

## Inquiring Minds Topic – 17 January 2020

Jim Goodale, Moderator

### Growing Water Shortages and Potential Solutions

A combination of the climate crisis, increasing world population, and pollution has contributed to a serious decline in the world's supply of potable water. Sparkling rivers and lakes are being fouled by artificial fertilizers, plastic and hydrocarbons. Lower levels of snowpack in mountains and upland regions are providing less source water to nourish rivers and lakes in the Spring. And these shortages are reaching into temperate regions of the globe where most of our food is grown.

#### What can be done to slow or reverse this trend?

1. Given the likely dire consequences, why do you think societies, ours included, seem to be doing so little to address these problems?
2. If these trends continue to worsen, how will first-world countries contend with mass migration from water-starved countries?
3. Some experts have stated, "Water is a local problem, and it needs local solutions." Do you agree? Why or why not?
4. What can we do in our daily lives to reduce our personal impact on water shortage and pollution?
5. What actions can we encourage Shellpoint, Florida state government, the Federal government and the corporate world to take to ameliorate this growing crisis?

### A Quarter of Humanity Faces Looming Water Crises

By Somini Sengupta and Weiyi Cai Aug 6, 2019

<https://www.nytimes.com/interactive/2019/08/06/climate/world-water-stress.html>

BANGALORE, India — Countries that are home to one-fourth of Earth's population face an increasingly urgent risk: The prospect of running out of water.

From India to Iran to Botswana, 17 countries around the world are currently under extremely high water stress, meaning they are using almost all the water they have, according to new World Resources Institute data published Tuesday.

Many are arid countries to begin with; some are squandering what water they have. Several are relying too heavily on groundwater, which instead they should be replenishing and saving for times of drought.

In those countries are several big, thirsty cities that have faced acute shortages recently, including [São Paulo](#), Brazil; [Chennai](#), India; and [Cape Town](#), which in 2018 narrowly beat what it called Day Zero — the day when all its dams would be dry.

#### Water Stress Levels of Urban Areas with Population Bigger than 3 Million

More than a third of major urban areas with more than 3 million people are under high or extremely high water stress.

“We’re likely to see more of these Day Zeros in the future,” said Betsy Otto, who directs the global water program at the World Resources Institute. “The picture is alarming in many places around the world.”

Climate change heightens the risk. As rainfall becomes more erratic, the water supply becomes less reliable. At the same time, as the days grow hotter, more water evaporates from reservoirs just as demand for water increases.

Water-stressed places are sometimes cursed by two extremes. São Paulo was ravaged by floods a year after its taps nearly ran dry. Chennai suffered fatal floods four years ago, and now its reservoirs are almost empty.

### **Groundwater Is Going Fast**

Mexico’s capital, Mexico City, is drawing groundwater [so fast that the city is literally sinking](#). Dhaka, Bangladesh, relies so heavily on its groundwater for both its residents and its water-guzzling garment factories that it now draws water from aquifers hundreds of feet deep. Chennai’s thirsty residents, accustomed to relying on groundwater for years, are now finding there’s none left. Across India and Pakistan, farmers are draining aquifers to grow water-intensive crops like cotton and rice.

### **More Stress in the Forecast**

Today, among cities with more than 3 million people, World Resources Institute researchers concluded that 33 of them, with a combined population of over 255 million, face extremely high water stress, with repercussions for public health and social unrest.

By 2030, the number of cities in the extremely high stress category is expected to rise to 45 and include nearly 470 million people.

### **How to Fix the Problem?**

The stakes are high for water-stressed places. When a city or a country is using nearly all the water available, a bad drought can be catastrophic.

After a three-year drought, Cape Town in 2018 was forced to take extraordinary measures to ration what little it had left in its reservoirs. That acute crisis only magnified a chronic challenge. Cape Town’s 4 million residents are competing with farmers for limited water resources.

Likewise, Los Angeles. Its most recent drought ended this year. But its water supply isn’t keeping pace with its galloping demand and its penchant for private backyard swimming pools doesn’t help.

[Getting closer to home – [various sources](#). Of the 164 countries ranked, the US is #71 in water shortage severity. Nine states (NV, WY, KS, TX, AR, FL, NC, NJ, RI) are classified as “medium-high water stress,” four (AZ, CA, CO & NE) are “high” and New Mexico is “extremely high.” El Paso, Phoenix, LA, Miami, Atlanta are the five US cities most likely to run out of water. Water fights between states have already led to lawsuits.]

A lot can be done to improve water management, though.

First, city officials can plug leaks in the water distribution system. Wastewater can be recycled. Rain can be harvested and saved for lean times: lakes and wetlands can be cleaned up and

old wells can be restored. And, farmers can switch from water-intensive crops, like rice, and instead grow less-thirsty crops like millet.

“Water is a local problem and it needs local solutions,” said Priyanka Jamwal, a fellow at the Ashoka Trust for Research in Ecology and the Environment in Bangalore.

### ***Climate Change Threatens the World’s Food Supply, United Nations Warns***

<https://www.nytimes.com/2019/08/08/climate/climate-change-food-supply.html>

The world’s land and water resources are being exploited at “unprecedented rates,” a new United Nations report warns, which combined with climate change is putting dire pressure on the ability of humanity to feed itself.

The report, prepared by more than 100 experts from 52 countries and released in summary form in Geneva on Thursday, found that the window to address the threat is closing rapidly. A half-billion people already live in places turning into desert, and soil is being lost between 10 and 100 times faster than it is forming, according to the report.

Climate change will make those threats even worse, as floods, drought, storms and other types of extreme weather threaten to disrupt, and over time shrink, the global food supply. Already, more than 10 percent of the world’s population remains undernourished, and some authors of the report warned in interviews that food shortages could lead to an increase in cross-border migration.

A particular danger is that food crises could develop on several continents at once, said Cynthia Rosenzweig, a senior research scientist at the NASA Goddard Institute for Space Studies and one of the lead authors of [the report](#). “The potential risk of multi-breadbasket failure is increasing,” she said. “All of these things are happening at the same time.”

The report also offered a measure of hope, laying out pathways to addressing the looming food crisis, though they would require a major re-evaluation of land use and agriculture worldwide as well as consumer behavior. Proposals include increasing the productivity of land, wasting less food and persuading more people to shift their diets away from cattle and other types of meat.

“One of the important findings of our work is that there are a lot of actions that we can take now. They’re available to us,” Dr. Rosenzweig said. “But what some of these solutions do require is attention, financial support, enabling environments.”

The summary was released Thursday by the Intergovernmental Panel on Climate Change, an international group of scientists convened by the United Nations that pulls together a wide range of existing research to help governments understand climate change and make policy decisions. The I.P.C.C. is writing a series of climate reports, including one last year on the disastrous consequences if the planet’s temperature [rises just 1.5 degrees Celsius](#) above its preindustrial levels, as well as an [upcoming report on the state of the world’s oceans](#).

Some authors also suggested that food shortages are likely to affect poorer parts of the world far more than richer ones. That could increase a flow of immigration that is already redefining politics in North America, Europe and other parts of the world.

The Growing Threat to Clean Water

January 17, 2020

“People’s lives will be affected by a massive pressure for migration,” said Pete Smith, a professor of plant and soil science at the University of Aberdeen and one of the report’s lead authors. “People don’t stay and die where they are. People migrate.”