

Water—Our Most Precious Resource

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We live on one of the small inner planets 93 million miles from the sun and have been revolving around our star for more than 4.5 billion years, deriving virtually all of our energy from it.

Our planet has been blessed with the necessary ingredients so that organic matter has been able to evolve into multi-organ species with the ability to replicate. Our species happens to be an end result of the long and fascinating process called evolution, and one of the major ingredients that has sustained life through the eons of evolution is water.

In his 1943 paper “A Theory of Human Motivation,” Abraham Maslow reported that the “hierarchy of needs” includes air, water, and food—the basic necessities of life on our planet. This essay focuses on water and food and reminds us of our obligatory, responsible stewardship to the environment. Life—plant and animal—cannot exist without fresh and potable water.

Approximately 70% of our planet is covered with water, but only 2.5% is fresh water—most of which is in the ice caps and glaciers—and only a small amount is drinkable. Thanks to the consistency of the planetary water cycle, the amount of water on the planet will not change. The water cycle has provided a unique and beneficial balance between clean salt water and ground water that has been purified by the land and the rain cycle. Much of this water has remained in the many huge caverns or aquifers

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for years and is our major source of potable water. These aquifers vary in size and geographical locations and can be easily tapped as a source of sustaining life.

However, the amount of fresh potable water that becomes contaminated can drastically change the amount available for use. The problem is compounded by the increasing global population—estimated to be greater than 8 billion by 2030. And with water being exploited by both agribusiness and industry, it elicits a compelling question: will there be enough food and water for the next 25 years?

In large agricultural areas where rainfall is meager yet huge amounts of water are needed for crops, crop yield becomes compromised and the aquifers become depleted before they can be replenished. A prime example is agribusiness in southern California’s Central Valley—the major source of fruits and vegetables in the United States. Farmers in California use 80% of the state’s available water and grow 230 varieties of crops. With lack of timely rain and snow from the mountains, crop variety will need to be selective and water conservation should be the No. 1 priority.

Industry, with its need for large amounts of water, also depletes the water supply by returning its water in an unpotable condition.

This problem becomes more important with respect to its impact on health and well-being, especially in developing and undeveloped countries. There, disease and ill health are major problems due to lack of clean water, which can lead to infectious disease of epidemic proportion, associated with significant mortality and morbidity.

However, the issues of health and wellness are not limited to under-developed countries. The situation in Flint, Michigan, serves as a timely example and reminder of how issues

Suggested Reading

1. Oxford Atlas of the World. 22nd ed. New York: Oxford University Press; November 1, 2015.
2. Pew Research Center. World Population 1950-2100 [chart]. June 8, 2015. <http://www.pewresearch.org/fact-tank/2015/06/08/scientists-more-worried-than-public-about-worlds-growing-population/>. Accessed March 3, 2016.
3. National Geographic. November 2015. [Cool it: The Climate Change Issue]
4. National Geographic. September, 2014.

with an entire community’s potable water supply can go undetected until people become afflicted with maladies related to contaminated water.

Additionally, we are facing the broader issues of climate change, for which there appear to be no solutions or means of reversal. It is apparent that our species has contributed to these changes, but there are much larger factors—part of the planet’s dynamics at work—affecting these global changes that are not clearly understood.

Some of the solutions to these problems are beyond our current technology, and “robbing Peter to pay Paul”—taking water from other areas—is unacceptable. But we must all face the global changes ahead.

As physicians and other health care providers, we have the responsibility to work with those in public health to assure that every community’s drinking water is safe. And agribusiness and industry, because of their insatiable need for water, will need to devise stringent but necessary regulations and policies pertaining to water utilization in the future.

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