Solving The GCC's Water Crisis – Opinion piece in Gulf Business, Oct 2013

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Water scarcity is this century's imminent greatest problem, a clear and present danger: no surprise considering 85 per cent of the world's population lives in the driest half of the planet. The United Nations estimates that, already, six to eight million people die annually from the consequences of disasters and water-related diseases, with a child dying from a water-related illness every 21 seconds.

In developing countries, unsafe water causes 80 per cent of all illness and disease, and kills more people every year than all forms of violence, including war. Things are set to get worse. Water availability is expected to decrease in most regions while, future global agricultural water consumption alone – needed to feed a global population expected to increase by three billion – is estimated to increase by 19 per cent by 2050. The challenge, simply and starkly, is the sustainability and continuance of the life of animals and humans.

NOT A DROP

Water availability and scarcity is also a growing economic challenge and a major source of risk to businesses. The World Bank estimates that the cost of adapting to the impacts of a 2°C rise in global average temperature could range from a conservative $70 to $100 billion per year between 2020 and 2050 and that between $13.7 billion and $19.2 billion of that amount would be related exclusively to water scarcity issues.

Businesses ranging from manufacturing to utilities to agri-business and food production face direct risk exposure to water scarcity and need to develop tools to manage their business risk. GCC corporates will have to measure and manage their water footprint as well as their carbon footprint.

The MENA region is one of the most water-scarce regions in the world. Although home to 6.3 per cent of the world's population (and growing), the region has access to only 1.4 per cent of the world's renewable fresh water (and declining). To make matters worse, the region currently exploits over 75 per cent of its available renewable water resources due to its burgeoning population, increased urbanisation, mispricing of water and rapid economic growth.

Saudi Arabia in an ill-fated drive to increase food production has – over a 15-year period – largely depleted its water aquifer that had taken millions of years to accumulate. It will be forced to stop its wheat production by 2016. Yemen is already a hydrological basket case and Gaza is an ecological disaster.

WATER WARS

In the oil-rich but arid GCC region, a major policy issue is that the bulk of the region's water is misdirected into agriculture, a sector that provides less than five per cent of GDP.

Artificially cheap water has enabled the development of water-intensive crops in a region that has no natural advantage in producing these, but where governments provide generous subsidies to ensure future food supplies under the aegis of 'food security'. Global warming will only compound the severity of water scarcity.

Competition for water resources is becoming more intense, threatening to develop into 'water wars'. Better ecosystem and

water management systems, improved water use efficiency and pricing, and investment in water infrastructure are all part of the answer. Water is a shared resource and must be managed on a local, basin and national basis.

In the richer Gulf countries, water scarcity is mostly dealt with through desalination plants – a critical component of the solution for those countries that have access to sea water. GCC countries account for more than 40 per cent of the world's water desalination capacity, and much of that capacity is fossil-fuel energy intensive. Desalination capacity is estimated to grow from 9.5 billion m3 per year to near double, reaching 18 billion m3 per year by 2016 – with the annual rate of increase expected to be maintained over the next decade.

ENERGY CONCERNS

However, current desalination solutions are costly, energy intensive and lead to environmental degradation. This is in large part due to the technology's reliance on fossil fuels. In some GCC countries, co-generation power desalting plants (CPDPs) consume more than 50 per cent of total energy consumption with the cost of energy equal to almost 87 per cent of the running cost! This will only get worse with time as energy costs rise with competition for limited fossil fuel reserves and as hydrocarbons are likely in the future to be charged the additional costs of mandatory CO2 sequestration. There is an imperative requirement to develop less polluting and more energy efficient desalination plants.

The answer is to wed renewable energy and desalination. Saudi Arabia has taken the lead with its announcement to develop and use solar- powered desalination plants with the aim that all desalination of sea water in the country would be done completely by solar energy by 2020. This is a wise strategic choice. Efforts are under way to link the GCC with a water pipeline at a cost of $1 billion, similar to the under construction electricity grid. The GCC has announced plans to

invest $300 billion in water projects by 2022 to meet the needs of their growing domestic and expatriate populations.

GREEN DESALINATION

The World Bank's 'Renewable Energy Desalination: An Emerging Solution to Close MENA's Water Gap' report correctly proposes that coupling renewable energy sources with desalination could provide a win-win solution to the region's water woes. Switching to renewables for electricity production yields multiple benefits. The adoption of concentrating solar power (CSP) desalination would bring considerable environmental advantages. An increased share of CSP-RO desalination allied with the more efficient CSP thermal desalination would reduce annual brine production by nearly half (from 240 km3 to 140 km3) as well as greatly reduce CO2 emissions. Increasing renewable energy could cut MENA's annual CO2 emissions to 265 million tonnes as opposed to the 1,500 million tonnes by 2050 estimated to be produced with continued use of fossil fuels.

Renewables-based desalination along with more rational pricing of water utilisation should become a clear policy priority for addressing water scarcity in the GCC region. The GCC should aim to create an energy ecosystem that is resource efficient, does not contribute to climate change, while addressing not only the region's severe water scarcity but the related complications associated with polluting energy technologies. 'You never miss the water till the well runs dry' is an old idiom that is becoming a harsh reality for the MENA region that has already exhausted its wells.