

## **Are we destined for Water Wars?**

The headline seems outrageous and alarming at the same time; the first answer that many might give is a laugh. When one considers the value of water and the source of many historic conflicts, however, the question is anything but funny. Fresh water is second only to oxygen in terms of importance to human life and though our planet is covered by almost 1,400,000,000 km<sup>3</sup> of water, only 2.8% of that is fresh water, and of that, the vast majority is locked in the polar ice caps. The remaining 11 million km<sup>3</sup> sustains the entire population of Earth - over 6.5 billion humans and countless plants and animals.

Without drinking water, a human being can survive for approximately one week. Compare that need to the 'need' for oil, land or physical wealth – all sources for conflict in the 20th and 21st centuries. There are many in our world that do not possess great amounts of these commodities and, while that does make their lives decidedly more difficult, their lives continue and they manage to cope. Yet if the wealthy were denied water for one week, they would be dead or dying, despite their wealth.

Beyond the obvious extreme example, above, is a far more likely case and that is water shortages and rationing. Fresh water is a commodity used by humans for many purposes: drinking, irrigation and waste disposal, to name just a few. These competing demands tug at the supply of available fresh water on our planet. In 2001, the World Resources Institute and the University of New Hampshire proposed a threshold of 1700 m<sup>3</sup> of renewable fresh water per person. When available supplies fell below this level, the authors noted that water shortages occurred with predictable frequency; above this level no trend of shortages was apparent.

On the surface, it would seem that Earth is flush with potable water supplies; currently there exists more than 1,700,000 m<sup>3</sup> of fresh water per person. When one examines the distribution of the renewable fresh water on the planet, however, a different picture emerges.

Looking at historic conflicts, specifically the World Wars of the 20th century, poor availability of food and general economic stress were two primary conditions that facilitated the rise of Fascism and ultra-nationalism in Europe. While other social and cultural factors clearly played an important role, it must be realized that today, humans everywhere have significant cultural, religious and political differences with their neighbors. During times of peace and prosperity, we embrace our neighbors and refer to these differences as 'diversity' and 'multi-culturalism'. During times of stress, when resources are limited, these differences often become dividing lines, dividing the 'haves' from the 'have nots' as those in control of the resources seek to take care of their families, friends and those most like themselves, first. This in turn creates more shortages for those on the outside as resources are stripped from them and distributed to the privileged.

History has shown that during times of severe stress, leaders who play to the divisions among people are more likely to emerge. These leaders often offer blame instead of

pragmatic solutions and compromise and it is in this environment that wars develop. It is conceivable that a time will come where water is in scarce supply in a region of severe ethnic and cultural tension – the Middle East being a prime candidate. The region as a whole has all of the ingredients for a water-war: a large population, many ethnic and religious factions, a history of colonialism that has arbitrarily installed a few in power and highly concentrated and localized fresh water sources.

While this view is pessimistic, it is plausible. To reinforce this, consider that over half of Israel's water demands are currently being met outside of its internationally recognised borders; and as a result, water has become a major factor in all disputes, especially over the Golan Heights . The Golan water-shed is the source for more than 55% of Israel's fresh water needs and forms part of the main aquifer-system that supplies Israel with most of their water supply. Additionally, the headwaters of the Jordan River and Sea of Galilee are located in the Golan. While the strategic military importance of the Golan Heights is significant, the strategic importance of the Golan watershed is primary in all parties' minds.

To guard against these pessimistic outcomes, there must be a focus on delivering clean water to populations around the globe. With water, peoples everywhere can grow crops and feed their families; only after meeting these basics, can populations realistically take the time to seek education and self-betterment. While the current global water conditions warrant concern, there is room for optimism. One of the major hurdles in bringing fresh water to undeserved populations is power. While there is some fresh water above ground, the vast majority, 10,500,000 m<sup>3</sup> in fact, is in the form of ground water; to fully utilize this resource, electrical and mechanical power to run pumps and water distribution systems is necessary.

Often, the regions most in need have been regions far from power generation facilities and national electrical grids. With the increasing availability of affordable, locally-generated power from wind, solar and fuel-cell technologies, there is reason to hope. When power is produced locally, it does not require a transport grid and it is not disrupted when disasters or conflict strike other nearby regions; this means that not only do the lights stay on, but that water continues to flow and crops continue to grow.

Water, like oxygen, is a basic requirement for human life; therefore, when we hear that "Everyone has the right to life, liberty and security of person," we should also hear that they have a right to clean water supplies.