

## 2 Demands on our water

Water is a common and indispensable ingredient in our daily lives. From generating our electrical power to growing our food, water has many purposes.

This section looks at the demands that are made on water in Canada—the uses we have for water, the pressures that we place on this resource, as well as how we maintain water so that it can be used safely.

### 2.1 Water use

Canada has one of the largest supplies of fresh water in the world. However, this supply is not limitless and it must be shared among many users.

#### Main withdrawal uses of water

Water to be used in human activities can either be used *instream* or withdrawn from its source. Examples of instream water use include hydro-electric power generation, transportation and recreation.

When water is withdrawn, some or all of it is eventually returned to the original source, often within a short timeframe. The quantity of water originally withdrawn is referred to as *intake*, and the water returned to the source is known as *discharge*. The difference between intake and discharge (the amount of water actually used up in the process) represents *consumption*. In some industrial applications, the withdrawn water is used more than once, a procedure referred to as *recirculation*.

As shown in Table 2.1, in 1996, the three leading water-users in Canada consisted of the electric power and other utilities industry, the agriculture industry, and the personal and government sectors.

#### Electric power and other utilities

This industry includes nuclear and fossil fuel power-generating stations. These stations draw large quantities of water, usually from surface water bodies, to aid in the cooling process. While the industry withdrew 63% of all water used in 1996, it recirculated at least 40% of this water. Nonetheless, water use in this industry has been on the rise since 1981 (Table 2.1).

#### Agriculture

In 1996, the agriculture industry used about 9% of all water withdrawn in Canada and consumed over 74% of that amount (Table 2.1). From 1981 to 1996, water withdrawn

for agricultural purposes had been steadily increasing. Most withdrawn water was used for irrigation, but 5% was used for livestock purposes (Table 2.2).

The three most western provinces (British Columbia, Alberta and Saskatchewan) are the most intense agricultural water-users, withdrawing over 90% of the total water volume used on farms in Canada in 1996 (Table 2.2). A high water demand makes these provinces vulnerable to changes in water availability (Text Box 2.1).

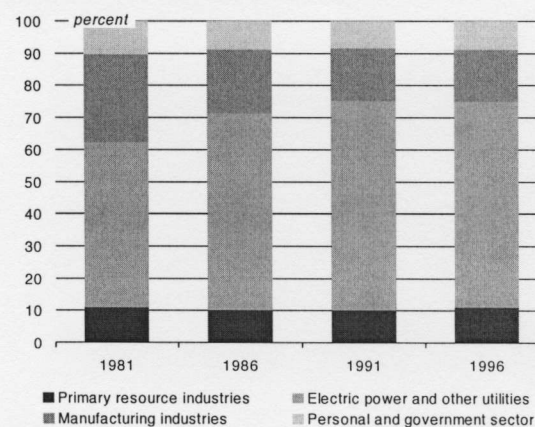
#### Personal and government

These sectors are composed of various organizations and service providers such as hospitals, recreation centres, educational institutions, government services and households. Water used in this category comprised almost 9% of the total water withdrawals in Canada in 1996 (Table 2.1). The majority of this water was delivered through municipal water systems and, as shown in Text Box 2.2, water metering has a direct relationship on the amount of water used.

#### Manufacturing

Combined, the manufacturing industries in Canada accounted for 14% of all water withdrawals in 1996. The portion of total water withdrawals in this sector, as well as the volume of water taken, has been declining since 1981 (see Figure 2.1 and Table 2.1). In some cases, industries (like the pulp, paper and paperboard mills industry) have become more efficient water users by increasing their water recirculation.

Figure 2.1  
Share of water intake, 1981 to 1996



Source:  
Statistics Canada, Environment Accounts and Statistics Division.