

Introduction

Water works for us in many ways, making our lives easier and more enjoyable. But we must take great care not to overuse and abuse this precious resource.

Water is a basic necessity of life, not only for people but for every type of plant and animal as well. Water accounts for about 65% of our body weight. If we lost as little as 12% of it, we would soon die.

Water is essential not only for survival but also contributes immeasurably to the quality of our lives. Since the dawn of time, human beings have harnessed water to improve their lives. In some ways, the history of civilization is the story of how we have made water work for us in ever more ingenious ways. As early as 5000 B.C., our predecessors used irrigation to increase crop production. Archaeologists have found masonry sewers dating back to 2750 B.C. and water-flushed toilets dating back almost as far.

Water played -- and continues to play -- a special role in the growth of our nation. The fur trade, which stimulated the exploration of Canada's vast interior, was totally dependent on water for transportation. Water powered the grist mills and sawmills along small and large rivers in the Maritimes and Upper Canada, making possible the production and export of grain and lumber, two early economic staples. As Canadian industry diversified, water was put to new uses: as a coolant, a solvent, a dispersant, and a source of hydroelectric energy.

Water transportation is still the most efficient way to move bulk goods. Water is also the basis of cheap energy. It is a raw material in the manufacture of chemicals, drugs, beverages, and hundreds of other products. It is an essential part of the manufacturing processes that produce everything from airplanes to zippers. In other words, we depend on water for most of our technology, comforts and conveniences, and of course for personal hygiene and to flush away our waste products.

Many people think it makes no difference how much water we use or what we use it for. Actually, the way we use water is very important. Some uses are incompatible with others. Some uses remove water from the natural cycle for longer periods than others. Worst of all, most uses actually lower the quality of the water.

Water quality is everybody's business because ultimately we all draw from the same supply of water. Most Canadians live downstream from somebody else, not to mention the fact that the same basic supply of water, replenished over and over again through the hydrologic cycle, has been used millions of times over in the long history of the earth. We are now aware of limits to the reuse of water, when and where it is returned to nature diminished in quantity and quality. Therefore, we must learn to understand water use much better: where we use it, what to measure, what the main uses are, how they compete and interfere with each other, and how to manage the growing competition.

Types of Water Use

The most obvious and immediate uses occur in its natural setting. They are called [instream uses](#). Fish live in it, as do some birds and animals, at least part of the time. Hydroelectric power generation, shipping, and water-based recreation are other examples of human instream uses.

These instream uses are not always harmless. For example, oil leaking from outboard motors and freighters can cause pollution. Large reservoirs needed for hydroelectric power generation remove water by evaporation and completely change the river regime for downstream users.

The greatest number and variety of water uses occur on the land. These are called [withdrawal uses](#). This term is appropriate because the water is withdrawn from its source (a river, lake or groundwater supply), piped or channelled to many different locations and users, and then is collected again for return to a lake, river or into the ground. Household and industrial uses, thermal and nuclear power generation, irrigation and livestock watering all fall into this category.

Most withdrawal uses "consume" some of the water, meaning less is returned to the source than was taken out. Furthermore, the water which is put back into its natural setting is often degraded. For example, water leaving our houses contains human and household wastes. The same is true of water used in many industrial processes. Often this liquid waste is only partially treated, if at all, before it is returned to nature.

Water Use in the Future

As time goes on, more and more water users will compete for what remains the same finite supply. This implies increases in water efficiency and conservation and doing even more to restore its quality after use. Nor is conservation restricted to only the uses of water: energy conservation, a desirable goal in itself, also contributes to water conservation. The reason is that reduced energy consumption lessens the need for electric power generation, which outranks all other water uses many times.

Paying for the accumulated deterioration of water supply and sewerage systems, and making up for the years of indifference and neglect our water resources have suffered is very much a part of the challenge to conserve water for our own use and for that of future generations. But if we do not learn from our past mistakes now, we will add to an already large environmental mortgage.

We must learn to use only what we need, and need what we use. In the words of one conservation slogan: "Let's keep it on tap for the future."