

Water Scarcity and Conflict in the Middle East

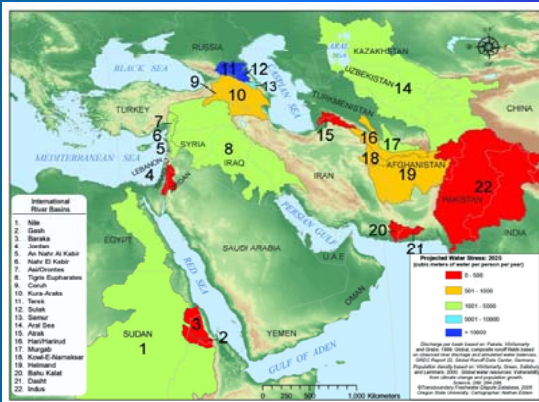
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BACKGROUND

The Middle East is no stranger to conflict. Violence and tension have a history in the area, with disputes over territory, oil, religion, ideology, colonialism, and nationalism. Unfortunately, this region of the world is about to have something much more important to fight over. With a shifting climate, dwindling fossil groundwater supplies, increasing consumption, and a multiplying population, this area has the potential to be embroiled in a full-on battle over one of the resources most necessary to life on earth.

INTERNATIONAL WATER LAW

The current international legal system as a whole is sparse and only mildly effective at best, and even sparser when it comes to the issue of water. Most attention has been paid to surface water, with the United Nations Convention on the Non-Navigational Uses of International Watercourses (Mechlem 2008). The International Law Commission, in August of 2008, adopted a set of draft articles of a "Transboundary Aquifers Convention" (Mechlem 2008). Even if the convention is officially passed as international law, enforcement of global statutes is an extremely difficult undertaking. Without an enforceable agreement on the use and distribution of a limited water supply, the opportunities for conflict abound.



Credit: Oregon State University

THE EFFECTS OF CLIMATE CHANGE

Although one's first instinct might be that since the Middle East is already so hot and dry, climate change won't have much of an impact, this is not the case. Climate models predict a temperature increase of anywhere from 0.8 – 2.1 degrees Celsius in all seasons (El-Fadel 2001). This will cause an increase in evaporation, which will cause the demand for irrigational water to grow. Rainfall events are predicted to be more dramatic, but with a decrease in frequency (Kundzewicz et. al., 2007). This would result in severe water shortages during the dryer months. Increased evapo-transpiration and higher temperatures have been shown to be related to increased desertification (El-Fadel 2001), which is already a problem in the region due to exhaustion of agricultural land. Finally, near the Mediterranean, saltwater intrusion into groundwater aquifers is predicted to be a problem due to rising sea levels (El-Fadel 2001).

OTHER AREAS OF CONCERN

First of all, 9 out of 14 countries in the Middle East and North Africa have a water supply of less than 1,000 m³ per capita (Postel 1993). The Middle East is the driest area of the globe, and the area with the most severe water scarcity problems. Not only has the population tripled in size during the 20th century, but consumption has increased to the point where water usage has been multiplied by factor of six (El-Fadel 2001). Moreover, population is increasing most rapidly in undeveloped countries which don't necessarily have the resources or infrastructure to handle the growth (Morrisette 2001).

In addition to the increased demand for water, much of the current Middle-Eastern water supply in the form of fossil groundwater is being depleted. Fossil groundwater is water that was deposited thousands or even millions of years ago – just like a pocket of oil, once the water is gone, it is not going to be replenished. Some countries rely very heavily on this unsustainable water source, but have no plan for what they are going to do when it runs out.

Finally, the historically uncooperative nature of nations in this region has a strong possibility of exacerbating the problem. If states are unable to form a water agreement suiting everyone, they are likely to merely act in their own interest and secure as much water as possible for themselves, which could lead to a severe tragedy of the commons situation (Morrisette 2001) or even full-out war.

“Many of the wars of the 20th century were about oil, but wars of the 21st century will be over water.”
– Isamil Serageldin



Credit: Flickr.com

POSSIBLE SOLUTIONS

The solutions to this problem will have to be both technological and political. Statutes that lay down specific rules on the use and distribution of water seem necessary to prevent violence or an intense scramble between nations to procure as much water as they possibly can. Active enforcement of these statutes would then also be a necessity.

On the technological side, there are a variety of options and it must be stressed that different mitigation methods will be appropriate for different regions. There is no one-size-fits-all solution to the water problem; diversity is key. For example, in wealthy countries that border the ocean, such as the United Arab Emirates, desalination is viable due to the readily available supply of ocean water as well as the economic resources to pay for this energy-costly process. Advanced micro-irrigation techniques could be useful in reducing the strain on the water supply that is caused by agriculture. These are just a few of the many up-and-coming technologies that will be essential to solving water scarcity. Conservation, as always, will be of the utmost importance.

CONCLUSIONS

In conclusion, the future of the Middle East could quite possibly be an ominous one. However, things don't necessarily have to turn out that way. With a mixture of innovation, conservation, and cooperation, perhaps solving the water problem will be what finally brings the region together. In the best case scenario, the countries of the Arabic world will learn to work together, because it is necessary for their survival.

References available upon request.