

Water Conservation

The average Canadian resident goes through about 329 litres of water every single day – and that’s just in their own home. It’s also estimated that a whopping 90% of Canadian water-treatment plants cannot produce satisfactory water that passes [guidelines for safe drinking water in Canada](#). Pollutants in the water supply may affect your health, as well as the health of the environment.


Luckily, there are ways to combat water contamination while conserving this finite resource. From avoiding pesticides to [hiring plumbing professionals](#), you have the power to aid Canada’s clean water supply. There are simple ways to help in your everyday life – from work to home and everywhere in between.

Understanding and Reducing Water Pollution









There are ways to save and reduce the pollution of water at home. However, you must first understand the types and sources of pollution before taking action. There are many more possible pollutants of water than those that originate in residential areas.

Types and Sources of Water Contamination

[Groundwater pollution](#) is the contamination of water that make their way through the land surface to the water below, within spaces between soil, sand, and rock. It is typically filtered more thoroughly than surface water and, therefore, contains fewer contaminants. However, pollutants can still make their way to groundwater. From industrial factories to everyday travellers, there is typically some substance being created that leaks into the ground, sewers, and other water sources. Types of this contamination include:

 **Common groundwater uses** – irrigation systems and drinking water from wells and springs;

 **Possible sources of contamination** – man-made products, such as:

-  Pesticides and fertilizer;
-  Gasoline and motor oil;
-  Corroded lead pipes;
-  Animal waste;
-  Untreated, human waste from septic tanks;
-  Toxic chemicals from industrial dumpsites;
-  [Heavy metals from mining sites](#);
-  Improperly maintained landfills;

- 👤 Leaky, underground-storage tanks;

- 👤 Decomposition of natural elements.

- 👤 **Possible negative effects of groundwater contamination** – harmful effects on humans, animals, and plants, including:

- 👤 Illnesses like cholera, dysentery, and hepatitis;

- 👤 Neonatal and infantile conditions like “blue baby syndrome” and learning disabilities;

- 👤 Pregnancy complications;

- 👤 Cancer, nerve issues, and kidney or liver problems;

- 👤 Loss of animal and aquatic life;

- 👤 Inability to grow vegetation;

- 👤 Decrease in land value.

- 👤 **Surface-water pollution** – the contamination of water pooled at the surface of the soil or the top layer of bodies of water, such as lakes, streams, and ponds.

- 👤 **Common uses of surface water** – water supplies, irrigation systems, industrial water, and recreational water;

- 👤 **Possible sources of contamination** – Surface water is negatively impacted in much the same way as groundwater, but through a more direct channel. Therefore, it is typically more highly contaminated than groundwater. However, groundwater can also reach the surface water and contaminate it the opposite way.

- 👤 **Possible negative effects of surface-water contamination** – Again, the negative effects are very similar to those cited from groundwater. Some additional examples of potential surface-water issues include:

- 👤 Toxic food products, such as contaminated fish;

- 👤 Other [waterborne diseases](#), such as legionella, copper poisoning, giardia, and norovirus.

Point-Source Pollution Vs. Nonpoint-Source Pollution

Many of the aforementioned sources differ in the number of points from which they originate. [Point-source pollution](#) is water pollution that comes from a single source. It's usually easily identified as effluent from factories – in other words, these factories dispose of contaminated waste directly into bodies of water, such as rivers or oceans. This may include waste from paper mills to sewage-treatment plants.

Nonpoint-source water pollution stems from a combination of sources. This typically makes it more difficult

to mitigate than point-source pollution. Consider cars that pass through a parking lot, leaving oil behind. Those cars may be long gone, but rain can wash through the parking lot and pick up the motor oil, transporting it to a nearby stream or drain. Snow melting can have a similar effect. Some other [examples of nonpoint-source pollution](#) include fertilizers from farms and residential areas, sediment from construction sites, and bacteria from faulty septic systems.







Transboundary Pollution

Just as the name suggests, transboundary pollution is contamination that crosses boundaries. This includes state and country borders. [Canada and the United States share some water sources](#), stemming from four of the five Great Lakes. Their interconnecting channels plus the St. Lawrence River make up the expansive, [bi-national waterway](#) that carries cargo and serves as the world's largest source of freshwater.

This connection has brought about [conflicts over water regulation](#). Even if Canada takes steps to remediate water and waste issues, contaminants from out-of-country tributaries may still make their way downstream.

Water Treatment and Waste Management





Water is used daily in a multitude of ways, and wastewater is an inevitable byproduct. Just from residential homes, you contribute to water waste with:

-  Human waste;
-  Food scraps;
-  Excess soap;
-  Cooking oils;
-  Cleaner;
-  Daily use of bathtubs, showers, sinks, washing machines, dishwashers, and toilets.



Any water that has been used is considered waste and needs to be treated. Otherwise, harmful bacteria and chemicals may impact drinking water, recreational beaches, aquatic life, food production, and more.

Understanding Water Quality

Canada, overall, gets an A on the [Water Quality Index](#). However, water quality may vary depending on location and point in time, so it's important to understand the different levels of water purity. There are four [globally accepted water-quality classifications](#):

-  **Potable** – water that is safe and pleasing to drink and use for domestic purposes;
-  **Palatable** – water that appears clean and contains chemicals deemed safe for human consumption;
-  **Contaminated (or polluted)** – water that includes physical, chemical, biological, or radiological substances and is deemed unsafe for consumption and domestic use;
-  **Infected** – water that is unsafe for consumption and domestic use, containing pathogens that cause disease.



There are also [common terms used to describe wastewater](#), including:

-  **Blackwater** – water that contains feces, urine, grease, or pathogens, originating from bathrooms, toilets, kitchen sinks, and dishwashers;
-  **Greywater** – water that generally contains lower levels of contamination, originating from sinks, washing machines, bathtubs, and showers.

All types of contaminated water need to be treated accordingly to be safe for reuse. Greywater can sometimes be recycled with little to no treatment if only used to nourish plant life or wash and flush toilets. This is a valuable resource in areas where water is scarce. Otherwise, there are treatment processes in place to rid used water of contaminants harmful to health.

Sanitary Sewers and Storm Drains

Although largely unseen, there are intricate [sewer systems in place for waste disposal](#). Not all drains are created equal, however.

-  **Sanitary sewers** – a system of underground pipes that carry away wastewater from bathrooms, sinks, kitchens, and other components of residential and commercial plumbing;
-  **Storm drains** – a sewer system that does not include sewage but collects rainwater and other runoff from rainfall and snowmelt into openings in curbs and other road-abutting areas.

This water that occurs after precipitation – and doesn't penetrate the ground surface – is referred to as stormwater.

How the Water Cycle Impacts Water Quality

The water cycle – sometimes referred to as [the hydrologic cycle](#) – is the natural process of water cycling from the sky to the earth and back. [Water resources and ecosystem health](#) are impacted by this cycle that is

more complicated than it appears. The basic steps of the water cycle include:

- 🌊 **Evaporation** – water from oceans, lakes, rivers, and other bodies on the earth’s surface vaporizes into the atmosphere;
- 🌊 **Condensation** – water rises and turns into snow or rain in cloud formations;
- 🌊 **Precipitation** – rain, snow, dew, hail, and sleet return that water to the earth, and the cycle begins again.

However, there are some additional water-cycle processes. These include some familiar terms and ideas that have to do with wastewater, such as:

- 🌊 **Runoff** – water that [runs off the earth’s surface via watersheds](#) and usually contains contaminants;
- 🌊 **Percolation** – the movement of water through the soil;
- 🌊 **Infiltration** – the process of surface water seeping into the ground ;
- 🌊 **Groundwater** – water found in open spaces in soil and between rocks underground;
- 🌊 **Plant uptake** – water and nutrients absorbed by plant life and sucked up plant tissue;
- 🌊 **Transpiration** – the process of water evaporating into the air from the stomata of plants that have absorbed it and depleted the nutrients;
- 🌊 **Deposition** – the process of water vapour turning from a gas into a solid;
- 🌊 **Sublimation** – the process of frozen water, usually in the form of snow or ice, skipping the melting stage and evaporating into the air.

Knowledge of these different stages of the water cycle may inform people and organizations across the globe on how to best reduce water pollution.

Reducing Pollution in Your Home and Community

Although humans are the cause of most waste contamination, you may also take steps to significantly reduce your pollution contribution. Water is something that gets taken for granted when it’s so widely available, but its accessibility is a misconception. Less than 1% of the earth’s [water is safe for human consumption](#).

General Tips to Prevent Water Pollution

If you want to do your part in reducing human wastewater and contamination, consider:

Within your home or commercial building –

- 🔧 Maintaining all plumbing, sewer lines, and septic tanks regularly, inspecting for leaks or damage;
- 🔧 [Repairing any standalone septic tanks](#) on your property and [pumping the tanks periodically](#);
- 🔧 Refraining from pouring grease or cooking oil down any drains;
- 🔧 Not flushing anything – even medications – aside from human waste and toilet paper down the toilet;
- 🔧 Switching to phosphate-free soaps for dishes and clothes;
- 🔧 Avoiding putting paint or cleaning products down any drains;
- 🔧 Keeping gas cans out of your basement to prevent leakage in the event of a flood.

Outside of your home or commercial building –

- 🔧 Ensuring the sump pump doesn't drain into the municipal sewer system and, instead, redirects into stormwater drains;
- 🔧 Directing downspouts away from any paved spots or catching runoff in a rain barrel;
- 🔧 Diligently picking up your dog's waste as to not contribute to bacteria buildup in surface water;
- 🔧 [Controlling pests without chemicals](#);
- 🔧 Gardening with little or no fertilizers;
- 🔧 Keeping excess lawn clippings and leaves cleared away;
- 🔧 Installing a retaining wall or permeable paving system.

Away from the home or office –

- 🔧 Taking your vehicle to a car wash that practices proper water disposal;
- 🔧 Maintaining your vehicle to prevent oil leaks;
- 🔧 Disposing of motor oil, coolants, and other vehicle fluids by taking them to your local vehicle-fluid recycling gas station or car repair shop.








A good rule of thumb is to err on the side of caution. If it doesn't seem like it should go down the drain – or if you wouldn't want it in your drinking water – don't put it down there.

Water Conservation Tips

Saving water is another critical part of healthy water use. Water is a finite resource, and [97.5% of all of the water on earth is salt water](#). Reducing water consumption also helps avoid political conflicts and rising costs. Using less water now may also aid in future droughts as the climate continues to be damaged.

Water Conservation in Yards









Many people take pride in maintaining a lush, green lawn. Some even garden as a hobby or exercise. However, if not careful, you can waste water easily this way. Some tips for conserving water use in your yard include:

-  **Use mulch** – to keep moisture in the soil and lessen the need to water plants;
-  **Water plants before it gets too hot outside** – to avoid evaporation and keep plants hydrated;
-  **Don't water plants more than necessary** – and choose plants that need watering less often;
-  **Don't mow too close to the soil** – grass shades the soil from sunlight and slows down moisture evaporation;
-  **Check for any leaks in your hose or outdoor faucet** – and fix them promptly;
-  **Use small watering cans** – in place of large hoses or sprinklers;
-  **Invest in water-efficient sprinklers and pop-up drain emitters** – and maintain them throughout the years.

There are even some automatic rain-shutoff devices that prevent your irrigation system from overworking during natural precipitation. Investing in these products upfront will not only lower your water bill but will help the environment and keep your lawn looking pristine.

Water Conservation in the Home

More well-known [water-saving tips are for water use inside the home](#). However, this doesn't mean they're any less important. Remember to:

-  Shut off the tap when brushing your teeth;
-  Refrigerate pitchers of water rather than running cold water;
-  Limit the use of the dishwasher and washing machine until absolutely full;
-  Steam vegetables instead of boiling them;
-  Only flush toilets when you need to;
-  Invest in energy-saving appliances that also conserve water;
-  [Reuse pasta water](#);
-  Use a timer to remind you to take shorter showers.

These tips seem obvious but sometimes become overlooked when bad habits are ingrained in daily routines.

Just take note of when and how you use water in your home. Then you can use common sense to avoid excess water waste.

Serious Water-Wasting Issues

Sometimes, excess wastewater isn't as obvious. For example, if you have leaky pipes, the first indicators may be:

- 🔧 High water bills;
- 🔧 Dripping or flowing-water sounds;
- 🔧 Wet floors and basements;
- 🔧 Mould and mildew growth;
- 🔧 Visible foundation damage.

If you notice any of these telltale symptoms, it's best to consult leak detection experts. This way, the problem can be identified quickly and remediated. This will save you money in the long run, lowering water bills and avoiding critical structural damage.

Clogged pipes can also cause leaks, so make sure to keep on top of any backups in your home plumbing system. Signs of residential sewer system problems include:





- 🔧 Foul smells emitting from yards or basements;
- 🔧 Sewage overflow in drains;
- 🔧 Slow-draining sinks and tubs;
- 🔧 Toilet water starts gurgling;
- 🔧 Toilet bowl won't fill up with water.

These are just the obvious symptoms. If you notice anything amiss with the plumbing on your property, contact professionals immediately. Find a plumbing company that can clean your drains without harsh chemicals. This way, you aren't contributing further to water pollution via the sewage system.

Water Reuse and Water-Use Efficiency

New ways to save and reuse water are invented all the time. Keeping abreast of [how water is used](#) may help you continually refine your water use. In addition, consult trusted resources on water conservation, like:




- 🔧 [The Smart Home Water Guide](#);

-  [Water IQ;](#)
-  [Water – Use It Wisely;](#)
-  [Water Conservation Drip Calculator;](#)
-  [Water Conservation Tips.](#)

Remember that you can save water even when you are away from home.

What Businesses Can Do

Businesses and organizations usually have rules and regulations they have to follow to provide safe environments for consumers and employees. Commercial water use is no exception. If you own or contribute to any business, you have a responsibility to use water wisely. Consult these resources to find out how your company may up their water efficiency and cleanliness:



-  [How Your Business Can Prevent Stormwater Pollution;](#)
-  [What Your Business Can Do To Help Protect and Secure Drinking Water Sources;](#)
-  [Water and Corporate Responsibility: What Can Companies Do?](#)

Similar to experiencing clogs in your home plumbing, you need to be aware of the signs of commercial sewer system backups. There are professional companies that should be brought in to deal with commercial sewer line installation and replacements[8]. Rather than attempting to cut corners and save cash by mitigating the issue yourself, it's advised to contact the experts. This way, you won't impact the entire sewer system or cause further problems down the line.

Organizing Water-Saving Community Efforts

You can be an advocate in your community for water efficiency. The [Canada Water Act](#) may be cited to raise awareness and enforce healthy water habits. [Governments are typically responsible for water regulation](#), but you can help by spreading information on proper water conservation.

People in your community may want to help conserve water but not know where to start. Since you've done your research, you can offer tips and tricks to others who will hopefully implement them in and around their homes. You may also look into:

-  Raising funds for non-profit water foundations, such as [the Clean Water Foundation](#);
-  Lobbying for better water treatment and permits in your community;