water Utilities Compete With Bottled Water?*, ON TAP, Spring 2003, available at <http://www.nesc.wvu.edu/ndwc/articles/OT/SP03/BottledWater.html> ("grabbing a bottle of water at the store is easier than filling a bottle with water at home").

144. Teclaff, *supra* note 85, at 46 (citations omitted). "Navigation, due to its relationship and importance to transportation, has played a leading part in the advancement of civilization. Men learned early that travel by water was a convenient means of transporting their goods of trade to other lands." Navis.gr, History of Navigation, <http://www.navis.gr/marinav/history.htm> (last visited Apr. 10, 2006).

145. Teclaff, *supra* note 85, at 46.

146. *Id.*

Over time, navigational rights on rivers evolved from total state control to inter-state agreements that allowed citizens to move freely between neighboring nations.¹⁴⁷ For example, in 1792, the French Executive Council claimed that all riparians were entitled to freedom of navigation.¹⁴⁸ That same year, President Jefferson declared that the Mississippi River should be open to all United States inhabitants.¹⁴⁹ Throughout the twentieth century, the Rhine, Danube, Niger, Congo, and Senegal Rivers were all subject to agreements allowing for partial or full riparian movement.¹⁵⁰

Ludwik Teclaff, however, believes that governments eased restrictions on water movement too slowly.¹⁵¹ Teclaff asserts that the persistent control by riparian states over who could and could not navigate the waters within their territories disrupted the freedom of navigation.¹⁵² Individual state controls also create problems for legislators tasked with designing water policies

147. *Id.* Rome first allowed public navigation of waters, “but retained control of the commercial aspect of river traffic.” *Id.*

The comparative freedom of navigation obtained, however, only on those rivers or stretches of rivers flowing within the borders of the Roman Empire. On the Rhine and the Danube, which were boundary rivers, navigation and trade were as strictly controlled as in Egypt under the pharaohs

By the late Middle Ages, local magnates operated dozens of toll stations on each of the major rivers. The cities at first resisted this encroachment on freedom of navigation but, as their own power and independence grew, they themselves became major [enforcers of water regulations and control].

Id. at 46-47 (citations omitted).

148. *Id.* at 47.

149. *Id.* For a comprehensive discussion of the development of international navigation laws, see generally *id.* at 45-58.

150. *Id.* at 48-59.

151. *Id.* at 45.

152. *Id.* at 59. Teclaff further asserts:

Inter-city agreements to keep parts of river systems open were the precursors of navigation treaties between states, but not until the 19th century do we have multilateral conventions, such as the Congress of Vienna and the Congress of Berlin, providing for freedom of navigation on international rivers generally. Even then, the riparian states found ways to flout the intent of such instruments. Moreover, in Europe, these conventions and others pertaining to individual rivers were restricted to stipulating freedom of navigation primarily on mainstems. If, as in Africa, they had included national tributaries, they would have been in the vanguard of measures treating entire river basins as units of water use.

Id.

because policies must consider how river trade and movement restrictions impact foreign relations.

D. *Aesthetics and Recreation*

No water ethic is complete without recognizing water's aesthetic importance. Howard Morphy defines aesthetics as the "effect of the physical properties of objects on the senses and the qualitative evaluation of those properties."¹⁵³ Although cultural norms about what is or is not aesthetically pleasing differ, it is widely accepted that objects are beautiful if they present "an ideal of how things 'should' be."¹⁵⁴

People have consistently built homes and cities near water. Historically, it was due to necessity and agriculture-based economies. Now, people buy waterfront homes to enjoy the aesthetic and recreational qualities of lakes, rivers, and oceans.¹⁵⁵ The U.S.-based National Association of Realtors estimated that recreational home sales reached record highs in 2005, with waterfront homes leading the way.¹⁵⁶ Recreational homes and nature are linked because:

Aesthetic enjoyment depends, to some extent, on people having the luxury of time with which to engage with their surroundings in a relaxed and receptive mode. The fact that the particular qualities of water encourage affective engagement may explain why it is central to so many recreational activities. All recreational activities are—intrinsically—"outside" the constraints of domestic or commercial life, allowing people to experience water more meditatively or sensually.¹⁵⁷

153. STRANG, *supra* note 29, at 103 (citing HOWARD MORPHY, AESTHETICS IS A CROSS-CULTURAL CATEGORY: A DEBATE HELD IN THE MURIEL STOTT CENTRE, JOHN RYLANDS UNIVERSITY LIBRARY OF MANCHESTER ON 30TH OCTOBER 1993 (J. Weiner ed. 1994)).

154. *Id.*

155. See Vivian Marino, *Water, Water Anywhere*, N.Y. TIMES, Mar. 31, 2006, at F1, available at <http://travel2.nytimes.com/2006/03/31/realestate/31second.html> (stating that "nowhere has the rise in second-home prices been more prevalent . . . than with properties on or near water . . ."); G. F. Sargentis, et al., *Plastiras Lake: The Impact of Water Level on the Aesthetic Value of the Landscape*, http://www.itia.ntua.gr/~fivos/w_b.pdf (last visited Oct. 18, 2006) (finding that people viewed natural water levels of a lake more pleasing than reduced levels).

156. *See id.*

157. STRANG, *supra* note 29, at 104. Communities often take action to protect pristine open spaces. In February, 1999, New York's governor announced an agreement "to protect nearly 400 acres of pristine shorefront and 13 islands on Blue Mountain and Utowana Lakes" in the Adirondack Forest. Press Release, Governor of New York, Governor

Since people value the relaxing nature of waterfront life, it is no surprise that people consider water in its traditional form—a bubbling stream or fountain or a mesmerizing river—as an object of beauty.¹⁵⁸ It is equally predictable that polluted or disordered water “becomes ugly and abhorrent.”¹⁵⁹

Veronica Strang notes that rivers can be sources of inspiration for poets, composers, and artists.¹⁶⁰ It is for such reasons that humans seem to appreciate water’s beauty. Although it is doubtful that aesthetics will ever dominate the water ethic in a country, through art, poetry, and waterfront real estate purchases, humans have shown that aesthetics is an element present in most water ethics. Legislators can understand the prevalence of the aesthetic element in their region’s water ethic by looking into the region’s water art history and waterfront real estate market. By doing this, legislators and activists can more effectively write water policies and proposals that appeal to people’s aesthetic appreciation of water.

E. *Conflicts*

Even before 1503, when Leonardo da Vinci and Niccolo Machiavelli planned to divert the Arno River away from Pisa during a conflict between Pisa and Florence, nations have used water as a tool of conflict.¹⁶¹ At *The World’s Water*, a website

Announces Protection of Pristine Adirondack Lands (Feb. 26, 1999), http://www.ny.gov/governor/press/99/feb26_99.htm. The plan would keep nearly 200 acres open to the public for fishing, hiking, and primitive camping. *Id.*

“Blue Mountain and Utowana lakes are ideal examples of the rugged beauty and spectacular resources of the Adirondacks,” Governor Pataki said. “This agreement will preserve their breathtaking vistas, crystal-clear waters and unspoiled islands and make them available for friends and families to enjoy. This is good for our environment and for the tourist economy of Hamilton County.”

Id.

158. STRANG, *supra* note 29, at 104.

159. *Id.*

160. *See id.* Water has served as an inspiration for music for centuries. Water Facts 2004, Water and Music, <http://bottledwaterstore.com/waterfacts2004.htm> (last visited Apr. 22, 2006). Some works inspired by water include Gilbert and Sullivan’s *Pirates of Penzance*, Cole Porter’s *Anything Goes*, Rodgers and Hammerstein’s *South Pacific*, Frederic Chopin’s *Prelude, op. 28, no. 15*, “The Raindrop,” Giacchino Rossini’s *Overture to William Tell*, and Ludwig van Beethoven’s *Symphony No. 6, movement 4* “The Thunderstorm.” *Id.*

161. THE WORLD’S WATER 2002-2003, *supra* note 67, at 196-208. Gleick also presents a chronology of water conflicts dating back to 3000 B.C.E., where a Sumerian legend

sponsored by the Pacific Institute, one can find monthly updates on water-related conflicts.¹⁶² Recent water conflicts have resulted from political motives, terrorist attacks, and development disputes.

For example, on January 26, 2002, the Khumbuwan Liberation Front destroyed a hydroelectric powerhouse of 250 kilowatts in Nepal.¹⁶³ By June, 2002, rebels had destroyed more than seven micro-hydro projects and pipelines supplying drinking water to Western Nepal.¹⁶⁴ Additionally, in 2000, Kyrgyzstan cutoff water to Kazakhstan until they delivered coal.¹⁶⁵ Uzbekistan also cutoff water to Kazakhstan for non-payment of debt.¹⁶⁶

Of all the world's water-deprived regions, no region encompasses more conflicts than the lands along the Nile.¹⁶⁷

It is the world's longest river and comes barreling out of the African Highlands, half a continent, 4,238 miles away from its Mediterranean delta. No other river on earth flows through such diversity. . . . The lands of the Nile's watershed are also many and varied—the slopes of the Mfumbiro volcanoes in Zaire, Uganda's Mountains of the Moon, and the sumptuous Masai Mara and Serengeti in Kenya and Tanzania. Hundreds of different languages are spoken in this basin, but its distinctive societies are alike in their growing reliance on the waters of the Nile. What these people build on the river will write much of the story of their future in the next century.¹⁶⁸

Egypt, which is located at the end of the Nile and is the most developed country on the river, is worried that Ethiopia will dam the river at its source.¹⁶⁹ Egypt has continuously stated its willingness to go to war, including saying, “if Ethiopia takes any action to block our right to Nile water . . . there will be no

parallels the well-known Biblical account of Noah's Ark: “Ancient Sumerian legend recounts the deeds of the deity Ea, who punished humanity for its sins by inflicting the Earth with a six-day storm. The Sumerian myth parallels the Biblical account of Noah and the deluge, although some details differ.” PETER GLEICK, WATER CONFLICT CHRONOLOGY (2006), <http://www.worldwater.org/conflictchronology.html> [hereinafter Water Conflict].

162. WATER CONFLICT, *supra* note 161.

163. *Id.*

164. *Id.*

165. *Id.*

166. *Id.*

167. DIANE RAINES WARD, WATER WARS 181 (2002).

168. *Id.* at 181-2.

169. *Id.* at 185-6.

alternative but for us to use force. Tampering with a nation's rights to water is tampering with its life."¹⁷⁰

These conflicts demonstrate that people will do almost anything—including killing other humans—to ensure they have water. It is therefore critical for legislators in countries with unsafe borders to understand their neighbors' water ethics so that they can effectively protect their citizens.

IV. POLICY AND WATER ETHICS

Historically, water ethics have developed from mythology, religion, government, human rights activists, aesthetic interests, and conflicts. Today, however, water ethics in developed countries are concentrated primarily around economics, and to a lesser extent around aesthetics. Developing nations value water mainly for domestic uses and economic gain through commercial agriculture when feasible. Though they help to spur the origin of a water ethic, religion and aesthetics play little if any role in the water ethics of developing nations.

Section A considers how developed and developing countries value water differently. Section B uses France as an example to demonstrate how water valuation and ethics have impacted water policy decisions.

A. *Developed Versus Developing Nations*

Although religion may have defined early cultural values, developed countries currently seem to ignore religious influences in water policy decisions, favoring economic uses for water instead. Consider Judaism and Christianity: members of both religions use the Jordan River for religious rites, but the Lower Jordan River is filled with untreated sewage and irrigation run-off.¹⁷¹ The countries polluting the river are more concerned with economic and domestic benefits of the Jordan than with the Jordan's religious significance.¹⁷²

One would think that Muslims, who consider water holy, would not sell or pollute water. Turkey, however, which is 99% Muslim, is

170. *Id.* at 186.

171. *Pollution Threatens Revered Jordan River*, U.S. WATER NEWS ONLINE, Nov. 2005, <http://www.uswaternews.com/archives/arcglobal/5pollthre11.html>.

172. *See id.*

preparing to sell water to several different nations.¹⁷³ Additionally, some Muslim countries destroy water supplies as a war tactic.¹⁷⁴ This behavior suggests that water ethics in many developed countries do not incorporate religious influences. Instead, developed regions maintain a water ethic centered on some combination of economics and aesthetics.

Unlike developed countries, developing nations are more likely to value water mainly for survival or economics, or a combination of the two. Consider, for example, the 2004 clash in Somalia between two divisions of the same clan over access to pastoral land and water wells.¹⁷⁵ Fifty members of the clan died for access to water.¹⁷⁶ Thirsty citizens have little incentive to preserve the aesthetic beauty of a stream or a holy river. For example, citizens of India would rather use any precious water for their crops and their survival instead of cleaning the sacred Ganges River, even though 60,000 Hindu pilgrims bathe in this sewage-ridden water daily.

It is important for legislators and environmentalists to understand that water ethics in developing countries differ from those in developed countries. Any governmental water action in undeveloped countries has the potential to incite conflicts, especially if survival resources are inhibited. For both of these reasons, it is important for legislators and activists in all countries to understand water ethics before making water policies. Section B analyzes the French water ethic in an effort to demonstrate to legislators how to find their own water ethic.

B. *France's Water Policies*

French water policies have evolved from ones centering on economics to ones that recognize the social importance of water, extending beyond simple domestic usage and economics.

French archaeology and history reveal strong links between water and commerce.¹⁷⁷ Even before Julius Caesar, the Parisii tribe

173. *But see* Press Release, Food Standards Agency, Zam Zam Water Warning (June 13, 2005), <http://www.food.gov.uk/news/newsarchive/2005/oct/zamzam> (stating that genuine Zam Zam water—water from a sacred well in Saudi Arabia—cannot legally be exported from the country for commercial sale).

174. *See* WATER CONFLICT, *supra* note 161.

175. WATER CONFLICT, *supra* note 161.

176. *Id.*

177. *See* UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION,

that lived on the two islands of today's Paris navigated and traded on rivers all the way to the Mediterranean. They built and carefully maintained quays and tow paths along the river banks. France, a riparian rights society, has more recently encouraged and facilitated water privatization.¹⁷⁸ Because of France's early commodification of water, two of the largest international private water companies are French-owned: Vivendi SA and Suez Lyonnaise des Eaux (now Ondeo).¹⁷⁹

In the early 1990s, the French government recognized nationwide problems with water pollution, control, and access.¹⁸⁰ To tackle these issues, it passed the French Water Act of 1992 ("Water Act") and created the Water Academy.¹⁸¹ According to the

SEINE-NORMANDY BASIN, http://www.unesco.org/water/wwap/case_studies/seine_normandy/index.shtml (last visited Aug. 1, 2006).

178. See THE WORLD'S WATER 2002-2003, *supra* note 67, at 60-61 (stating that French citizens have been utilizing water as an economic good since the nineteenth century). See also Law No. 92-3 of Jan. 3, 1992, Journal Officiel de la République Française [J.O.] [Official Gazette of France], Jan. 4, 1992, p.187, Art. 6, available at http://www.oieau.fr/anglais/gest_eau/lois/watlaw92.htm (noting that French water rights are riparian unless otherwise documented).

179. See THE WORLD'S WATER 2002-2003, *supra* note 67, at 61 (noting that the combined water revenue of these companies exceeded \$9 billion).

180. See UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION, *supra* note 177.

181. HENRI SMETS, WATER ACADEMY, WATER FOR ALL 6, 9 (2004). Even earlier, in 1977, France had to tackle an international water crisis when water levels dropped severely in an aquifer on the French-Swiss border. See Arrangement on the Protection, Utilization, and Recharge of the Franko-Swiss Genevese Aquifer of 1977, www.internationalwaterlaw.org (follow "Documents" hyperlink; then follow "Europe" hyperlink; then follow hyperlink under "Franco-Swiss Genevese Aquifer") (last visited Aug. 1, 2006). The Franko-Swiss Genevese Aquifer Agreement governs shared groundwater between France and Switzerland in the Lake Geneva Basin. See *id.* Provisions in this agreement exhibit that France is willing to cooperate and consider the water priorities and ethics of other countries, but not willing to give up decision-making authority to international bodies. See, e.g., *id.* at art. 2 (documenting that France allows the international committee to make proposals and issue opinions, but retains the power to make final decisions). See also KEN CONCA, GOVERNING WATER 95-96 (2006) (noting that France abstained from voting on the 1997 UN Watercourses Convention and consequently exhibited resistance to international water basin management). "The Watercourses Convention marked the culmination of nearly three decades of effort to develop a framework of globally applicable legal principles for the governance of international rivers." *Id.* at 96. It articulates principles to assist in transnational water basin management.

[Some include] the right of every state in a river or lake basin to be party to any agreements governing the entire basin; the 'equitable and reasonable use' of a watercourse as it passes through a state's territories; an obligation not to cause significant harm to other watercourse states; regular consultation and exchanges of information; [and] peaceful means of dispute resolution . . .

President of the French Republic, Jacques Chirac: “Water is . . . a public good . . . It is for the community to determine how it should be used in such a way as to ensure proper supplies and sanitation and limit wastage, in a spirit of social justice, sound *economics* and respect for the environment.”¹⁸² The Water Act’s provisions mirror Chirac’s opinion that water is primarily a good to be managed through economics.¹⁸³ For example, Article 1 expresses France’s general interest in developing water “as a usable resource.”¹⁸⁴ Further, Article 2 portrays the Water Act’s main purpose as “balanced management of water resources.”¹⁸⁵ Some factors considered in this balance are water value enhancement, wetland protection (for cleaning polluted water), public health and hygiene, conservation, agriculture, industry, fisheries, tourism, energy production, and human leisure and sporting activities.¹⁸⁶

Water economics also spurred the French to create the Water Academy.¹⁸⁷ Along with economics, however, the Water Academy’s founders recognized that local cultures should be factored into water policy decisions.¹⁸⁸ Members of the Water Academy have also recommended that France grant citizens the fundamental right to clean, safe water.¹⁸⁹ The French government has yet to take a stand

Id.

182. Smets, *supra* note 181, at 9 (emphasis added).

183. See Law No. 92-3 of Jan. 3, 1992, *supra* note 178.

184. *Id.* at art. 1.

185. *Id.* at art. 2.

186. *Id.*

187. See Smets, *supra* note 181, at 6 (emphasis added).

The Water Academy was set up in 1993 on the initiative of the six French Water Agencies and the Ministry responsible for water and the environment. It . . . [has] 130 members comprising specialists and bodies representing all the public services, companies and organizations in the water sector. The Academy’s prime task is to develop horizontal thinking between the water sector and all the areas in which it intervenes by using modern means of action and relying on information, education, sociology, economics and law.

Id.

188. *Id.* (stating that the Water Academy’s objective is to “enhance the value of the asset that water is by encouraging exchanges of information (technical, legal, scientific, cultural, . . .) and theme-based reflection with the object of furthering sustainable development”).

189. *Id.* at 11-17, 32-33. Even though France has exhibited a water ethic not entirely centered on economics, economics is still the driving force. *Id.* at 18-27. Indeed, the Water Academy’s proposal for the human right to water is filled with economic interests and feasibility concerns about implementing the right. *Id.*

on this right.¹⁹⁰ If it does recognize the right to water access, however, France will be responsible for ensuring that right is fulfilled for all citizens. Further, by holding polluters criminally responsible for causing restrictions in the use of swimming areas, the French effectively recognized that water has some cultural and aesthetic importance outside of pure economics.¹⁹¹

The Water Act and Water Academy show that France, a developed country, has a water ethic centered on economics. Even if this ethic has shifted slightly to recognize water's cultural and aesthetic importance, economics still drives policy decisions. To effectively institute change for the future, the French government and environmental lobbyists must recognize that economics should be the key factor in any proposals.¹⁹²

V. CONCLUSION

Although religion and mythology developed the foundation of most water ethics, only pious Muslim and Bahá'í believers now include a religious element in their water ethic. The modern water ethic varies in each nation, but it primarily centers on a combination of economics and aesthetics in developed countries. In contrast, water ethics in developing countries center around survival. A water ethic can also include conflict or humanist elements, which legislators can find by looking at a nation's political, military, and activist history. Additionally, private water marketers can anticipate problems in water sales by determining if the country's leaders are primarily Muslim or of another faith.

To effectively pass water legislation, policy writers and activists should understand their region's water ethic. Only by understanding the elements of their nation's water ethic will policy writers understand what drives the decision-making process of voters and lawmakers.

190. See E-mail from Henri Smets, Policy Writer, The Water Academy, to Chad West (June 5, 2006, 01:09 CST) (on file with author).

191. See Law No. 92-3 of Jan 3, 1992, *supra* note 178, at art. 22.

192. The Water Academy, both a governmental and lobbying organization, wisely included economics as the centerpiece in its human right to water proposal. See Smets, *supra* note 181, at 18-27.