

Canada's history and industrial development has been influenced by its great rivers. Earliest settlements centred around water supplies and water was essential for transportation. Canada's fur trade flourished because of the ready access to the interior provided by the St. Lawrence River, the Great Lakes and many other waterways. Plentiful water supplies in the fertile plains of Southern Ontario and Quebec attracted industrious farmers. River-borne transportation of lumber and later the power of water-driven turbines were vital factors in building an industrial base. Water remains a key to Canada's development, supplying renewable energy for industrial growth, providing easy and cheap transport for raw materials and playing a vital part in their processing.

Water problems in Canada are associated with storage, distribution and pollution. Current demands for greater and more diversified water use are complicated by a need to reverse the trend toward deterioration in water quality resulting from urbanization, industrialization and agricultural developments. Pollution and water quality are of major concern since they have a direct bearing on Canada's well-being and economic growth.

The international boundary line between Canada and the United States, including Alaska, is 8 892 km long, of which 5 063 km lie along or across water bodies. Boundary water basins are of economic importance to both countries. Natural resources of the boundary basins and transportation and hydroelectric power resources of the waterways in these basins have helped foster population concentration and industrial development in Canada along a broad band bordering the 49th parallel.

In 1909 Canada and the US signed the Boundary Waters Treaty which set out clear limitations on either country's freedom to act if such action might affect the other country. The International Joint Commission was created to deal with problems that could arise along the boundary. The commission has handled problems in international basins from the Pacific to the Atlantic Ocean, from small streams to the St. Lawrence River. More recently, the commission was given responsibility for overseeing implementation of the Canada-US agreement on Great Lakes water quality, with goals of improving water quality in polluted areas and ensuring future protection of water quality. Table 1.5 lists the principal rivers of Canada and their tributaries.

The accompanying map shows major drainage basins of Canada. The Atlantic drainage basin is dominated by the Great Lakes-St. Lawrence system which drains an area of approximately 1 756 012 km<sup>2</sup> and forms a navigable inland waterway through a region rich in natural and industrial resources. From the head of Lake Superior to Belle Isle at the entrance of the Gulf of St. Lawrence is 3 669 km. The entire drainage area north of the St. Lawrence and the Great Lakes is occupied by the southern fringe of the Canadian Shield, a rugged, rocky plateau with many tributaries. These rivers and the St. Lawrence provide much of the electric power for the area's industries. South of the St. Lawrence, smaller rivers are important locally. The Saint John, for instance, drains a fertile area and provides most of New Brunswick's hydro power.

The Hudson Bay drainage basin is the largest and its main river is the Nelson. The Winnipeg River, a tributary of the Nelson via Lake Winnipeg, is completely developed for hydroelectric power but development of the Nelson itself is just beginning. The Saskatchewan River, tributary to the Nelson via Lake Winnipeg, drains the agricultural region of the mid-west and is a source for irrigation and hydroelectric power.

The Arctic drainage basin is dominated by the Mackenzie, one of the world's longest rivers. It flows 4 241 km from the head of the Finlay River to the Arctic Ocean and drains an area of approximately 1 812 992 km<sup>2</sup> in the three western provinces and northern territories. Except for a 26 km portage in Alberta, barge navigation is possible from Waterways on the Athabasca River to the mouth of the Mackenzie, a distance of 2 736 km.

Rivers of the Pacific basin rise in the mountains of the Cordilleran region and flow to the Pacific Ocean through steep canyons and over innumerable falls and rapids. They provide power for large hydroelectric developments and in season swarm with salmon returning inland to their spawning grounds. The Fraser River rises in the Rocky Mountains and, toward its mouth, flows through a rich agricultural area. The Columbia is an international river which falls 808 m during its course and thus has tremendous power potential. Although a considerable part of the United States potential has been developed, the Canadian portion of the basin remained relatively untouched until recent