Lab: Freshwater Resources – The Crisis & Solutions

Background:

Earth is known as the "water planet" since its surface is 71% covered in water. The vast majority is saltwater. And of the freshwater, most is not readily available to us as a source for drinking, agriculture, or industrial uses. For example, rivers are the source of most of the fresh surface water people use, but they only make up about 509 mi^3 (2,120 km^3), about $1/10{,}000^{th}$ of one percent of total water. (USGS, n.d.) Water conservation will be an ever-increasing focus. Awareness of the severity of this problem and a look at potential solutions is the focus of this activity.

The Crisis: 25 Facts You Should Know About the Global Water Crisis. Many links to sources are provided in this article that may prove helpful. (If the links are disabled, you still have all of google at your fingertips.)

The Solutions: Experts Name the Top 19 Solutions to the Global Freshwater Crisis.

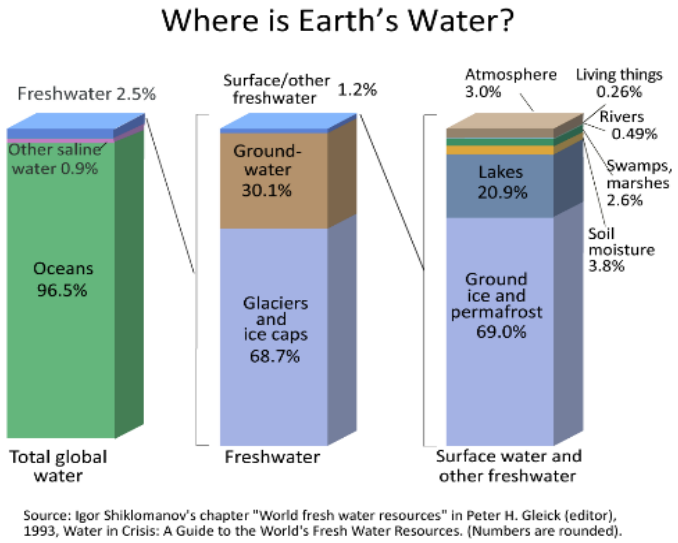
Analysis Questions:

#1-3. Using the sources provided in the article above, create a one paragraph summary (3-4 sentence minimum) for three of these five crises. Please cite at least one source for each paragraph (APA format).

- By 2025, an estimated 1.8 billion people will live in areas plagued by water scarcity, with two-thirds of the world's population living in water-stressed regions.
- More than two billion people worldwide rely on wells for their water.
- Water demand is projected to grow by 55% by 2050, including a 400% rise in manufacturing water demand.
- For decades the Ogallala Aquifer in the United States, one of the world's largest aquifers, has been tapped at rates thousands of times greater than it is being restored.
- According to the U.S. Intelligence Community Assessment of Global Water Security, by 2030 humanity's "annual global water requirements" will exceed "current sustainable water supplies" by 40%.

#4-5. Choose two of these solutions to investigate further: one that you were already aware of and one that are new ideas to you. Create a one paragraph summary (3-4 sentence minimum) for EACH of your selected solutions. Please cite at least one source for each paragraph (APA format). The 19 potential solutions are:

- Educate to change consumption and lifestyles
- Invent new water conservation technologies
- Recycle wastewater
- Improve irrigation and agricultural practices
- Appropriately price water
- Develop energy efficient desalination plants
- Improve water catchment and harvesting
- Research & Development / Innovation
- Develop and enact better policies and regulations
- Holistically manage ecosystems
- Improve distribution infrastructure
- Shrink corporate water footprints
- Population growth control
- Address pollution
- Public common resources / equitable access
- Climate change mitigation
- Water projects in developing countries / transfer of technology
- Look to community-based governance and partnerships
- Build international frameworks and institutional cooperation



#6. What do you already do in your everyday life to conserve water? (need multiple answers)

#7. What can you add to your everyday life to increase your water conservation efforts?