

Canada's Forests, Wetlands and Freshwater

Why is Freshwater Important?

All living things depend on water. Wet habitats provide a permanent home for dozens of species of fish, insects, reptiles, amphibians, birds and mammals. Others use them frequently for feeding, reproduction, migration stops and more. Trees and other vegetation found in the water and near the water's edge – *riparian zones* – provide wildlife with necessary shade, shelter, nourishment and hiding places.

People cannot live more than a few days without water. We need it to drink, cook and clean, manufacture and transport goods, farm crops, raise livestock, and enjoy in a variety of recreational pursuits.

How Are Canada's Forests Important in Sustaining Freshwater?

Trees and other vegetation are very important for minimizing and preventing erosion and sedimentation around our streams, rivers, lakes and wetlands because their extensive root systems hold the soil in place. Roots also counter the effects of soil compaction in that they constantly push through and aerate the soil, allowing rain and melt-water to penetrate the earth and be filtered by microorganisms before reaching the water table below.

By retaining toxins and nutrients such as mercury and phosphorus, forest soils prevent a portion of these substances from entering streams and groundwater. They also regulate water taste, clarity and colour, and water chemistry factors such as acidity.

Wetlands play an even greater role in water filtering because they contain many more microorganisms than are found in forest soils. As well, they remove or trap sediments, harmful bacteria and excess nitrogen.

Many Canadian organizations and corporations are currently using constructed wetlands to cleanse wastewater and sewage. These include the University of Ottawa and The Body Shoppe in Toronto ON, the city of Humbolt SK, and the Oak Hammock Marsh Interpretive Centre in Stonewall MB.

Forests and wetlands also play a role in maintaining steady water table levels by absorbing excess run-off. As part of the water cycle, trees and other plants filter water by absorbing it from the soil then expelling some into the air through transpiration. Plants use water during photosynthesis, the process of creating energy from using the sun's light, and emit oxygen to the atmosphere, which animals use to process the food energy they consume. Photosynthesis in forests involves the absorption of great amounts of carbon dioxide, a greenhouse gas involved in climate change. Forests thus comprise a vast and important carbon *sink*.

Freshwater Statistics

World population: 6 billion+

Number of people currently without access to clean drinking water: 1 billion+

Year this number will most likely reach four billion people: 2025



Increase in amount of water used per person compared to a century ago: 6 times



Amount of water needed to replenish our bodies every day through drinking and eating: 2.4 litres



Number of people who die each year from diseases caused by unsafe drinking water, lack of sanitation and insufficient water for hygiene: about 3.4 million

Portion of water-related illnesses in developing countries: 80%

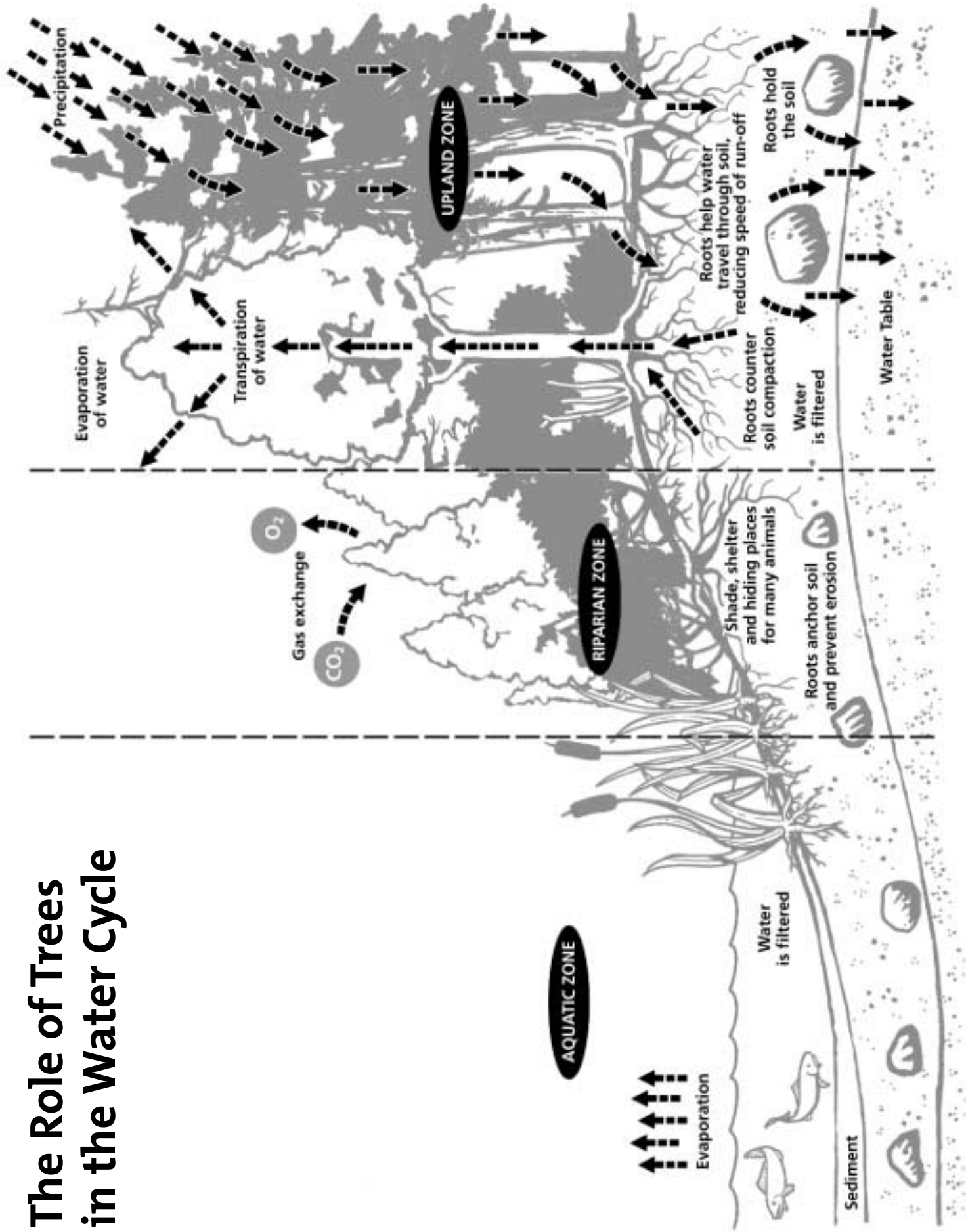
How Much Water is Required to Produce:

 x 1000 = 
1 kg of potatoes

 x 324 = 
1 kg of paper

 x 99 980 = 
1 kg of beef

The Role of Trees in the Water Cycle



How is Water Used in Canada?

Who Cares for Canada's Forests and Wetlands?

The majority of Canada's forests and wetlands are located on Crown land: 77 per cent are held by a province or territory, 16 per cent are federally held, and 7 per cent are privately owned. In most other countries, the vast majority of forests and wetlands are privately owned. In this respect, all Canadians have a unique privilege and responsibility to act as stewards for our forests and freshwater. We vote for governments at municipal/band council, provincial/territorial and federal levels to make decisions about Canada's natural resources on our behalf, but we are also free to express our views and participate in government decision-making at any time.

How Does Canada's Water Use Compare?

Canada ranks 28 among the 29 member nations of the Organisation for Economic Co-operation and Development (OECD) in terms of per capita water consumption, and 26 in terms of total consumption. Canada uses 1600 cubic metres of water per person per year. This is more than twice as much water as the average French citizen, three times as much as the average German, and almost four times as much as the average Swede.

What Does Clean Water Cost?

Canadians pay little for our water compared to people in other countries. In 1999, the average cost of municipal water was \$0.96 per cubic metre and the monthly water and sewage bill for the average Canadian household was \$28.56. This is at the low end of OECD countries.

Citizens of British Columbia and Newfoundland/Labrador enjoy the lowest water costs in Canada. Both provinces have abundant supplies, many gravity-fed systems, and generally good water quality, requiring less treatment. The highest priced water is on the Prairies where water shortages can occur, and in the Territories where permafrost and other climate conditions negatively impact water supplies.

How Much Water Does a Tree Absorb vs. Release?

This process is dependent on many factors, such as tree species, the amount of water available in the soil, and most of all, the weather. On a hot, dry day, a tree will transpire the greatest amount, but will stop the process by shutting its tiny stomata (spaces between leaf and/or stem surface cells) to halt water loss if soil moisture drops too low. Various tree species have adapted over millions of years to thrive in conditions ranging from constantly saturated to very dry soil.

What is the Extent of Canada's Freshwater and Wetlands?

Portion of the world's freshwater found within Canada's borders: 20%

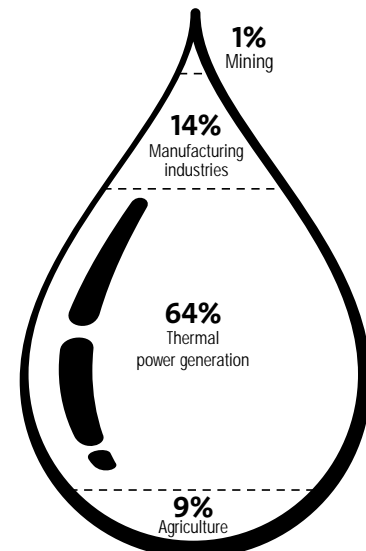
Portion of the world's renewable freshwater (water that is not retained in lakes, underground aquifers and glaciers) in Canada: 7%

Portion of Canada's total area covered by freshwater: almost 9% or 891 163 square km

Country with the most wetlands: Canada

Canada's share of the world's wetlands: 25%

Industrial Water Use in Canada?



How is Water Used in Our Home?

On average, Canadians use 343 litres of water per person per day in the home:

- Bathing 35%
- Toilet 30%
- Laundry 20%
- Kitchen/drinking 10%
- Cleaning 5%

How Can We Help?

Threats

Many types of pollution affect our forest filtering system and the quality of water in our lakes, rivers, streams, wetlands and aquifers. Canada's forests and wetlands must also be protected from erosion, dredging, filling, outdated cropping, forest harvesting and fossil fuel exploration practices. Additional threats include:

- removal of surrounding vegetation,
- dumping of any kind,
- draining for the creation of farm land,
- harvesting peat moss,
- shoreline destruction,
- climate change, and
- invasive construction of transportation and energy transmission corridors.

Is Our Freshwater For Sale?

Canada is very fortunate to have an abundance of freshwater; as a result, many Canadian companies sell bottled water nationally and abroad. However, opinions vary as to whether or not we should permit selling our freshwater in great quantities. Currently there is no law, nor has there ever been one, that would prevent the federal government from deciding to sell Canadian freshwater in bulk.

To learn more visit the Canadian Bottled Water Association Web site:
www.cbwa-bottledwater.org/en/industry.htm

We Can Each Do Our Part

We can all help to conserve and protect Canada's forest and water resources:

- plant more trees
- garden with drought-tolerant and/or native plants
- collect rainwater for watering
- protect riparian zones
- use canoes, kayaks and other people-powered watercrafts rather than motorized watercraft
- buy from environmentally-friendly companies
- use a small amount of water in a glass to brush your teeth rather than running the tap
- limit yourself to taking three-minute showers.

For more water conservation tips visit:

www.frugalfun.com/lowerwaterbills.html

www.innerself.com/Environmental/world.htm.

