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## Autonomous Framework on Governing Water for Sustainable Food and Energy

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### Abstract

Water is prominent resource that lies at the heart of a nexus of social, economic, and political issues: agriculture for food, energy and human livelihoods. This paper provides Islamic framework on governing water for sustainable food and energy, by discussing whether or not Islam places water as commodity, water ownership and a structure on governing water based on Sharia.

### Keywords

Water Policy, Sharia, Sustainable, Economy

### Introduction

Water is earth blood. The statement is not obviously incorrect, since alone among planets in the solar system, earth consists abundant water in the different forms: icy water in the solid state, gaseous steamy water and the most important flowing liquid. In this "water planet", water provides nature with everything to survive and it dissolved various contaminants that can build and destroy nature balance. Shortly, nature cannot exist without water.

Despite the earth plethora of total water, surprisingly only very small fraction of the total water is fresh water. The water distribution is follows: 99% in the beneath of the earth (permafrost and soil moisture), and only 1% is surface water. From this surface water, 96.5% is ocean water, 2.5% is fresh water and 1% is saline water. Furthermore, rivers and streams hold just six-thousandths of 1% of the total, though in fact the two are the most widely accessed source by human societies throughout history. Throughout history, wherever water resources have been increased and made most manageable, navigable, and potable, societies have generally been robust and long enduring. Those that succeeded in significantly increasing their command and supply regularly were among the few that broke out of history's normative condition of changelessness and bare subsistence to enjoy spurts of prosperity, political vigor, and even momentary preeminence (Solomon, 2010). Water leads prominent role in every world civilization, including in the coming century society. Water supply is peaking out, while world population had multiplied. Fresh and clean water is becoming a depleted global natural resources and the world's most explosive political economic problem.

Wars, or threats of wars, have been made in several riparian systems, for instance: (a) the water resources of the Golan Heights and Gaza have figured largely in the military minds of Israel and its neighbours; (b) Indus' water particularly has poisoned relations between India and Pakistan, the same fate of the Ganges are between India and Bangladesh, (c) Iraq, Syria and Turkey have each mobilized troops in defense of water rights on the Euphrates and Tigris, (d) the US has essentially "stolen" the Colorado from Mexico, using much of it to irrigate the dessert of Arizona and California, or (e) the Parana, dammed and flooded, has caused friction between Argentina and Brazil (De Villiers, 2000). Violences, or threats of violences, have been also made in the entire worlds when the world's dwindling water supply has highly intensified by capitalized entities, the trans-national water corporations. By 2002, Suez and Vivendi control over 70% of existing water service market worldwide

and their revenue growth has kept apace: Vivendi earned just US\$ 5 billion in 1992 in its water-related revenues and by 2002 that had increased to over US\$12 billion. All three were ranked among the wealthiest hundred corporations in the world with combined annual revenues in 2002 of almost US\$160 billion and they were growing at 10% a year, thereby outpacing the economies of many of the countries in which they operate (Barlow and Clarke, 2002).

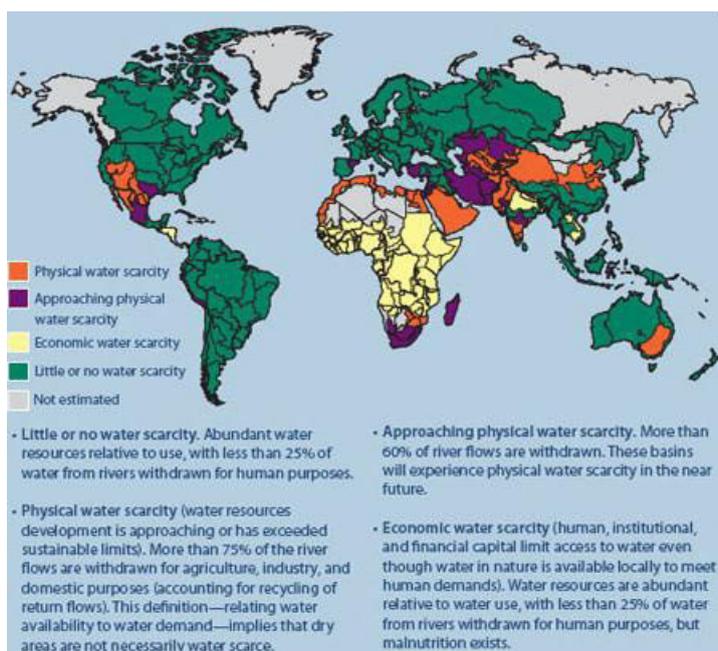
As mentioned, water sustainability is an eminent factor to provide sustainable societies. The water right therefore is the most important aspect to be clarified. Every economic school of thought has their own views on the water right, as Islamic economy is. This paper describes how sharia law on water to maintain the sustainability of human life.

### Water, Food and Energy Nexus

Water, food and energy are interconnected. World rapidly accelerating demand for food and fiber, indicating by food price increase, is meeting changing rainfall and weather patterns, overlain on land assets with increasingly depleted and polluted surface and groundwater resources. Agricultural sectors accounts for up to 70% of global freshwater use and discharging chemical fertilizers and pesticides to water resources. As economies grow, more of the freshwater there is left available is demanded by energy production, industrial and urban systems. Water and energy themselves are also intertwined, as water scarcity increase, with energy required for water treatment.

There are many problems worldwide associated with the lack of clean, fresh water are well known: 1.2 billion people lack access to safe drinking water, 2.6 billion have little or no sanitation, millions of people die annually—3,900 children a day—from diseases transmitted through unsafe water or human excreta (Montgomery, 2007). Recent prediction on the water scarcity in the world confirmed the following conditions will occur at 2025 (Lantz, 2006):

- Russian, North Europe, North America and Canada (little or no water scarcity),
- South Africa, North Africa, Middle East, part of China, East Europe (physical water scarcity),
- Most part of Africa, Middle and South America, South China, Indonesia, Australia (economic water scarcity).



**Figure 1.** World water scarcity map (UN-Water, 2007)

Water security therefore is the gossamer that links together the web of food, energy, climate, economic growth, and human security challenges that the world economy faces. There is a structural problem in how managing water across the web of global economy, and worsening water security will soon tear into various parts of the global economic system (TWEFWI, 2011).

### Water Priorities and Ownership

Among the threat to water security is the contentious issues related to water rights, privatization, water exports, water pricing and ownership in the water sector. According to Conca (2006) who use the term of water marketization to refer to the process of creating the economic and policy infrastructure for treating water as a marketed commodity, observable elements of the trend toward water marketization including:

- the establishment of private property rights to own or use water;
- a shift toward so-called full-cost pricing of water, in the sense of pricing water to recover the operating, infrastructural, and (more controversially) full capital costs associated with its production, treatment, and delivery;
- the creation and utilization of market mechanisms for the exchange of water-related goods and services;
- the growing involvement of private sector actors in the production, delivery, and marketing of water supplies and services and the enhancement of private sector investment in water supply maintenance, upgrading, or expansion;
- policies that liberalize or facilitate bulk water transfers from one basin to another, including the international trade in water; and
- a declining role for the state in some or all of its traditional functions as service provider, regulator, and system maintainer.

**Table 1.** Water supply delivery models (Baker, 2012)

|   |                                   | State   | Market  | Community   |
|---|-----------------------------------|---|---|---|
| <b>Resources management institutions</b>  | <i>Primary goals</i>              | Guardian of public interest; conformity with legislation/policy | Maximization of profit; efficient performance                     | Serve community interest; effective performance               |
|   | <i>Regulatory framework</i>       | Command and control   | Market mechanisms   | Community-defined goals (not necessary consensus based)       |
|   | <i>Property rights</i>            | Public (state) or private property                              | Private property  | Public (commons) or private property                          |
| <b>Resources management organizations</b> | <i>Primary decision-makers</i>    | Administrators, experts, public officials                       | Individual households, experts, companies                         | Leaders and members of community organizations                |
|   | <i>Organizational structure</i>   | Municipal department, civil service                             | Private company, corporation                                      | Cooperative, association/network                              |
|   | <i>Business models</i>            | Municipally owned utility                                       | Private corporate utility   | Community cooperative   |
| <b>Resources governance</b>               | <i>Accountability mechanism</i>   | Hierarchy   | Contract  | Community norms   |
|   | <i>Key incentives</i>             | Voter/ratepayer opinion   | Price signals (share movements or bond ratings), customer opinion | Community opinion   |
|   | <i>Key sanctions</i>              | Political process via elections, litigation                     | Financial loss, takeover, litigation                              | Livelihood needs, social pressure, litigation (in some cases) |
|   | <i>Consumer role</i>              | User and citizen  | User and customer   | User and community member                                     |
|   | <i>Participation of consumers</i> | Collective, top down  | Individualistic   | Collective, bottom-up   |

The debates goes back to The Dublin Statement on Water and Sustainable Development by 1992, known as the Dublin Principles, which the fourth of the principles states “*water has an economic value in all its competing uses and should be recognized as an economic good*”, and furthermore noted that “*managing water as economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources*”. Baker (2012) summarizes the debates on the water supply delivery models as listed in the Table 1.

### **Framework to Govern Water Based on Sharia**

Islam is often described as a value system, which prescribes a way of life that goes beyond the performance of religious rituals. Before becoming the general term of law, the Islamic law, *sharia*, meant ‘the law of water’. Therefore, it is hardly surprising that Quran and the Hadits contain a remarkable number of specific statements about water (Wickstrom, 2010). A Muslim is instructed to correct environmental failure by abstaining from behaviours that waste or pollute water, for example according to Hadits, a Muslim is strictly forbidden from urinating in stationary or running water. At the same time, in periods of water surplus at the household, farm, community or provincial levels, one is expected to let others benefit from it. According to Islamic laws and custom, priority was given to human beings, then to animal watering and lastly to agricultural purposes (Abderrahman, 2000a).

In the term of water ownership, Prophet Muhammad pbuh saying: ‘*Muslims have [a] common share in three things: grass (pasture), water and fire (fuel)*’ (Abu Dawood 3470). Anas narrated from Ibn ‘Abbas adding, ‘*and its price is Haram (forbidden)*.’ Ibn Majah narrated from Abu Hurairah (ra) that the Prophet pbuh said: ‘*Three things are not prevented from (the people); the water, the pastures and the fire.*’ This is an evidence that people are partners (associates) in water, pastures and fire, and that the individual is prohibited from possessing them. Therefore, it is clear that in Islamic rule of law, rights to water is belong to people and regulated by state. In the Islamic perspective, sovereignty belongs to the laws of God, i.e. the Sharia, not the people. It is the Khalifah who implements the sharia in the lands of Islam, as al-Mawardi states: ‘*Imamate is prescribed to succeed prophethood as a means of protecting the deen (Islam) and of managing the affairs of this world.*’

A question might arise that in a system in which God is sovereign and democracy historically absent, did the conditions for the rule of law (constitutionalism and formal legality) exist either in theory or in practice? According to Welton (2007), despite increased centralization and bureaucratization of the regimes, including greater control by the state over its legal actors and institutions, in terms of constitutionalism the political class and the legal class continued to operate in a rough balance of power, with the Caliphate observant of and subservient to the Sharia. In the Ottoman empire, the Sharia courts were more independent of political control and less open to corruption and abuse of discretion than the state tribunals. Cleveland *et al.* (2004) mentioned that contrary to “a regular theme in Western discourses on the subject,” the Sharia courts in Ottoman times tended to “operate consistently and predictably with its particular combination of Sharia, government statutes and custom relating to time and place”.

Governing water to maintain water security in arid areas (Abderrahman, 2000b) or in the area with abundant water resources (Azdan, 2011) are simultaneously important. In Islam, one type of judge is the office of public inspection, *hisba*, was built to monitor the proper conduct of people in their public activities and wider society, including regulating water uses. The ethical underpinning of the *hisba* are the Quran’s instruction for “enjoining what is right, and forbidding what is wrong” (3:104) and the Sharia principle of “no injury” or harm. The officer in charge of the *hisba* is called the *muhtasib* whose according to Ibn Taymiah, the most important qualifications are expertise in the subject matter, kindness and patience. If the *hisba* institution is resurrected, it could be entrusted with the implementation of fair and just water management practices (Amery, 2001). As the second Caliphate of Islam, Umar ibn al-Khattab (ra) when he outlined the attributes a judge requires in an Islamic court, he said: “*the task of the judiciary is an undisputed obligation and a sunnah to be followed. Seek to comprehend when people have recourse to you, for it is no use to speak of a right if it is not put into effect. See that your face, your justice and your sitting are the same between people, such that the Lord does not hope for your partially, nor the weak despair of your justice.*”

## Closure

Sharia, as Islamic divine rule of law, put water as collective property for the people. However, it is a unique positioning differs from the view of “commons property”, under Sharia view, a state is involved in water regulation and monitoring, with a just government statutes and rules. Governing just water policy and management, is a key factor toward sustainable food and energy for people, regardless their religion.

## References

- Azdan, D, M (2011), *Overview of Indonesia Water System and Policies*, Workshop Sustainable Water Management for Agriculture, Ministry of Agriculture, Jakarta
- Barlow, M and Clarke, T (2002), *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water*, The New Press. New York.
- Cleveland, W. (2004), *A History of the Modern Middle East*, Westview Press. Colorado
- Conca, K. (2006), *Governing Water: Contentious Transnational Politics and Global Institutional Building*, MIT Press, Cambridge.
- De Villiers, M. (2000), *Water: the Fate of Our Most Precious Resource*, A Mariner Book. New York.
- Hussein A. Amery (2001), *Islamic Water Management*, Water International, 26:4, 481-489
- <http://www.unwater.org/wwd07/flashindex.html>
- Karen, B. (2012), *Common versus commodities: debating the human right to water*, in *The Right to Water: Politics, governance and social struggles*, edited by F. Sultan and A. Loftus., Earthscan, London.
- Lanz, K. et al., (Eds.). 2006. *Who owns the water?* ISBN: 978-3-03778-018-3
- Montgomery, M.A. and Elimelech, M. *Water and sanitation in the developing countries: including health in the equation.* Environ. Sci. Technol. 41, 17-24 (2007)
- Solomon, S. (2010), *Water: the Epic Struggle for Wealth, Power, and Civilization*, Harper Perennial, New York.
- The World Economic Forum Water Initiative (2011), *Water Security, The Water-Food-Energy-Climate Nexus*, World Economic Forum
- Walid A. Abderrahman (2000a), *Application of Islamic Legal Principles for Advanced Water Management*, Water International, 25:4, 513-518
- Walid A. Abderrahman (2000b), *Water Demand Management and Islamic Water Management Principles: A Case Study*, International Journal of Water Resources Development, 16:4, 465-473
- Welton, M.D. (2007), *Islam, the West, and the Rule of Law*, Pace Int'l. Rev. 19:169, 169-194
- Wickstrom, L (2010), *Islam and Water, Islamic Guiding Principles on Water Management*, Finnish Institute of International Affairs