

Chapter 14 Reading Questions (Choose Odd or Even Questions to answer)

* Introduction

1. What role does population growth play in water supply problems and political instability? Use examples from the introductory section on the Middle East in your answer.

A) Water's Importance, Availability, And Renewal

1. Why does access to water affect (a) global health, (b) children, (c) women, (d) national and global security, and (e) the environment?
2. What percentage of the earth's total volume of water is easily available for use by people?
3. Since 1900, how much has the total use and per capita use of water by humans increased?
4. About what percentage of the world's reliable surface runoff is used by humanity?
5. Distinguish between water withdrawal and consumptive water use.
6. About what percentages of the water we withdraw each year are used for (a) irrigation, (b) industry, and (c) residences and cities?

B) Too Little Freshwater

1. List four causes of water scarcity.
2. About how many people live in countries that are water-stressed or water-scarce? How many people are likely to be living in such countries by 2050?
3. Nestle has bought the rights to a spring in the Columbia Gorge and there is a controversy over their plans to build a bottling plant there. Do you think freshwater resources should be owned and managed by governments or by private corporations? Why?
4. Describe how water and grain are related in the world's markets.
5. List six ways to increase the supply of fresh water in a particular area.

C) Withdrawing Groundwater To Increase Supplies

1. List the advantages and disadvantages of supplying more water by withdrawing groundwater.
2. Explain why excessive groundwater withdrawal can be viewed as an example of the tragedy of the commons.
3. What are three harmful effects of groundwater over-pumping?
4. Of the eight ways to prevent or slow groundwater depletion, pick three that you think would be most effective.
5. What are two concerns about withdrawing water from huge, very deep aquifers?

D) Using Dams And Reservoirs To Supply More Water

1. Use examples from the Colorado River Basin and China's Three Gorges dam to illustrate the advantages and disadvantages of building large dams and reservoirs to supply fresh water.
2. In the last decade, a dam has been removed from the Sandy River in Oregon and the White Salmon River on the Washington side of the Columbia Gorge. Explain the reasoning behind dam removal, particularly in the Pacific Northwest.

Transferring Water From One Place To Another

1. Describe the controversy over (a) the California Water Transfer Project.
2. Why is the Aral Sea water transfer project called a disaster?

Desalination Seawater, Seeding Clouds, And Towing Icebergs And Giant Baggies

1. List the advantages and disadvantages of increasing supplies of fresh water by desalination of salt water.
2. How useful are seeding clouds and towing icebergs for increasing water supplies in water-short areas?

E) Increasing Water Supplies By Wasting Less Water

1. About what percentage of the water used by people throughout the world is wasted?
2. Describe three major irrigation systems and list them in order of their efficiency of water use.
3. List the nine ways to reduce water waste in irrigation with what you think are the most economically viable first and the least economically viable last.
4. Divide the eleven ways to reduce water waste into two categories, Those that can be Implemented by Local Governments and those that rely on the Individual.
5. Why is xeriscaping considered a win-win approach to irrigation?
6. What is a tiered water pricing system and what are its benefits?
7. Describe two ways in which we could reduce the use of water in removing industrial and household wastes.

F) Too Much Water

1. List the major benefits and damages caused by floods.
2. List four ways in which humans increase the damages from floods.
3. Of the six ways to prevent or control flooding, which three do you think are more environmentally sustainable?
4. Why doesn't providing flood insurance help in preventing flood damage?

Solutions: Using Water More Sustainably

1. Of the eight strategies listed for using water more sustainably, pick three that you think your government could practically implement right away.
2. List five ways in which you personally can reduce your use and waste of water.

* And Finally...

1. Come up with two interesting questions that you have about this topic for the discussion.