

# The Faucet Runs Dry

CRITICAL ESSAY

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A young girl trudged across the barren and cracked land, holding a plastic jerrycan with filthy water in one hand and her little brother's hand in the other. That day, she couldn't find any clean water. No one else could either. This girl is one of the 2.1 billion people around the world who do not have access to safe drinking water (United Nations). She would also be one of the 3.4 million people who die each year from a water related disease (Berman).

One of the many disastrous effects of water scarcity is the detriment to human health. In fact, the absence of safe drinking water and inadequate water sanitation harms more humans than terrorism, war, and weapons of mass destruction combined. Unsanitary water can carry diseases such as polio, typhoid fever, and cholera, which are just a few of the appalling diseases that cause the deaths of more than 3.4 million people annually (Berman). Also, water shortage results in less sewage flow, encouraging disease-carrying insects such as mosquitoes and tsetse flies to breed, causing an increase in insect-borne diseases like malaria and African trypanosomiasis – commonly known as sleeping sickness. In addition, water scarcity would force water expenditure in agriculture to be decreased, killing food sources and possibly resulting in an international famine.

Furthermore, water scarcity incites violent conflicts. Such conflicts were seen in Syria where a severe drought took place between 2006 and 2009. Not only was the drought a problem, but the Bashar al-Assad regime created ill-advised agricultural and water policies which caused crop failures. The disruption of agriculture led to the migration of 1.5 million farmers away from their fields and into cities. These factors worsened the tensions between the people and the Syrian government, leading to a civil war (Fountain). On top of that, water scarcity related conflicts are escalating rapidly in West Africa. Desertification, in this case caused by water scarcity, has taken hold of around 60% of Nigeria, forcing cattle herders to move south, towards farmers that have already settled there. Since 2011, the farmers and the herders have clashed

multiple times, resulting in at least ten thousand deaths. Similar conflicts have taken place in the Central African Republic, South Sudan, Mali, and other African countries, causing the deaths of tens of thousands of people (Nugent). If these patterns of violence continue into the future, thousands, if not millions of lives may be lost.

Unfortunately, water scarcity will also incite future conflicts. A water conflict that may erupt in the near future is one between China and India. In 2015, the former finished the construction of a dam upstream the Brahmaputra River (Panda), which the North Eastern region of India depends on for water (DPH). This dam can be utilized to divert water away from India, a country already facing a severe water shortage crisis (John). The deviation of the Brahmaputra would cause a conflict between China and India, the third and fourth largest military powers in the world (Global Firepower). Some speculate that a water treaty may be able to prevent conflict between the two, but experts say that a treaty is unlikely as China may not be willing to give up control over the Brahmaputra River (John).

Another devastating consequence that can be brought by water scarcity is a serious international energy shortage crisis. 3% of all the electricity produced in the world comes from hydroelectric power plants (Pisupati). These power plants depend on water to turn turbines that are connected by a shaft to an electric generator to create electricity (Renewable Energy World). Nuclear power plants, which generate 5% of the world's electricity, also use water to rotate turbines for energy generation. On top of that, water is used as a coolant in nuclear reactors (Duke Energy). Moreover, a staggering 81% of the world's energy comes from fossil fuels (Pisupati). Fossil fuel power plants require millions of gallons of water to spin turbines to produce electricity. Water is even needed to drill, mine, and process the fossil fuels themselves (Wineke; National Geographic; Union of Concerned Scientists). In the case of a severe water shortage crisis, there would either be no water to use in these power plants or water would be redirected for agricultural purposes and for human consumption, which are both necessary to sustain life. Without these generators operating, the world will lose about 89% of its electricity. A worldwide energy shortage crisis seems distant, but the World Energy Council warns that energy production would be hindered by water scarcity in the near future. In order to prevent these consequences, water scarcity must be stamped out.

Several legal efforts can be taken to reduce water scarcity, one of which is changing water prices. Making water more expensive in countries with ample and clean water supplies would encourage people to stop wasting water, saving a significant amount of it. Another way to decrease water waste is to educate the public about water scarcity. Furthermore, creating more regulations on carbon dioxide emissions would also help eradicate water scarcity as it will stabilize global precipitation (MIT). In addition, the government can pass laws that make sure that irrigation, which uses 70% of the world's freshwater, is efficient and not wasteful (Wenzlau). According to the UN Food and Agriculture Organization, 60% of the water diverted for use in irrigation is wasted. Also, considering that 30% to 40% of all the food produced in the world is dumped (Wenzlau), legal action should be taken to decrease food and water waste.

Industry can also help combat water scarcity. Companies can invent new and far more efficient desalination plants and improve water catchment and harvesting systems. This would make water collection in places with scarce water supplies much easier. Other improvable methods of water acquisition are solar powered water filters, water generators, and water pumps (Emergent Solar Solutions). Also, companies can invent, or improve on water conservation technology to minimize water wastage. In addition, factories, which account for 22% of the world's water consumption, can minimize their water usage (Circle of Blue).

Companies can also produce better and less wasteful irrigation systems. An example of one uses a pair of probes to determine if the soil is moist or dry by utilizing water's conductivity. If the soil is wet, the water conducts an electrical current between the probes, stopping the water pump. However, if the soil is dry, there is no current between the probes, turning the water pump on (Yun). Unlike this prototype irrigation system, modern day sprinklers turn on and off at set times, sometimes resulting in their watering a lawn even when it's pouring rain. Finally, in the case where the government creates regulations on carbon dioxide emissions or irrigation systems, companies and citizens should comply.

Walking on the lush grass, a young girl heads towards school alongside her little brother, who is happily skipping around. Both carry bottles full of clean, clear

water and wear a backpack. She is one of the 1.1 billion people around the world who were saved from the grasps of water scarcity. She also would have been one of the millions of people who died from a water related disease. ■