Water sector icons



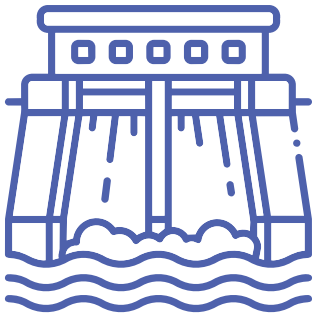
HOME



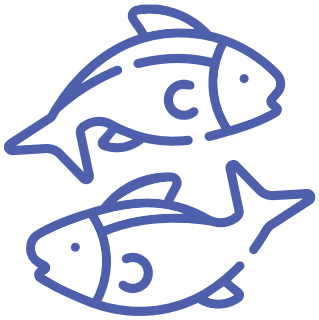
FARM



FACTORY



HYDROELECTRIC



NATURAL ECOSYSTEM

Sectors

On the map: Where in Canada would your sector's water needs be greatest? Find one place on the map where your sector matters and be ready to explain what the map shows about water there.

1. Farming: "We grow food for people."

We need water for:
- Growing crops
- Animals to drink
- Irrigation during dry weather

Our challenges:
- Droughts
- Low river levels
- Unpredictable weather
- Keeping soil healthy



We worry about:
- Crops drying out
- Losing harvests
- Not having enough water during hot summers

Questions to consider:
- How much water should farms receive?
- How can farmers save water?
- What happens if farms do not get enough water?

Important reminder: Farms help feed communities.

Sectors

On the map: Where in Canada would your sector's water needs be greatest? Find one place on the map where your sector matters and be ready to explain what the map shows about water there.

2. Homes and communities: "People need clean water every day."

We need water for:
- Drinking
- Cooking
- Bathing
- Cleaning
- Schools and hospitals
- Watering gardens and lawns

Our challenges:
- Growing populations
- Water shortages
- Pollution
- Aging water systems
- Access to clean drinking water (in some communities)



We worry about:
- Safe drinking water
- Wasting water
- Keeping rivers and lakes clean

Questions to consider:
- Should everyone have access to clean water?
- How can families conserve water?
- What happens during droughts?

Important reminder: Water is essential for health and daily life in our communities.

Sectors

On the map: Where in Canada would your sector's water needs be greatest? Find one place on the map where your sector matters and be ready to explain what the map shows about water there.

3. Industry: "Water helps make products and energy."

We need water for:
- Manufacturing
- Cooling machines
- Processing food
- Generating electricity
- Mining and resource extraction



Our challenges:
- Reducing pollution
- Using water responsibly
- Balancing jobs and environmental protection

We worry about:
- Water shortages
- Rising costs
- Environmental impact

Questions to consider:
- How much water should industry use?
- What rules should industries follow?
- How can companies reduce waste?

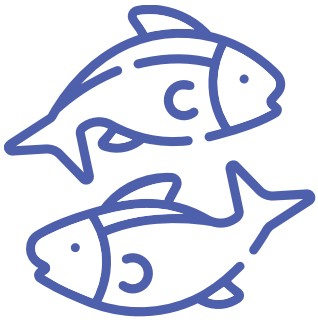
Important reminder: Industries provide jobs and products communities use every day.

Sectors

On the map: Where in Canada would your sector's water needs be greatest? Find one place on the map where your sector matters and be ready to explain what the map shows about water there.

4. Ecosystems and wildlife: "Plants and animals need water too."

We need water for:
- Fish habitats
- Wetlands
- Forests
- Migration routes
- Healthy rivers and lakes



Our challenges:
- Pollution
- Habitat loss
- Drought
- Warming water temperatures

We worry about:
- Survival
- Drying wetlands
- Loss of biodiversity

Questions to consider:
- What happens if rivers become unhealthy?
- How do healthy ecosystems help people too?

Important reminder: Healthy ecosystems protect water for everyone, including all of our plant and animal relatives.

Sectors

On the map: Where in Canada would your sector's water needs be greatest? Find one place on the map where your sector matters and be ready to explain what the map shows about water there.

5. Hydroelectric systems: "Moving water can create electricity."

We need water for:
- Generating electricity
- Powering homes, schools and businesses
- Supporting communities during cold winters and hot summers

Our challenges:
- Changing river levels
- Drought
- Protecting fish and habitats
- Balancing energy needs with ecosystem health



We worry about:
- Low water levels reducing electricity production
- Flooding caused by dams
- Impacts on fish migration and river ecosystems
- Increasing energy demand from growing populations

Questions to consider:
- How much water should be used for electricity?
- How can we protect rivers and wildlife?
- What happens if there is not enough water to produce power?
- Is hydroelectricity always environmentally friendly?
- Do rivers have a right to be free flowing (undammed)?

Important reminder: Hydroelectricity is a renewable energy source, but rivers and ecosystems still need protection.

Community water allocation challenge scenarios

Agriculture-focused scenarios

1. Prairie mega-drought

Setting: Southern Alberta and Saskatchewan water users

- Wheat farms
- Cattle ranchers
- Towns
- Wetlands (migratory birds)

Challenge: Snowpack was low this winter. Rivers are running at half their usual level.

Tension:

- Farmers need irrigation
- Wetlands are drying up
- The town needs drinking water



Decision question:

Who gets water first?

Why?

Extension for older students:
Should irrigation limits be set?

What conservation methods could help?

Community water allocation challenge scenarios

Agriculture-focused scenarios

2. New greenhouse expansion

Setting: Southern Ontario water users

- Vegetable greenhouses
- Great Lakes ecosystems
- Nearby town

Challenge: A company wants to expand greenhouse production, increasing water withdrawals.

Tension:

- Jobs versus ecosystem protection
- Economic growth versus lake levels



Decision question:

Should expansion be allowed?

Under what conditions?

Community water allocation challenge scenarios

Energy scenarios

3. Hydroelectric expansion proposal

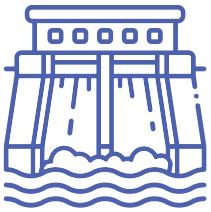
Setting: Northern Manitoba water users

- Hydroelectric dam
- Indigenous communities
- Fish habitats
- Downstream towns

Challenge: A new dam would increase electricity production.

Tension:

- Clean energy versus flooded land
- Fish migration disruption
- Cultural land impacts



Decision question:

What are some impacts of hydroelectricity projects on rivers and ecosystems?

Extension:

What protections should be required?

Community water allocation challenge scenarios

Energy scenarios

4. Extreme heat wave

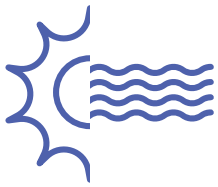
Setting: Quebec water users

- Hydroelectric stations
- Cities (air conditioning demand)
- River ecosystems

Challenge: Electricity demand spikes during a heat wave. Rivers are lower than normal.

Tension:

- Energy versus river health
- Cooling water versus fish survival



Decision question:

How do you balance human comfort and ecosystem survival?

Community water allocation challenge scenarios

Industry scenarios

5. New food processing plant

Setting: Saskatchewan water users

- Food processing factory
- Farms
- Local aquifer
- Homes

Challenge: A plant would bring 200 jobs but needs large groundwater withdrawals.

Tension:

- Economic growth versus aquifer depletion
- Long-term sustainability



Decision question:

What needs to be considered when granting a water permit?

Extension question:

How can communities ensure long-term water availability?

Community water allocation challenge scenarios

Industry scenarios

6. Mining near a river

Setting: Northern Ontario water users

- Mining company
- Fish habitats
- Recreational fishing
- Downstream communities

Challenge: The mine requires water and produces polluted wastewater.

Tension:

- Economic opportunity versus pollution risk
- Cleanup responsibility



Decision question:

Who is responsible if contamination happens?

Community water allocation challenge scenarios

Industry scenarios

7. The technology industry

Setting: Southern Ontario water users

- Data centre
- Homes and schools
- Hydroelectric system
- Farmers
- Fish habitats and wetlands

Challenge: A technology company wants to build a new data centre in the community. The facility would require a reliable supply of water to help cool thousands of computer servers.

Tension:



- Economic development versus increased water demand
- Reliable digital services versus protecting freshwater resources
- Water for technology versus water for homes, farms and ecosystems

Decision question:

Should the community approve the new data centre? If so, what conditions should be in place to protect freshwater?

Community water allocation challenge scenarios

Bottled water scenarios

8. Bottled water permit renewal

Setting: Small Ontario town water users

- Bottled water company
- Local residents
- Wetlands
- Farms

Challenge Permit for groundwater extraction is up for renewal.

Tension:

- Company profits versus community control
- Groundwater recharge rates



Decision question:

Should companies pay more for water extraction? Why or why not?

Community water allocation challenge scenarios

Bottled water scenarios

9. Emergency versus everyday use

Setting: British Columbia wildfire season water users

- Residents
- Emergency services
- Bottled water suppliers

Challenge: Wildfires damage the municipal system. Bottled water becomes essential temporarily.

Tension:

- Bottled water as emergency support
- Plastic waste increases dramatically



Decision question:

How should communities prepare for emergencies without increasing long-term waste?

Community water allocation challenge scenarios

Ecosystem scenarios

10. Salmon in crisis

Setting: Fraser River, B.C. water users

- Salmon
- Commercial fishers
- Hydroelectric operations
- Farmers

Challenge: Water temperatures are rising, salmon numbers are falling.

Tension:

- Economic fishing versus species survival
- Water withdrawals versus habitat protection



Decision question:

Should water be reserved specifically for ecosystems? Explain.

Community water allocation challenge scenarios

Ecosystem scenarios

11. Wetland draining proposal

Setting: Southern Ontario water users

- Developers
- Migratory birds
- Flood protection systems
- Nearby homes

Challenge: A wetland could be drained for housing development.

Tension:

- Housing needs versus natural flood control
- Short-term gain versus long-term protection

Decision question:

What hidden benefits do wetlands provide?



Extension question:

How can communities protect wetlands while meeting housing needs?

Community water allocation challenge scenarios

Transportation scenarios

12. Low Great Lakes water levels

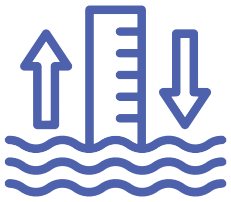
Setting: Great Lakes, St. Lawrence Seaway water users

- Cargo ships
- Ports
- Fish habitats
- Cities

Challenge: Low lake levels limit shipping loads.

Tension:

- Economic trade versus natural water cycles
- Dredging versus ecosystem impacts



Decision question:

Should we change shipping practices during low water periods? Explain.

Community water allocation challenge scenarios

Transportation scenarios

13. Arctic shipping route expansion

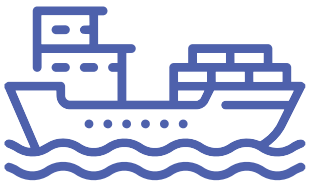
Setting: Arctic waterways water users

- Shipping companies
- Inuit communities
- Marine ecosystems

Challenge: Melting sea ice opens new shipping routes.

Tension:

- Economic opportunity versus fragile ecosystems
- Pollution risk



Decision question:

Should new waterways be regulated differently? Explain.

Community water allocation challenge scenarios

Climate change scenarios

14. Shrinking glacier

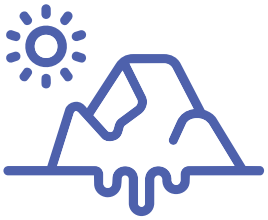
Setting: B.C. mountain region water users

- Farmers
- Hydroelectric plants
- Wildlife
- Downstream communities

Challenge: Glacier melt is declining over decades.

Tension:

- Long-term water supply shrinking
- Planning for future generations



Decision Question:

How do we plan water use for 20 to 50 years ahead?

Community water allocation challenge scenarios

Climate change scenarios

15. Flooding event

Setting: Atlantic Canada water users

- Homes
- Roads
- Rivers
- Wetlands

Challenge: Extreme rainfall causes severe flooding.

Tension:

- Infrastructure damage
- Insurance costs
- River restoration needs



Decision question:

How should communities build differently near water?

Community water allocation challenge scenarios

Equity scenarios

16. Boil water advisory

Setting: Remote community water users

- Residents
- School
- Health clinic

Challenge:
Long-term drinking water advisory remains in place.

Tension:

- Infrastructure funding
- Fair access to safe water



Decision question:

How can safe drinking water be guaranteed for everyone?

Community water allocation challenge scenarios

Equity scenarios

17. Growing city

Setting: Rapidly expanding urban area water users

- New housing developments
- Industry
- Parks
- Rivers

Challenge: Population growth increases water demand.

Tension:

- Expansion versus conservation
- Lawn watering versus ecosystem needs



Decision question:

Should cities restrict water use? Explain.