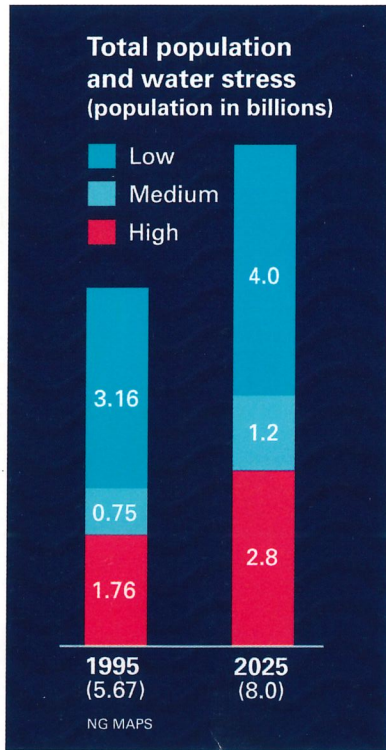


11A

A Precious Resource

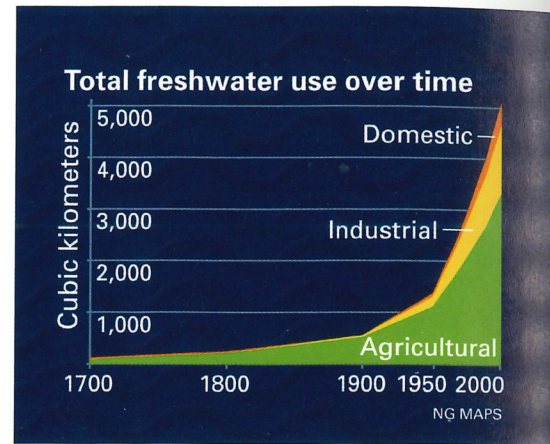


◀ A Stressful Future

Between 1995 and 2025, a billion more people will join those already living under a high level of water stress. Add the people who face a medium level of water stress, and four billion people—half the planet's population—will have an insufficient supply of water.

A Thirstier World ▶

Because of irrigated agriculture, the industrial revolution, and a population explosion, humans use 45 times as much water as they did three centuries ago. Irrigation, which accounts for 70 percent of water use, grows 40 percent of the world's food and makes it possible to feed the planet's 6.2 billion people.



□ Before You Read

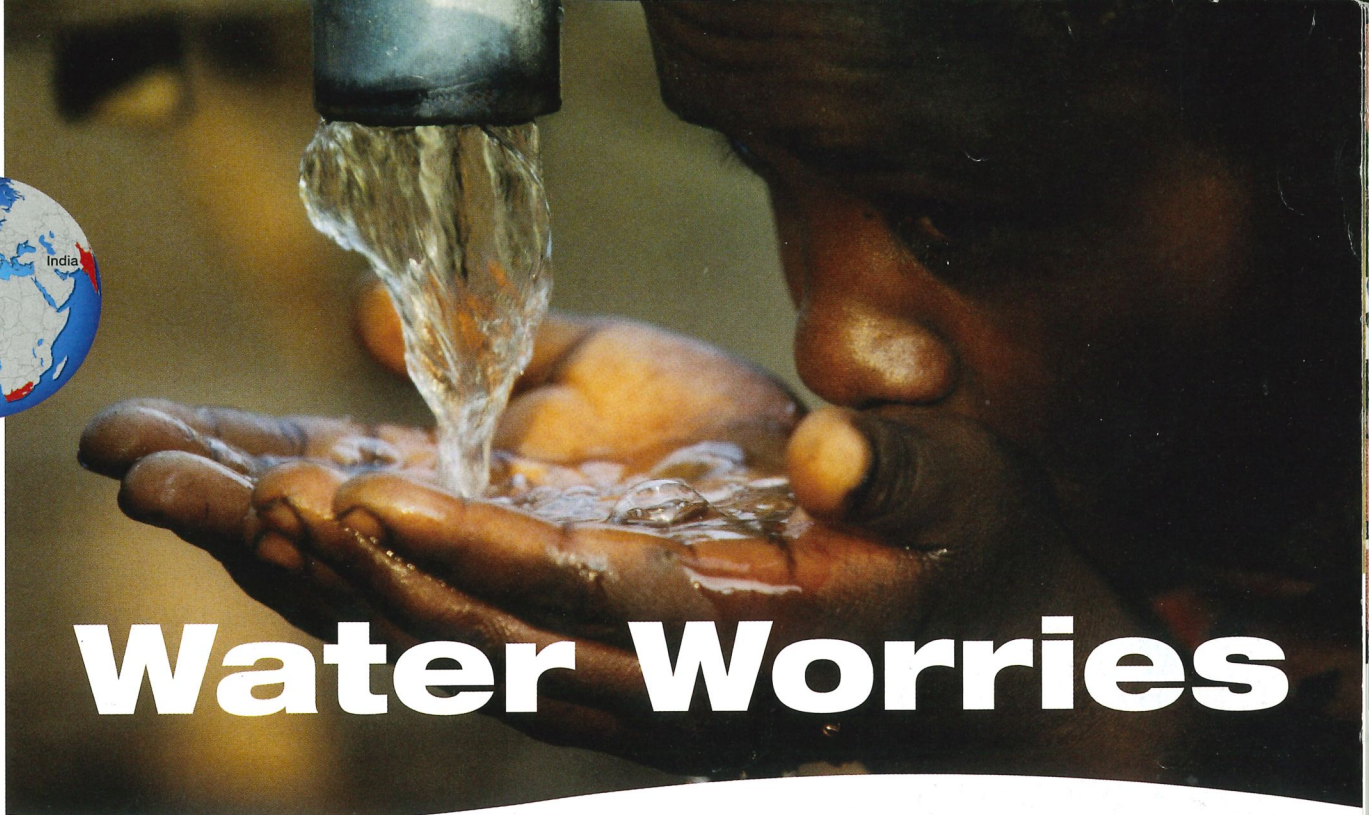
A. Multiple Choice. Read the information and look at the charts above.

Then answer the questions.

- Which of the following accounted for the smallest percentage of world water use in 2000?
 - agricultural
 - industrial
 - domestic
- In 1995, how many people were living under high water stress?
 - 1.76 billion
 - 3.16 billion
 - 5.67 billion
- Between the years 1925 and 2000, about how much has total freshwater use increased?
 - two times
 - five times
 - ten times
- How many more people will suffer high water stress in 2025 compared with 1995?
 - 0.84 billion
 - 1.04 billion
 - 2.8 billion

B. Predict. The Indian village of Goratalai has suffered years of drought. What do you think they plan to do about it? Circle **a**, **b**, or **c**. Then read the passage to check your ideas.

- They plan to truck in bottled water.
- They plan to build a dam to catch rainwater.
- They plan to stop using water for agriculture.



Water Worries

▲ Cupping his hands to drink from a new well, Soti Sotiar is among a lucky few. Only 10 to 20 percent of rural Ethiopians have access to clean drinking water.

1 In the Castile-La Mancha region of south
central Spain, Julio Escudero, a 74-year-old
former fisherman, fondly¹ recalls an area on the
Guadiana River called Los Ojos—"the eyes."
5 Large underground springs bubbled up into
the river, where Escudero and his community
fished for carp and crayfish. "I would sit in my
boat six or seven meters away and just watch
the water coming up," Escudero says. "Now
10 it looks like the moon." Los Ojos doesn't
exist anymore: that stretch of the river dried
up in 1984. Additionally, 46,000 acres of
surrounding wetlands²—vital not only to the
local people but also to countless species of
15 plants and wildlife—have disappeared.

As farming in the region has increased, La
Mancha has witnessed an explosion of well³
digging in the past 40 years that has lowered
the water table and diverted water from rivers
and streams. The number of wells has grown
20 from 1,500 in 1960 to an official count of
21,000 today, and some experts say the real
number, including illegal wells, could
surpass 50,000.

25 A Global Problem

La Mancha is just one of many places facing
water shortages. This century, many countries
will face the same dilemma that has confronted
the people of Spain: how to balance human
needs with the requirements of natural systems
30 that are vital for sustaining life on Earth. The
United Nations recently outlined the extent
of the problem, saying that 2.7 billion people
would face severe water shortages by 2025 if
consumption continues at current rates. Today,
35 an estimated 1.2 billion people drink unclean
water, and about 2.5 billion lack proper toilets
or waste disposal systems. More than five
million people die each year from diseases
40 related to unclean water. All over the globe,
humans are pumping water out of the ground
faster than it can be replenished. In this
difficult situation, water conservationists, such
as Rajendra Singh in India and Neil MacLeod
45 in South Africa, are working to find solutions
to the water crisis. Both have found innovative
ways to improve their local water situations.

¹ If you remember something **fondly**, you remember it with pleasure.

² A **wetland** is an area of very wet, muddy land with wild plants growing in it. You can also refer to an area like this as wetlands.

³ A **well** is a hole in the ground from which a supply of water is extracted.



▲ An Indian woman fills a bowl of water from a canal near the Hooghly River, in Kolkata.

India: A Hero in a Thirsty Land

50 On arriving at the Indian village of Goratalai, Rajendra Singh was greeted by a group of about 50 people. He smiled and addressed the villagers:

“How many households⁴ do you have?”

55 “Eighty.”

“It’s been four years without much rain,” interjected⁵ a woman. “And we don’t have a proper **dam** to catch the water.”

60 “Do you have any spots where a dam could go?” asked Singh, 43, who has a full head of black hair and a thick beard, both with a touch of gray.

“Yes, two spots.”

“Will the whole village be **willing** to work there?”

“Yes,” they all replied together.

65 “I would like to help you,” Singh told them, “but the work has to be done by you. You will have to provide one third of the project through your labor, and the remaining two thirds I will arrange.”

70 The villagers clapped, the women started to sing, and the group hiked to a place in the nearby rocky hills. Singh examined the area, and after a few minutes declared, “This is an ideal site.” His organization would provide the engineering advice and materials; the villagers would supply the work. The 30-foot-high earthen dam and reservoir,⁶ known as a *johad*,

could be finished in three months, before the start of the rainy season. If the rains were plentiful, the reservoir would not only provide supplemental surface water for drinking and agriculture, but would also replenish dry wells. “You will not see the results immediately. But soon the dam will begin to raise the water level in your wells,” Singh told the villagers.

85 Soon Singh was gone, heading to a nearby village that had also requested help building a johad. In recent years, Singh’s johads have sprung up all over Rajasthan—an estimated 4,500 dams in about 1,000 villages, all built using local labor and native materials. His movement has caught on, he says, because it puts control over water in the hands of villagers. “If they feel a johad is their own, they will maintain it,” said Singh. “This is a very sustainable, self-reliant system. I can say confidently that if we can manage rain in India in traditional ways, there will be sufficient water for our growing population.”

South Africa: Waste Not, Want Not

100 In South Africa, Neil MacLeod took over as head of Durban Metro Water Services in 1992. The situation he found was a catastrophe. Durban had one million people living in the city and another 1.5 million people who lived in poverty just outside it. Macleod and his engineers determined that the entire city was rife⁷ with broken water pipes, **leaky** toilets, and faulty plumbing⁸ **whereby** 42 percent of the region’s water was simply being wasted. “We **inherited** 700 reported leaks and bursts.

115 The water literally just ran down the streets,” recalled Macleod. “Demand for water was growing four percent a year, and we thought we’d have to build another dam by 2000.”

⁴ A **household** is all the people in a family or group who live together in a house.

⁵ If you **interject**, you interrupt someone else who is speaking.

⁶ A **reservoir** is a lake that is used for storing water before it is supplied to people.

⁷ If you describe something bad as **rife** in a place, it is very common.

⁸ The **plumbing** in a building consists of the water and drainage pipes, bathtubs, and toilets in it.



▲ With a growing population, and breaking water pipes, Mexico City must truck water to many residents. Leaking pipes claim nearly a third of the city's water.



▲ Residents of Las Vegas, in Nevada, the United States's driest state, use more than double the water most Americans do. At the Bellagio Hotel, 100 million liters (27 million gallons) of water dance to music every night.

Macleod's crews began repairing and replacing water pipes. They put water meters on residences, replaced eight-liter toilets with four-liter models, and changed wasteful showers and water taps. To ensure that the poor would receive a basic supply of water, Macleod installed tanks in homes and apartments to provide 190 liters (50 gallons) of water a day free to each household.

Water consumption in the city of Durban is now less than it was in 1996, even as 800,000 more people have received service. Through sensible water use, Durban's conservation measures paid for themselves within a year.

Macleod has assured the city that no new dams will be needed in the coming decades, despite the expected addition of about 300,000 inhabitants.

In Durban, Macleod has also turned to water recycling. At the water recycling plant, wastewater is turned into clean water in just 12 hours. Most people are unable to discern a difference between the usual city drinking water and the treated wastewater, although it is actually intended for industrial purposes. Macleod boasts, "Go to many areas of the world, and they're drinking far worse water than this."

Some people still hope that new technology, such as the desalination⁹ of seawater, will solve the world's water problems. "But the fact is, water conservation is where the big gains are to be made," says Sandra Postel of the Global Water Policy Project. The dedication and resourcefulness of people like Rajendra Singh and Neil Macleod offer inspiration for implementing timely and lasting solutions to the world's water concerns.



▲ A girl swims at Dubai's Wild Wadi Water Park. Oil-rich Dubai can afford to do what most water-scarce nations can't—desalinate seawater for all its freshwater needs.

⁹ If you **desalinate** seawater, you remove all the salt from it.

Reading Comprehension

A. Multiple Choice. Choose the best answer for each question.

Gist 1. Another title for this reading could be _____.

- a. *Water for the Rich, Not for the Poor*
- b. *Why We Waste Water: Two Points of View*
- c. *Water Shortages and Problem Solvers*
- d. *Politics and Water: Fighting for a Drink*

Detail 2. Which of these statements about Castile-La Mancha is NOT true?

- a. Its situation is common to many places around the world.
- b. Over-fishing has caused a great deal of environmental damage.
- c. Illegal well digging is a significant problem.
- d. The Los Ojos area has been dry for over 20 years.

Detail 2. What is Rajendra Singh's solution to water shortages?

- a. build dams and reservoirs
- b. pump more groundwater
- c. fix leaky pipes
- d. desalinate seawater

Detail 4. Which of these methods did MacLeod NOT make use of in Durban?

- a. repairing water pipes
- b. replacing toilets
- c. installing water meters
- d. building a new dam

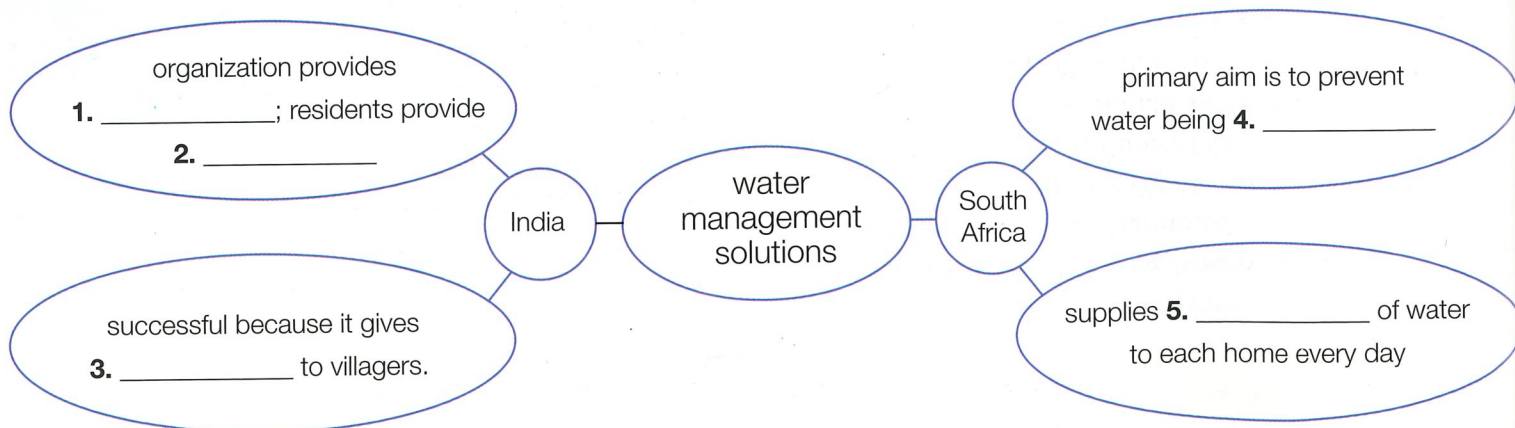
Paraphrase 5. Which of the following did Sandra Postel mean by "water conservation is where the big gains are to be made" (lines 147–148)?

- a. Water conservation is an opportunity for large profits for businesses.
- b. Water conservation is the most effective method to address water shortages.
- c. Water conservation technology is still in need of many improvements.
- d. Water conservation is required by law in order to ensure large gains.

Critical Thinking

Which of the water conservation strategies in the reading do you think would be most effective in your country? Why?

B. Summary. Complete the information with words from the reading.



Vocabulary Practice

A. Completion. Complete the information with the correct form of words from the box. Two words are extra.

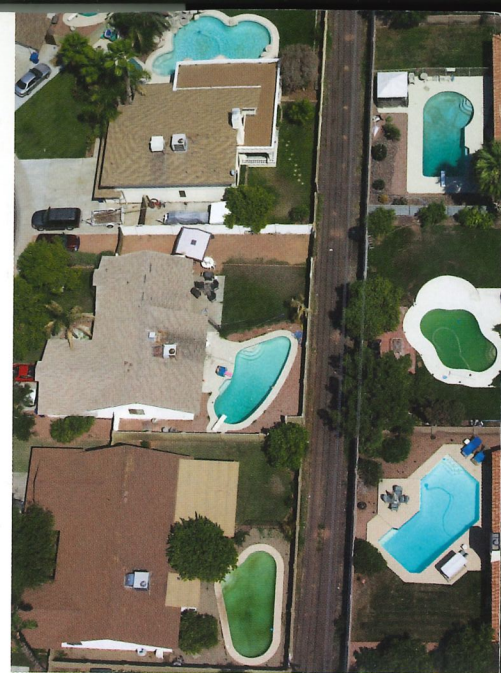
dam	dedicated	discern	divert	inherit
whereby	leak	replenish	surpass	willing

Reports indicate that rising global water consumption rates, poor water management, and increased global temperatures could mean that our children and grandchildren will **1.** _____ a world in which two out of every three people in the world are affected by water shortages. By the year 2025, the world population will **2.** _____ 8 billion, 3 billion of whom could, according to the World Resources Institute, face chronic water shortages.

Some scientists say that success or failure will depend on whether people can **3.** _____ the seriousness of the situation and take action to use less water. One problem is that when water is cheap, people don't see the need to conserve. The European Environment Agency found, for example, that 75 percent of the water that households in Albania pay for is wasted because of **4.** _____ in their pipes.

If water becomes more expensive, people might be **5.** _____ to use water more efficiently. For example, during the 1993 droughts, an average farmer in California paid about ten cents a ton for water, compared to three cents a ton after rain had **6.** _____ the supply. At ten cents, many farmers in California started growing crops that require less water. When the price of water was raised in Chile, the average amount of water **7.** _____ for use in irrigation decreased by nearly 26 percent.

One notable success story is the Working for Water program in South Africa. In the past, water was priced at a similar rate for all users. However, the program has changed the way individuals are charged for water, instituting a system **8.** _____ people who conserve water pay less. Their new system is an important example for a world in which, as the population continues to grow, water becomes more important every day.



▲ Backyard swimming pools in Phoenix, Arizona—one of the United States' driest states

B. Definitions. Match the words from the box in **A** with their correct definition.

1. be better than, or have more of a particular quality than _____
2. a wall that is built across a river in order to make a lake _____
3. giving a lot of time and effort to something important _____
4. receive something from the people who used to have it _____
5. be aware of something and know what it is _____
6. to cause money or resources to be used for a different purpose _____
7. make something full or complete again _____
8. a crack or hole that a substance such as a liquid or gas can pass through _____

Thesaurus

leak Also look up: (v.) drip, ooze, seep, trickle; (n.) crack, hole, opening