

# The Contribution of Earth Sciences to Sustainable Land and Resource Management

---

## INTRODUCTION — THE REGIONS OF CANADA

A comprehensive knowledge of the Canadian land mass and its offshore is fundamental to economic development, public safety, environmental protection, and national sovereignty. In part, this is the challenge for earth sciences. By bringing together expertise in surveying, mapping, remote sensing, geographic information systems, the Global Positioning System, and geoscience research, the earth sciences improve the understanding of natural processes, the magnitude of natural wealth, and the impact of human activities on the earth. For Canada, a country occupying the northern half of the North American continent, and, at 9 984 000 square kilometres, the second largest country in the world, this is a major task. It is made even more challenging by the diversity of physiography, geology, vegetation, and climate regions that are inevitably found in a country of this size.

Canada's most distinctive feature is in being a northern country — its land area extends from the midlatitudes (the southernmost point is at 42 degrees north) up to only 800 kilometres from the North Pole. As a result of climate and soil patterns, only the southern fringe of the country is continuously occupied. Almost all of the population lives within 300 kilometres of the southern boundary, with the settlement pattern being a more-or-less continuous band stretching from the Atlantic to the Pacific Oceans.

In dividing Canada into regions, it should be noted that its political division into provinces and territories already furnishes a major set of regions in its own right. Canada is a federal nation, which means the 10 provinces (and, to a lesser extent, the three territories) have substantial roles in running their own affairs, including managing their natural resources.

### Ecologically Based Regions of Canada

There are a smaller number of distinct regions that cut across political boundaries. The following description of ecologically based regions points out their location, unique features, and economy, with