



Water Pollution

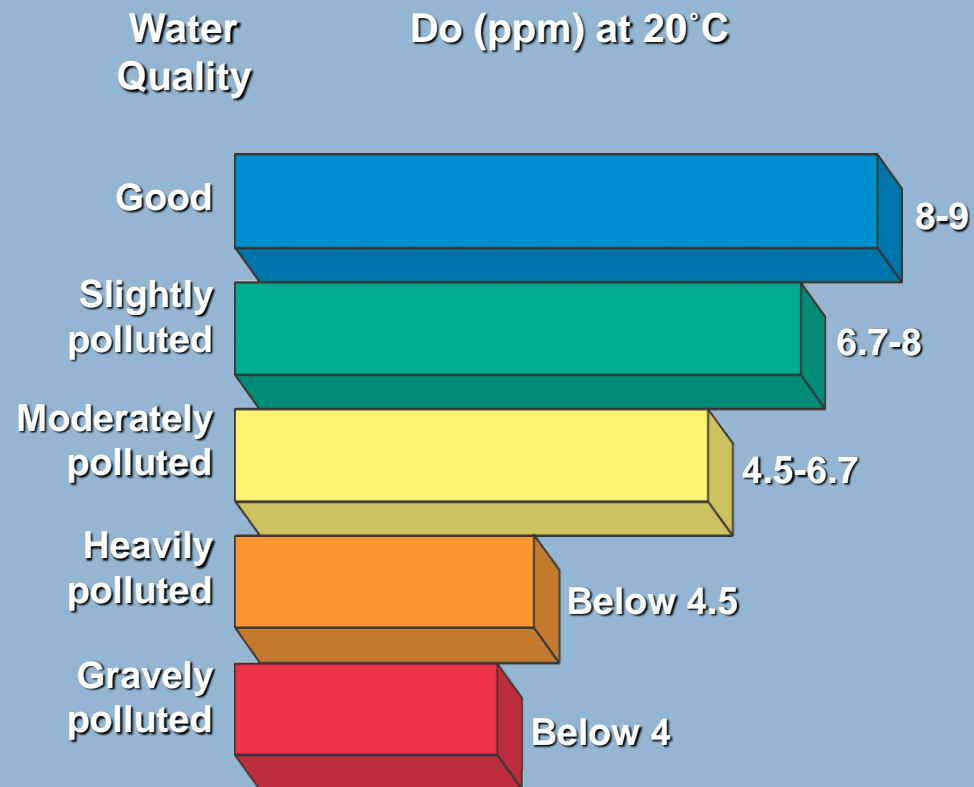
Types of Water Pollution

➤ **Point sources**

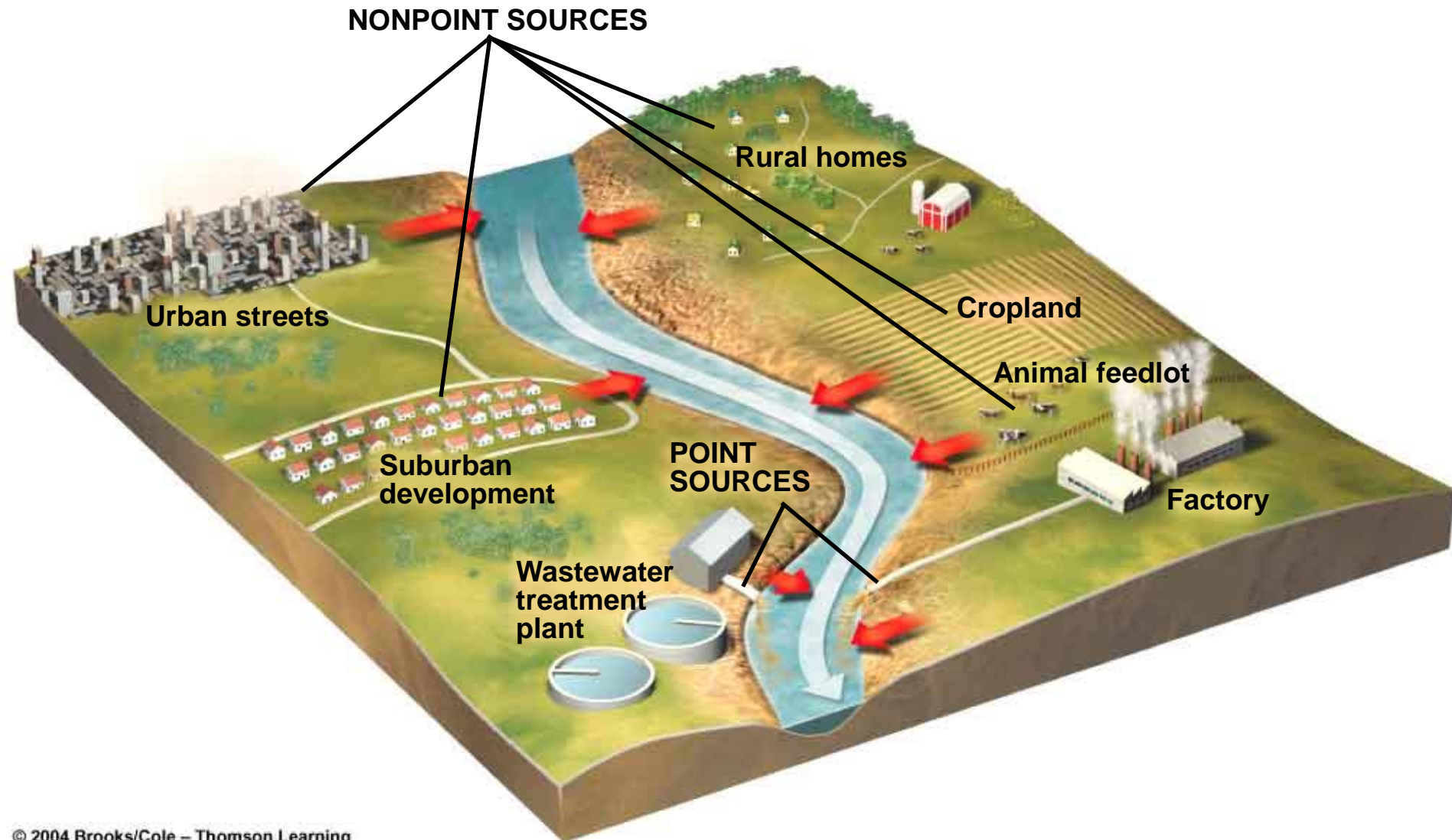
➤ **Nonpoint sources**

➤ **Biological oxygen demand**

➤ **Water quality**



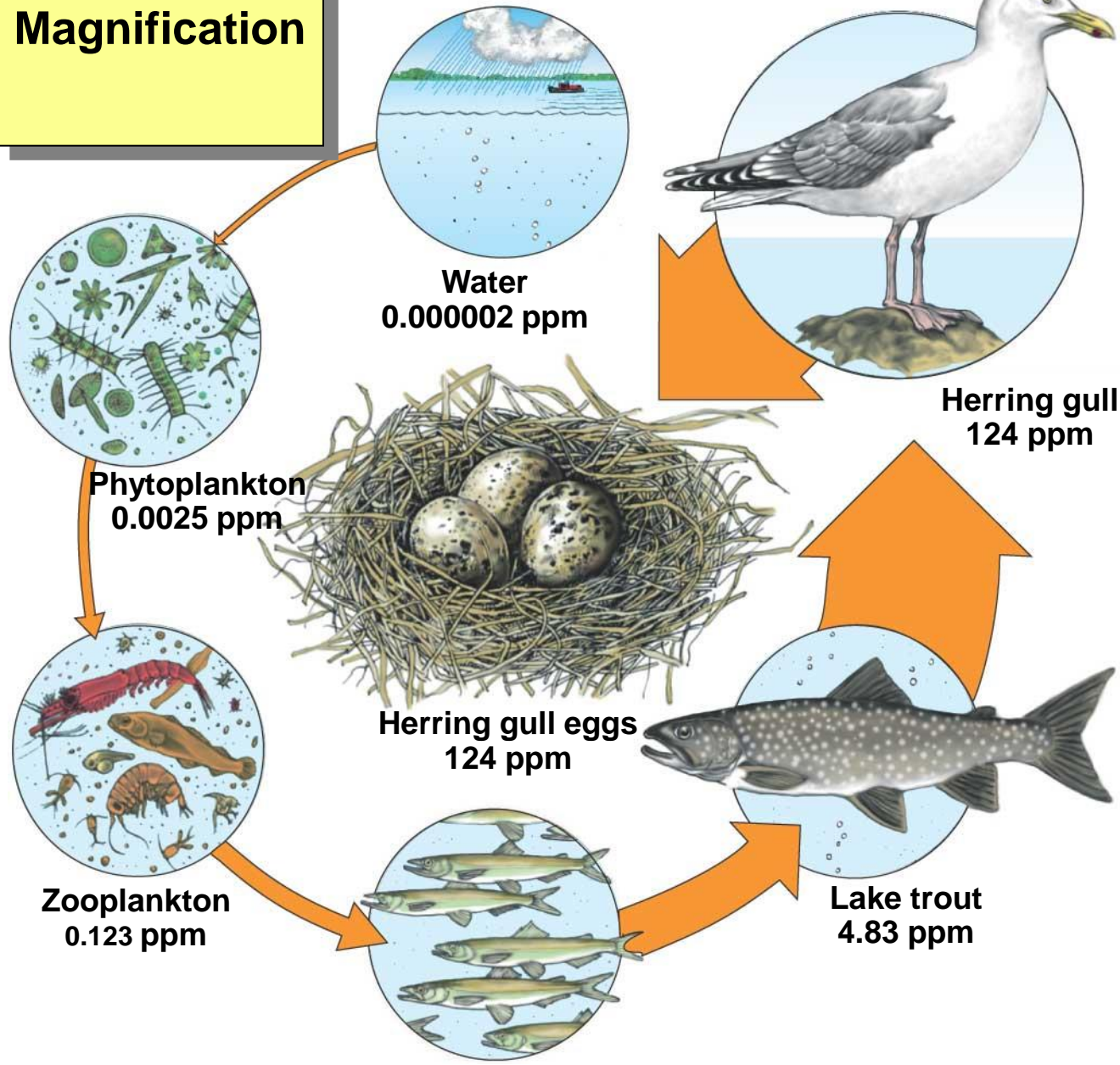
Point and Nonpoint Sources



Water pollution Sources

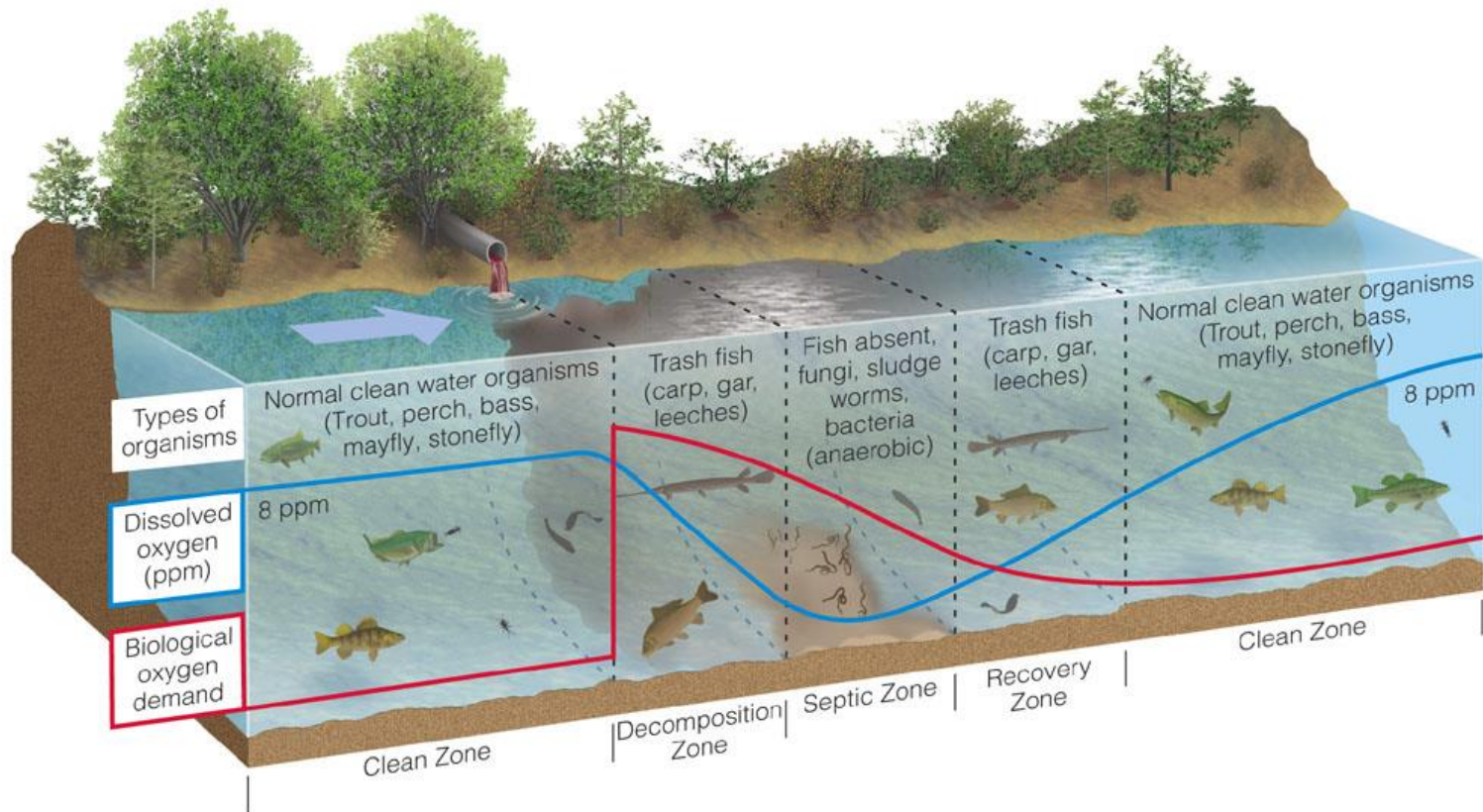
- Bacteria, Viruses, Protozoa, Parasitic worms
- Oxygen demanding substances
- Inorganic plant nutrients
- Organic chemicals
- Sediment or suspended matter
- Thermal pollution
- Genetic pollution

Biological Magnification

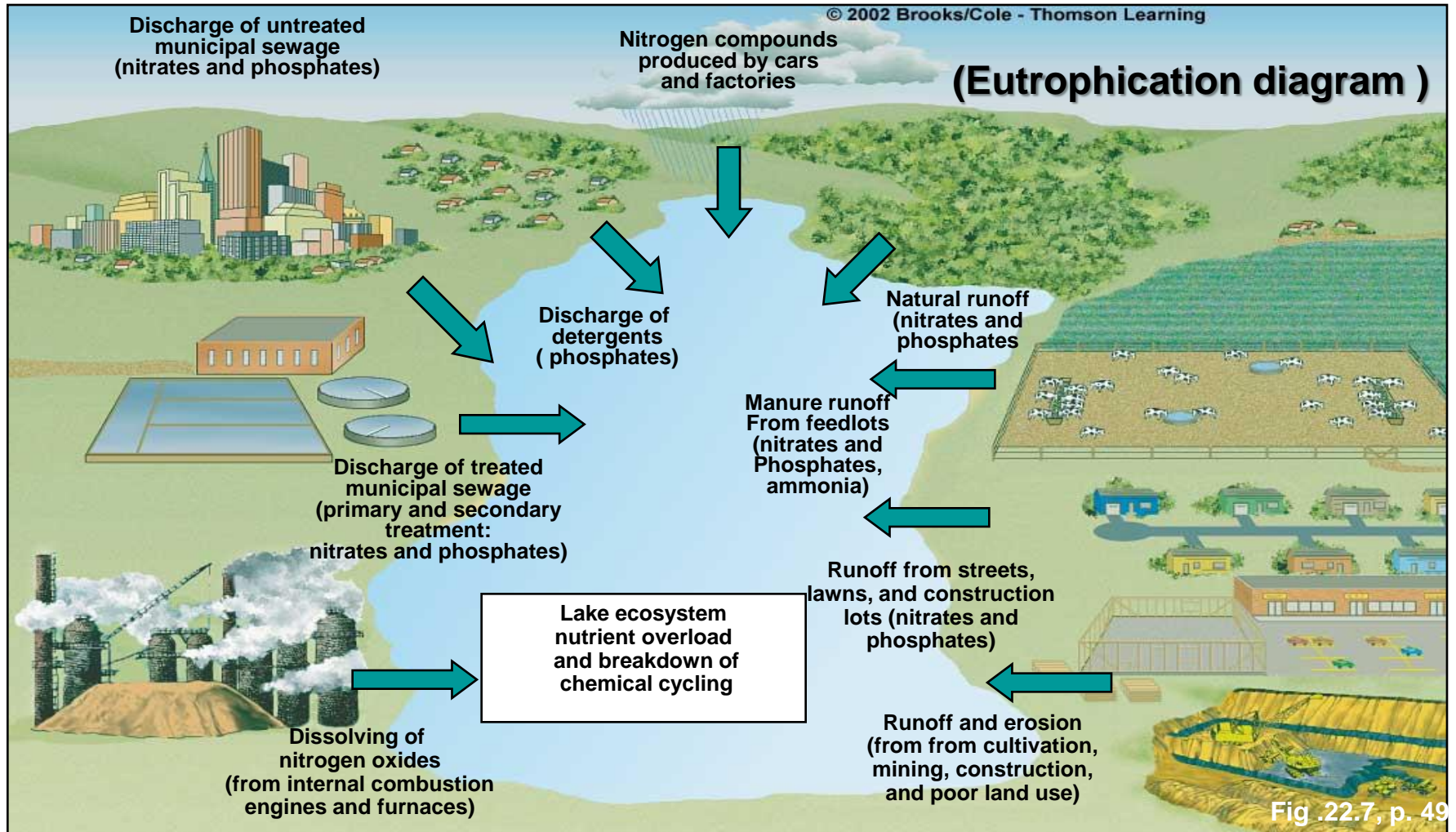


Pollution of Streams

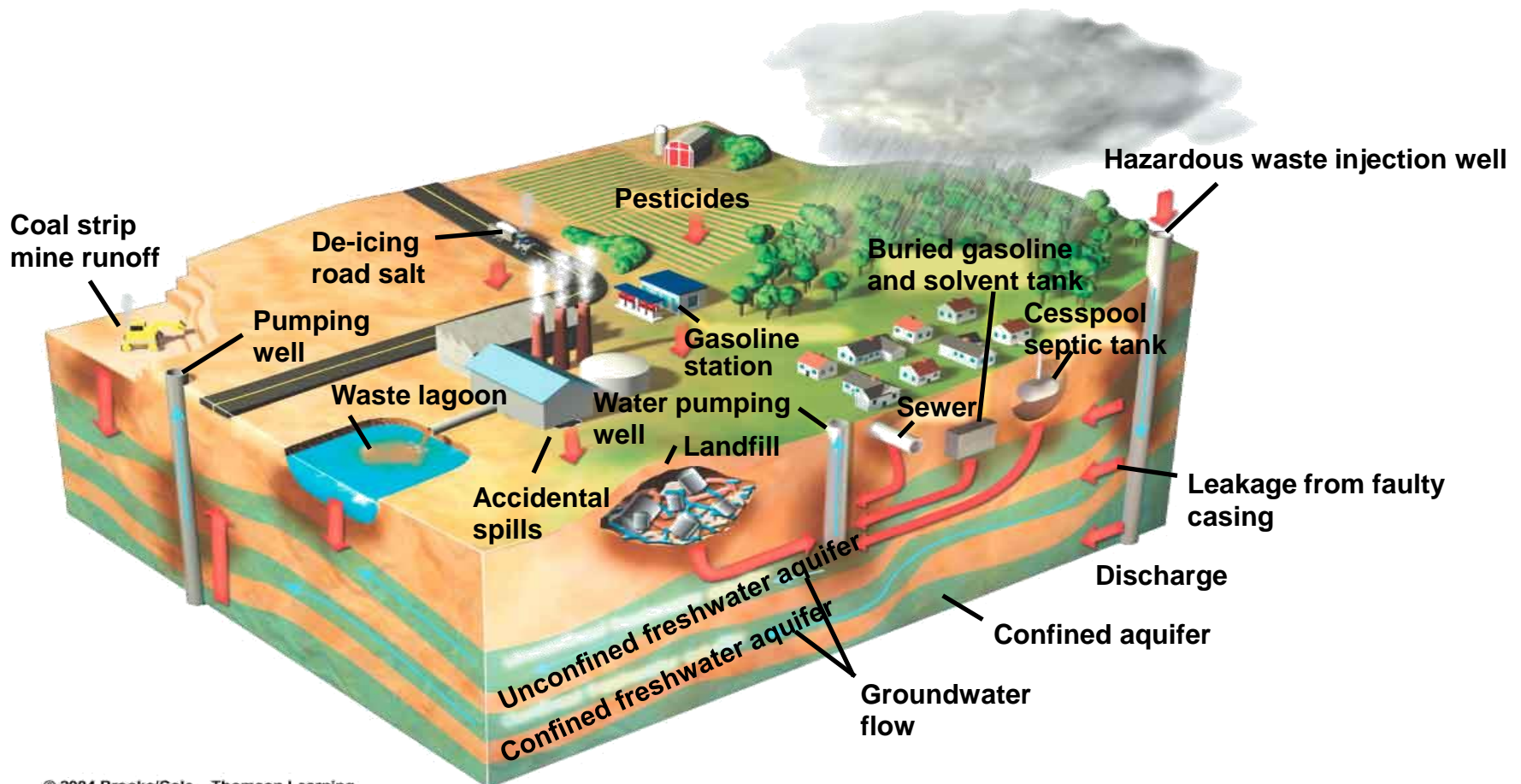
Oxygen Sag curve

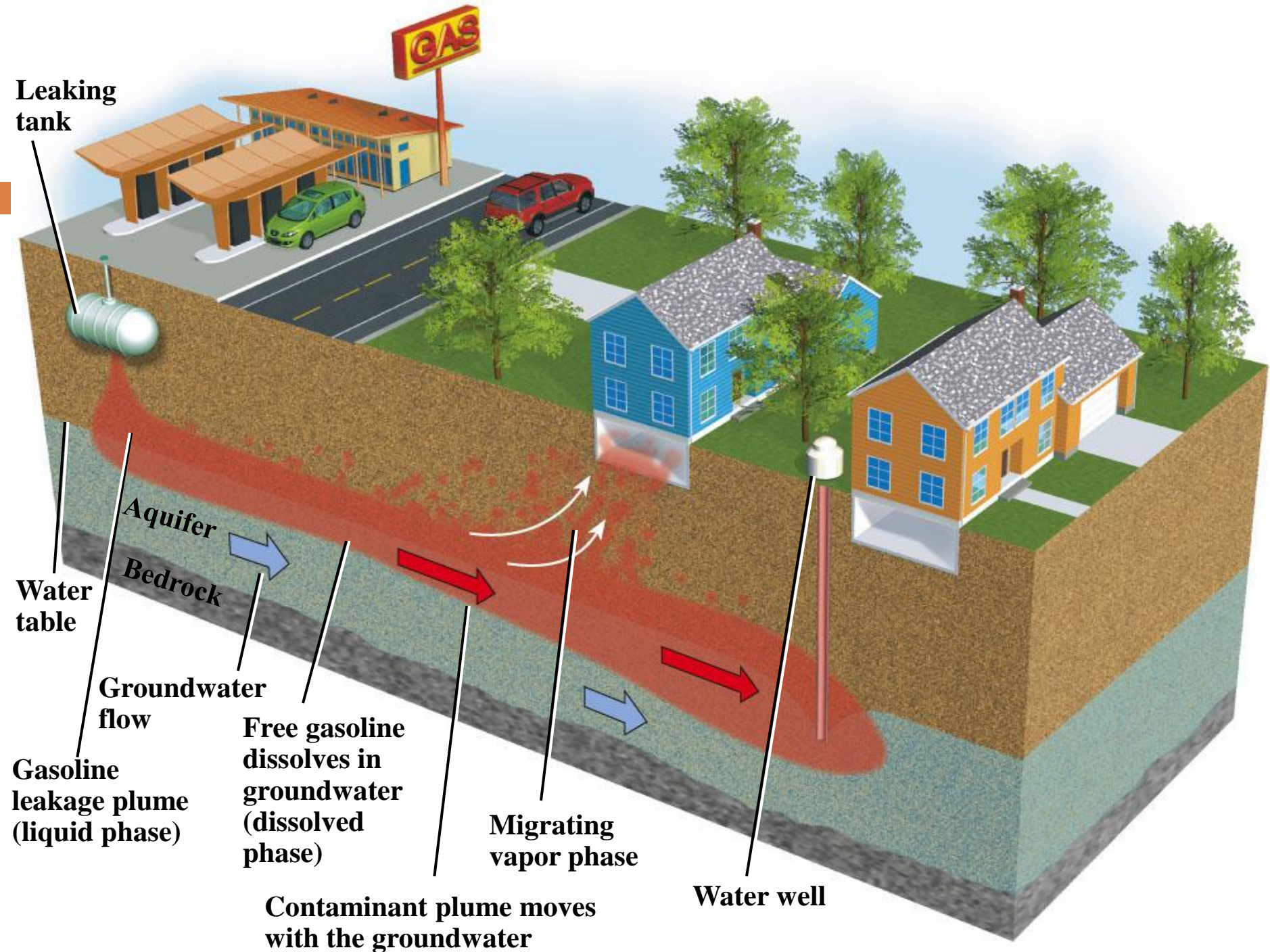


Pollution of Lakes



Groundwater Pollution: Causes





Global Outlook: Stream Pollution in Developing Countries



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- Water in many of central China's rivers are greenish black from uncontrolled pollution by thousands of factories.

Case Study: India's Ganges River: Religion, Poverty, and Health

- Religious beliefs, cultural traditions, poverty, and a large population interact to cause severe pollution of the Ganges River in India.
 - Very little of the sewage is treated.
 - Hindu believe in cremating the dead to free the soul and throwing the ashes in the holy Ganges.
 - Some are too poor to afford the wood to fully cremate.
 - Decomposing bodies promote disease and depletes DO.

Case Study: India's Ganges River: Religion, Poverty, and Health

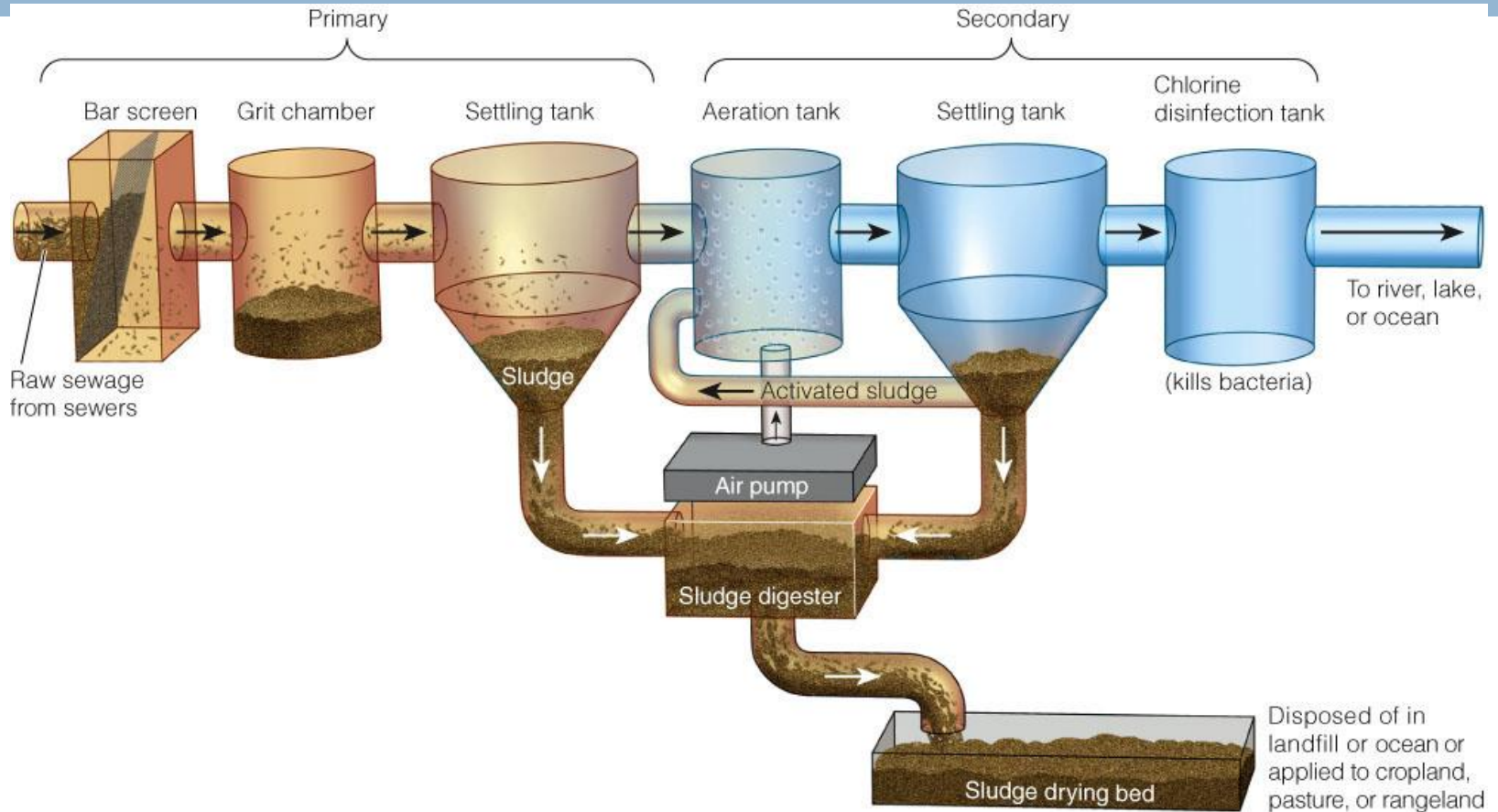


- Daily, more than 1 million Hindus in India bathe, drink from, or carry out religious ceremonies in the highly polluted Ganges River.

Water Pollution Prevention

- **Monitoring aquifers**
- **Strictly regulating hazardous waste disposal**
- **Storing hazardous materials above ground**

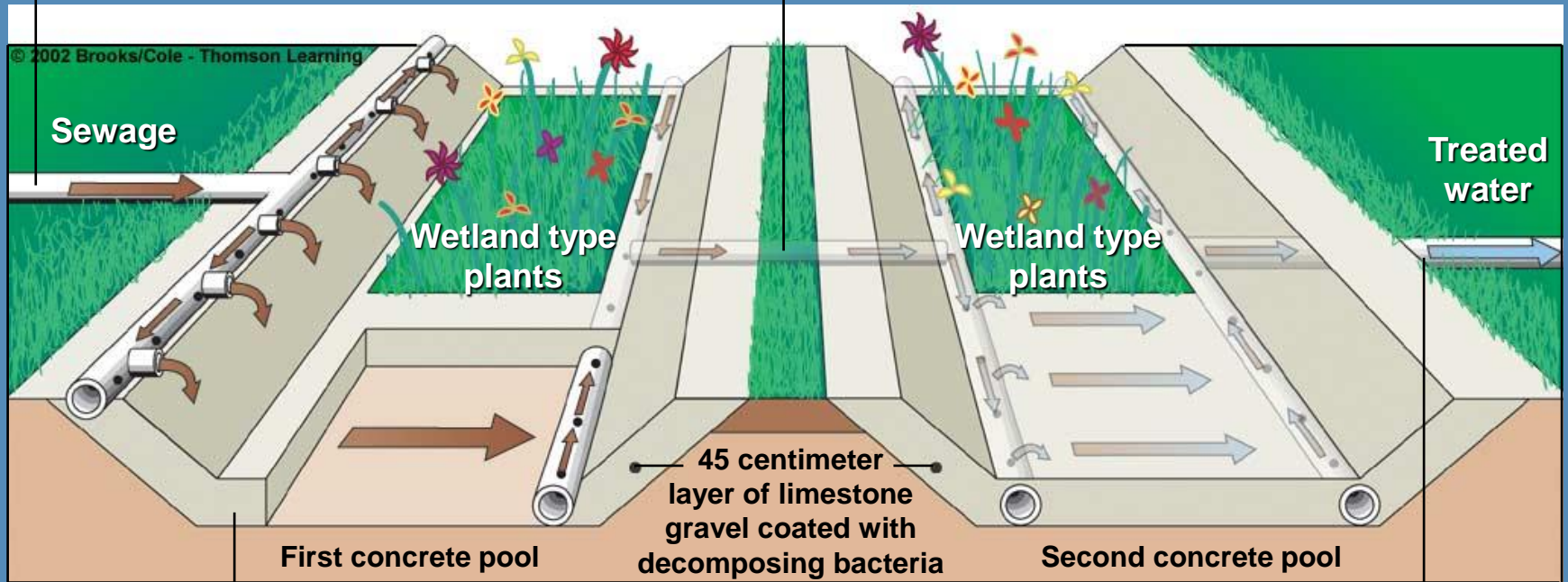
Reducing Water Pollution through Sewage Treatment



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Primary and Secondary sewage treatment.

Technological Approach: Using Wetlands to Treat Sewage



Drinking Water Quality

➤ **Bottled water**

➤ **Safe Drinking Water Act**

➤ **Maximum contaminant levels**

Is Bottled Water the Answer?

- Some bottled water is not as pure as tap water and costs much more.
 - ▣ 1.4 million metric tons of plastic bottles are thrown away.
 - ▣ Fossil fuels are used to make plastic bottles.
 - The oil used to produce plastic bottles in the U.S. each year would fuel 100,000 cars.

Using Laws to Protect Drinking Water

- The U.N. estimates that 5.6 million Americans drink water that does not meet EPA standards.
- 1 in 5 Americans drinks water from a treatment plant that violated one or more safety standard.

What Can You Do?

Water Pollution

- **Fertilize garden and yard plants with manure or compost instead of commercial inorganic fertilizer.**
- **Minimize your use of pesticides.**
- **Do not apply fertilizer or pesticides near a body of water.**
- **Grow or buy organic foods.**
- **Do not drink bottled water unless tests show that your tap water is contaminated. Merely refill and reuse plastic bottles with tap water.**
- **Compost your food wastes.**
- **Do not use water fresheners in toilets.**
- **Do not flush unwanted medicines down the toilet.**
- **Do not pour pesticides, paints, solvents, oil, antifreeze, or other products containing harmful chemicals down the drain or onto the ground.**

Roger Rosenblatt

- It is a hard truth to swallow, but nature does not care if we live or die. We cannot survive without the oceans, for example, but they can do just fine without us.