

## **Water Matters in the MENA Region - A Background into the Environmental Issues Facing Governments and Corporations**

**Written By Anna Mulholland**

*Rewiring Business in partnership with CGR Forum 2011, Amman, Jordan*

As the scale of economic activity has advanced steadily upwards, the scope of environmental problems triggered by that activity transcends geographical, national and generational boundaries producing global environmental changes. Although globally we are said to be heralding a new era of responsible management, and despite global initiatives to tackle climate change, the rate of climate change has been increasing in the twentieth century (World Bank, 2010). Climate change is one of the most complex and hotly debated problems in the world today. Humans are currently producing massive quantities of greenhouse gases, causing the earth's temperatures to rise faster than they ever have before. The negative impacts associated with climate change are extensive and effects of climate change fall disproportionately on developing countries (IPCC, 2007). Alongside global warming is the crisis of water scarcity.

As these two major problems become more and more related, the world's poorest nations are also becoming the ones most affected by the adverse impacts of climate change. This paper will focus the Middle East and North African regions (MENA), although not wholly responsible for the bulk of global climate change, appears to be destined to suffer the worst effects exacerbated by the problem of water scarcity. Additionally, it will argue that by engaging in responsible private sector development projects and smart investment solutions towards minimizing problems of water scarcity in the MENA region, positive impacts can occur.

### ***Startling Reality of Climate Change***

Climate change is an anthropogenic phenomenon. Since 1750, humans have dramatically increased their emissions of greenhouse gases (GHG). Between 1970 and 2004 alone, GHG emissions rose by 70% (Garvie, 2010). Scientific research suggests that the earth's temperatures will rise as the concentration of these pollutants increases. The magnitude and distribution of these adverse impacts is subject to change depending on the region and country of interest. Firstly, some regions are more vulnerable because they will experience greater temperature changes. Secondly, some regions are more likely to suffer from climate change due to the projected sea level rise (SLR) in that area (Garvie, 2010). Projections show that the Indian Ocean will experience a larger than average SLR (Garvie, 2010). Thirdly, there are regions that will experience longer and more pronounced droughts (Sahel, Southern Asia, MENA region) and others that will suffer from a greater number of heavy precipitation events (Northern Europe, Central Asia (IPCC, 2007)).

### ***Water as a Basic Necessity***

Water is a precious resource and a basic necessity. Water sustains life on earth. Both developed and developing nations are increasingly faced with issues of water scarcity and reduced water quality; many experts have gone so far as to declare water scarcity as the "world's forgotten crisis" (Aldhous, 2003: 251). Water resource management is a global problem. Access to clean water vitally affects the health of people and the ability of society and businesses to operate around the world (Nature Editors: 2003, 243). Water is intertwined in the everyday life of humans in countless ways; as a pillar for economic development, water is the backbone of the economy for countries in the world.

"Meeting the needs of the present without compromising the ability of future generations to meet their own needs" is one widely accepted definition of sustainability. Stated differently, it involves reorganizing our life support systems, such as reducing the consumption of water, so that life on Earth can be sustained indefinitely (Mackenzie 2003). For this reason, tools of sustainable water consumption strategies need to be considered; our environment certainly has limits that cannot be exceeded without adverse consequences. As we degrade our natural water resources and continue to have vast negative impacts on our climate and environment, our way of life is being called into

question. For instance, “as many as 7 billion people in 60 countries could face water scarcity by 2050 if action isn’t taken” (Nature Editors, 2003: 243) and “about one-fifth of the world’s population does not have access to safe water and two-fifths suffer the consequences of unacceptable sanitary conditions” (Schwarzenbach et al. 2006: 1072). Meanwhile, “irrigation for agriculture accounts for more than two-thirds of humanity’s use of water” (Nature Editors, 2003: 243) and “more than one-third of the earth’s accessible renewable freshwater is used for agricultural, industrial, and domestic purposes” (Schwarzenbach et al. 2006: 1072). Numbers alone can never tell the whole story; however, it is clear from this statistics that water scarcity is a complex global reality. Collectively and globally we must strive to improve the productivity of water use rather than seek endless sources of new supply (Gleick, 2003: 1526). Rethinking water conservation means re-evaluating the objectives of using water. In order to encourage efficient use, equitable distribution of resources, and sustainable water uses, citizens and businesses must strive to improve the productivity of water use.

### **Case Study of the MENA Region**

The Middle East and North Africa (MENA) regions collectively compile the most water scarce regions of the world.

The rate at which water scarcity in the MENA region is becoming worse is troubling; per capita renewable fresh water in the region fell from 4000 m<sup>3</sup> per year in 1950 to 1100 m<sup>3</sup> today (Rached 2010).

Limited water availability in this region is also exacerbated by an upward surge of increased demand and population growth. The MENA region has 5% of the world’s population yet only 1% of the world’s fresh water (Otman, 2007) Available water per capita in the region is also expected to halve in forty years due to rapid population increases. It is estimated that in one-year time, the area’s population of 300 million people is projected to reach 500 million thereby resulting in a surge of demand (Varis, 2007). According to the World Bank Development Report on Water, that MENA region withdraws nearly 80% of total renewable resources and half of the countries located in the MENA region withdraw more than 100%. These statistics indicate that these countries are withdrawing water from non-renewable resources; clearly fresh water availability is the largest concern for the region (World Bank, 2007).

The capacity of coping with water challenges in the MENA region varies by context. The countries in the MENA region are heterogeneous and thus highly different from one another. The region contains oil-rich states, such as the Gulf States and Saudi Arabia, which have highly developed water infrastructures. On the other hand, the MENA region includes countries, such as Somalia, the Sudan, and Iraq, whom are plagued by violence and suffer from lengthy hostilities (Varis, 2008). Consequently, these unstable countries are facing elevated challenges in providing basic services and meeting basic needs of their populations.

Water in the MENA region is heavily managed and consumed. The waterways of the Middle East and North Africa have more dams per cubic meter of water than any other place on earth. The region also boasts some of the world’s top hydrological engineers and is a regional leader in water technologies such as desalination and wastewater recycling (OECD Observer, 2009). However, in terms of conservation, the OECD argues that the MENA region is plagued by poor regulation, bloated subsidies, under-investment and maintenance. As a result of these inefficiencies, many of these positive technologies fail to bring about expected returns. The MENA-region also faces geographical and political complications; 60% of MENA water flows across international boundaries resulting in sovereignty discrepancies (Rached, 2010). Due to the trans-jurisdictional aspect of water governance, many governments are wary of privatizing the sector. Furthermore, only 2 out of 13 MENA countries have succeeded in covering their operational and management costs (OECD Observer, 2009). Weak regulation is another overwhelming feature in the region, over-extraction draws national assets in some MENA countries at a rate of 1-2% GDP, therefore governments must work to find better ways to augmenting supply to managing demand.

Water institutions have been progressively turning their attention from technical and engineering developments to cope with water shortages to placing greater emphasis on political and managerial actions to solve human and ecological water needs. Rached and Brooks (2010) discuss how water-related institutions in MENA are slowly embracing demand side approaches and stakeholder involvement in water management.

Their findings suggest that:

- Public involvement in decision-making is rare. Agencies appear to be locally insensitive to community practices, gender concerns and environmental impacts of institutional design.
- Water allocation is revenue and export driven. Water is allocated primarily on the basis to those who produce revenue. For example, in rural areas irrigation is favored over household use. Commercial farming for export crops is favored over farms producing for local markets.
- Most MENA countries have separate agencies for irrigation water and drinking water. As a result of the lack of clear guidelines, collaboration and coordination among countries is increasingly ineffective.
- National and municipal water institutions treat demand management as a secondary, less desirable responsibility. By ignoring the personal water-use of the people they serve, these institutions only implement measures that affect their own revenue streams at the expense of the local people.

As identified, gaps persist in shifting water management institutions in the MENA Region towards goals of equity, efficiency and sustainability. Demand management is beginning to gain attention, however few institutions have failed to mandate to develop and implement effective water management programs. Thus, supply management has been primarily the focus of institutions at the expense of demand management. In order resolve this supply-demand gap, water productivity must be increased, water supply must be expanded and water demand must be reduced. Productivity can be accomplished through improved agricultural practice, increased reuse of water from domestic and industrial sources, as well as increased reuse of irrigated agriculture (Belloumi, 2008). Expanding supply in the MENA Region can be accomplished by expanding reservoir capacity (small and large scale) as well as improved desalination by means of using solar energy and reverse osmosis. Reducing water demand can occur by minimizing the amount of irrigated areas as well as by decreasing domestic and industrial supply. These measures must be implemented collectively in order to close in the supply-demand gap and compensate for water scarcity.

Required investments in the water sector will escalate in the face of growing environmental problems. Finances must be in place in order to tackle the exceptional development pressures. Ultimately, according to Peter Gleick, more money and effort should be devoted to technologies and policies appropriate to the scale of the problem and “economic tools should be used to encourage efficient use of water and reallocation of water among different users” (2003:1527). By adopting more efficient irrigation practices through physical investments with improvements in water planning, CSR policies can encourage water accounting. For instance, the World Bank advocates the use of remote sensing technology to map water-use over periods of time enabling people to more accurately predict what the localized responses might be.

Recent articles have also highlighted how physical water scarcity in the MENA region can be mitigated by institutions that are capable of ensuring that water is extracted in a sustainable, economically efficient and ecological manner. One way to enforce sustainable water management is creating a legal and institutional framework. A concrete agenda is important because it sets sustainable criteria for countries, governments and businesses to adhere to. In July 2009, the MENA-OECD Initiative on Governance and Development met with Arab experts to discuss the ways in which water governance can be improved in the water sector (OECD 50, 2009). This initiative sought to strengthen countries capacity to design and implement policy reforms by implementing broad reforms to enhance the investment climate and promote sustainable economic development throughout the MENA region, the

key objective is to mobilize investment (foreign, regional and domestic) as a driving economic and employment force. The Investment Programme suggests that private investment, both domestic and foreign, is needed to ensure capacity building assistance, create a favorable environment for employment and provide new engines of growth and dynamism. Countries should be supporting a greener future through investments in water-conservation technologies. Embracing, implementing and monitoring investment policy reforms and water saving initiatives is key to a clean future; government, industry, and community must innovate, adopt, and turn the world's water challenges into opportunities.

In order to bridge governance gaps between countries and improve public and private sector governance, a holistic multi-disciplinary framework must be adopted. By engaging with civil society, multilateral development, financial institutions and the public sector, a more sustainable approach towards development challenges can be achieved. New forms of multi-stakeholder partnerships must be encouraged and developed to further build and fortify this social capacity and promote sustainable development. Thus, the concept of the "triple bottom line" expands on the traditional definition of "the bottom line" to include society and the environment among multi-stakeholder partnerships for sustainable development. CSR smart water investments can be used to create, generate wealth and meaningful opportunities to adapt to the effects of climate change. Engaging with the private sector to achieve sustainable goals has proven to be in MENA states' interest, not only for achieving social goals but also for attracting foreign investment. However, the right to water still remains a distant dream for a considerable proportion of the population in most of the MENA countries.

## References

- Aldhous, Peter. "The World's forgotten crisis." *Nature Publishing Group*. Vol.422. 20, March 2003: 251.
- Belloumi, Mounir and Mohamed Salah Matoussi. 'Water Scarcity Management in the MENA region from a Globalization Perspective.' *Development* (2008), Vol. 51, 135-138.
- Conserve to Preserve. *Why Conserve?.* 2007. 10 October 2008. Available from URL: <http://www.queensu.ca/pps/energy/why.html>
- Garvie, Devon (2009). "Science of climate change Lecture Notes". *Course Material*, Available from URL: <http://qed.econ.queensu.ca/pub/faculty/garvie/econ443/443home.html>
- Gleick, Peter. "Global Freshwater Resources: Soft-Path Solutions for the 21<sup>st</sup> Century." *Science*. 28 November 2003: 1524-1527.
- Intergovernmental Panel on Climate Change. "Climate Change 2007: Synthesis Report." *IPCC Fourth Assessment Reports: Climate Change 2007*, Available from URL: [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms3.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html)
- Mackenzie, Fred. *Our changing Planet An introduction to Earth System Science and Global Environmental Change*. 3<sup>rd</sup> ed. Upper Saddle River NJ: Pearson Education, Inc, 2003.
- Natural Resources Canada. *The Atlas of Canada- Freshwater*. 8 May2006. 9 October 2008. Available from URL: <http://atlas.nrcan.gc.ca/site/english/maps/freshwater/1>
- Nature Editors. "How to slake a planet's thirst." *Nature Publishing Group*. Vol. 422. 20 March 2003: 243.
- OECD 50 (2009). *MENA Initiative on Governance and Investment for Development*. OECD Conference website, Available from URL: [http://www.oecd.org/pages/0,3417,en\\_34645207\\_34645466\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/pages/0,3417,en_34645207_34645466_1_1_1_1_1,00.html)
- OECD Observer (2009). "Water: Opening the tap: better regulations could encourage investors to dip their toes into MENA water sector." Vol. 275: 43.
- Otman, Waniss and Erling Karlberg (2007). *The Libyan Economy: economic diversification and international repositioning*. Springer- Verlag Berlin Heidelberg 2007.
- Rached, Egial and David Brooks (2010) "Water governance in the Middle East North Africa: An unfinished Agenda" *Water Resources Development*, Vol 26, issue 2; 141-155.
- Schwarzenbach et al. "The challenge of micropollutants in aquatic systems." *Science*. Vol. 313. 25 August 2006: 1072-1077.
- Varis, Olli (2007) *Right to Water: The Millennium Development Goals and Water in the MENA region*. *International Journal of Water*, Vol 23: 243-266.
- World Bank (2007) *Making the Most of Scarcity: Accountability for Better Water Management Results in the Middle East and North Africa* (Washington, DC: The World Bank, Office of the Chief Economist).
- World Bank. (2010). *World Development Report 2010: Development and Climate Change*. Washington DC: The World Bank (Overview).