

Environmental Issues in Canada

**SS6G7 The student will discuss
environmental issues in Canada**

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- **SS6G7: The student will discuss environmental issues in Canada**
 - A. Explain the major environmental concerns of Canada regarding acid rain, pollution of the Great Lakes, the extraction & use of natural resources from the Canadian Shield, and timber resources

- Canada faces a number of environmental issues
 - It has many natural resources that it can use both for its own people and for trade with other countries
 - Some of these natural resources are renewable and some are not



- Canada must find ways to carefully manage both types (*renewable & nonrenewable*), of resources so that the environment isn't damaged
 - Industries help Canada have a good economy with a high standard of living
 - However, factories are a source of pollution, and Canada must find ways to keep its industries alive without destroying its environment



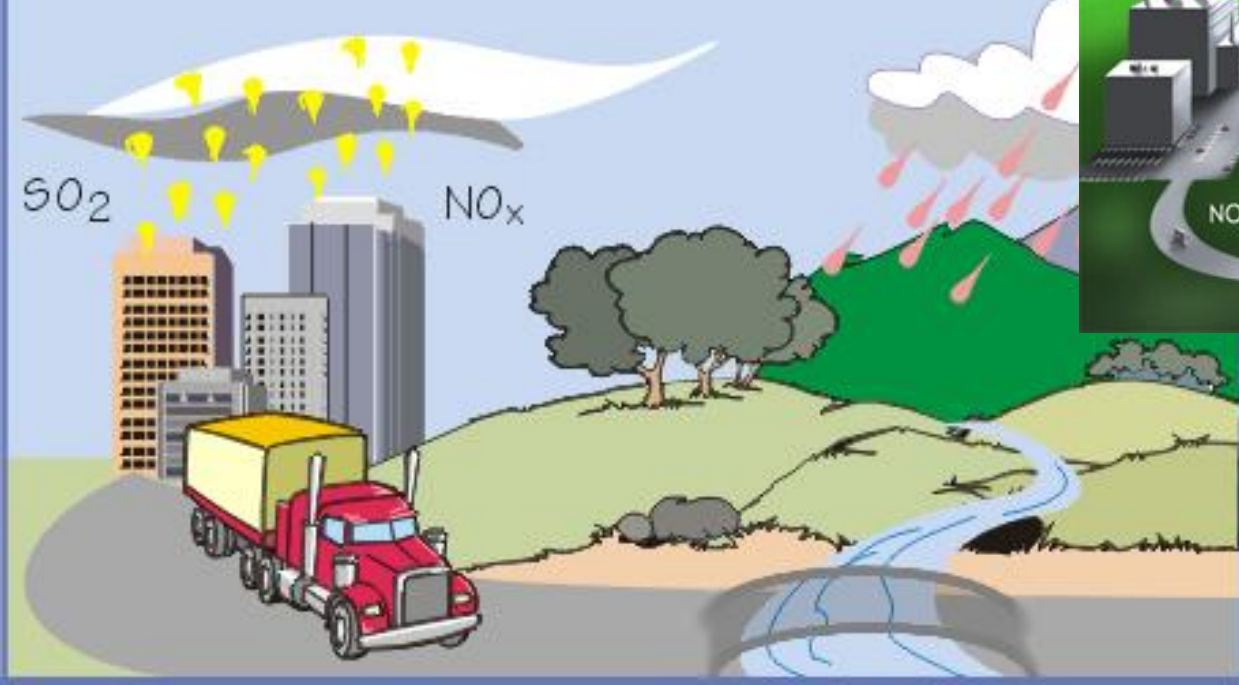
Acid Rain

- Factories produce many pollutants
- Coal burning power plants, cars, and trucks are also polluters of the air
 - Sulfur dioxide, carbon dioxide, and nitrogen oxides are especially dangerous
 - When these pollutants are put into the air, they mix with the water molecules and turn the water acidic
 - The clouds or rain droplets that are acidic = acid rain

ACID RAIN



Acid Rain Formation



- Acid rain causes many problems in the environment
 - It can kill plants, damage or kill trees, and pollute lakes & rivers enough to kill the fish
 - Property can also be damaged
 - In some cities acid rain has dissolved the stone used in statues, disfiguring the original artwork



- Canada has passed laws to limit the pollution
 - Government has worked with the factory owners to build factories that don't pollute the air
 - New laws passed require automobiles to produce less pollution
 - Government also encourages Canadians to walk, ride bikes, or take the bus instead of driving their cars



- However, Canada cannot solve the problem of air pollution & the resulting acid rain on their own
 - In parts of southern Canada 50% - 75% of the air pollution that causes the acid rain in Canada comes from the United States
 - Wind patterns tend to move the pollution from the U.S. north into Canada

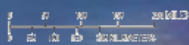


Pollution of the Great Lakes

- Industries and people in Canada depend upon water from the Great Lakes
 - Use the water to drink and in the processes of their factories
- Because the Great Lakes are shared between the United States and Canada, its important for them to work together to keep the lakes' environment clean and healthy



Map from *ES&E*, 2010, U.S. Army Corps of Engineers, 2009, and *ES&E*, 2009, U.S. Army Corps of Engineers, 2009.



- By the 1970s, the Great Lakes were becoming known for their pollution
 - In some places, fishing was unsafe; in other places there were no fish left alive
 - The factories around the Great Lakes had been using the lakes as a cheap dumping ground



- In 1972, governments of both the United States and Canada signed an agreement to begin reduction of phosphorus
 - This is a chemical used in fertilizer, pesticides, toothpaste, detergent, and explosives
 - It's bad for the lakes because in large quantities it can cause a rapid increase in algae, called algal bloom
 - One result of algal bloom is the eventual death of plant and animal life in the area of the bloom



- The Great Lakes Water Quality Agreement between the United States and Canada was signed in 1971 and renewed in 2002
 - The goal of the agreement is to restore the lakes' environment and prevent any future damage
 - They are working together to make sure that chemicals that could poison animals and people are not put into the lakes and to reduce the amount of human waste dumped into the lakes

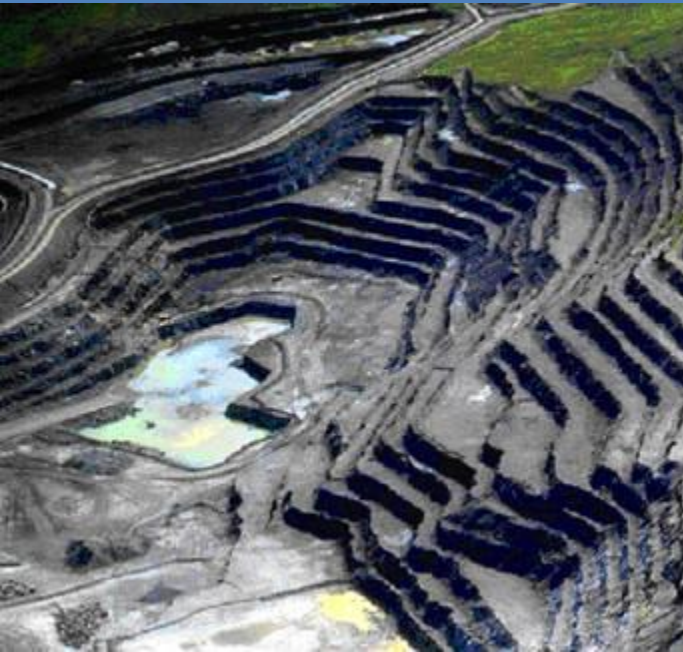


Extraction and Use of Natural Resources of the Canadian Shield

- The Canadian Shield is a large area of uplands surrounding the Hudson Bay, covering most of the eastern half of Canada
 - The soil in the Canadian shield is thin & rocky; beneath that soil is one of Canada's most valuable resources: minerals (*gold, silver, copper, zinc, lead, iron ore, uranium, and nickel*)



- The most valuable minerals available in Canada are located within the Canadian Shield
 - About 1.5 million people make their living in the mining industry (most in the Canadian Shield)



- Mining can be messy work
 - The land around mines can be **damaged** and the **environment** ruined
 - Blasting & digging with heavy machinery are common parts of mining



- The mining process can also spew sulfur dioxide into the air, producing acid rain and killing nearby vegetation
- Chemicals from mines are also dumped directly into lakes and rivers, poisoning the water, killing the plant and animal life

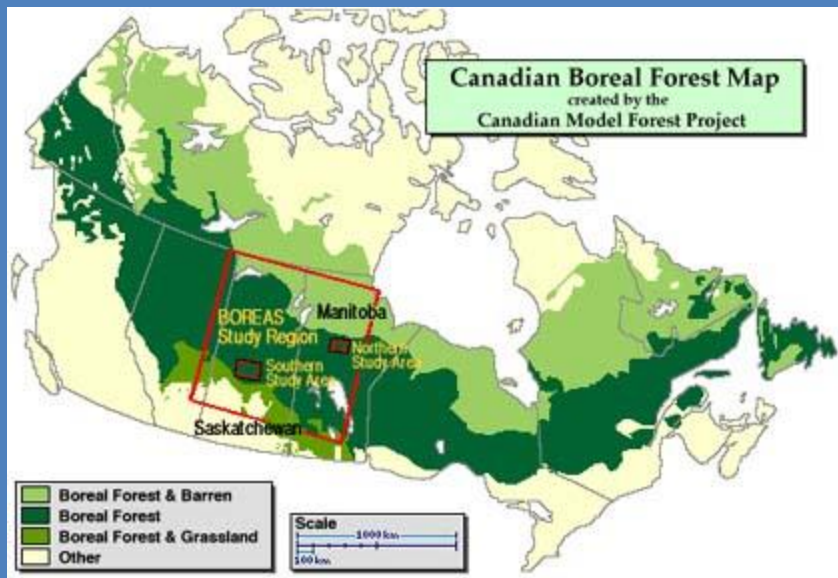


- The Canadian Shield's minerals are also located near the most populated areas of Canada, meaning that these environmental issues also impact the people living there
- The government has made new laws about mining, some reduce the amount of pollution allowed into the waterways



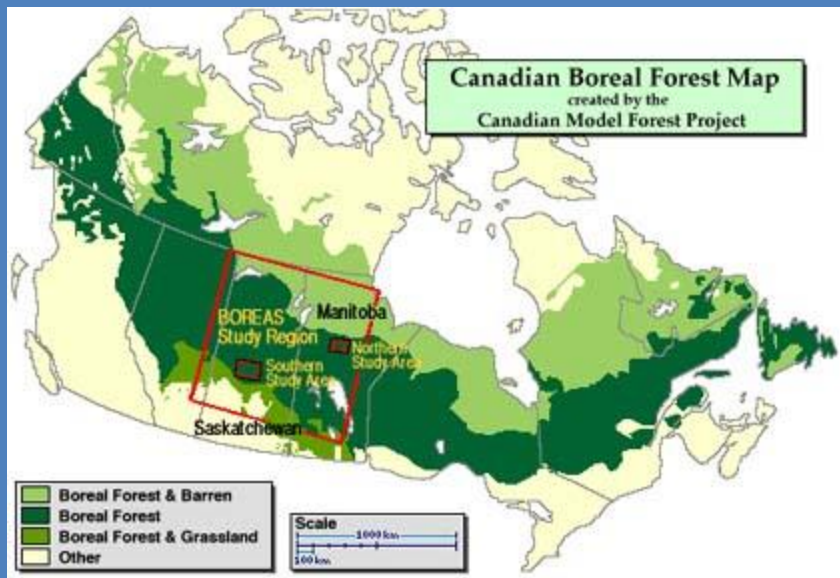
Canada's Timber Industry

- Vast (*large*) forests cover almost 50% of the land in Canada
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- Loggers cut trees and then send them onto mills
 - Mills use timber to make a variety of products including lumber, plywood, wood pulp, & paper



- Forests play an important role in the environment of Canada
 - Animals and plants depend on the habitat of the forests to live
 - They provide oxygen to breathe and they filter pollutants out of the air



- Canadian citizens are worried that logging will destroy forests and the benefits they provide
 - Major concern is the use of clear cutting, where timber companies cut down all the trees in a given area ~ leaving large treeless gaps in the forest



- The results of clear cutting include reduced water quality, erosion of the soil, and loss of wildlife habitat
 - Heavy machinery can also leave the forest floor compacted, which makes it difficult for new growth to start



- Some environmental groups want timber companies to leave small trees and seedlings
- They also want to see smaller groups of trees cut down rather than hundreds of acres at a time



- Canada's government & the timber industries are working together to manage the use of the forests
 - Hundreds of millions of seeds and seedlings are planted each year
 - Billions of dollars are spent managing and protecting the forests
 - Over \$100 million is spent each year by the logging industry to protect wildlife and their habitat



Summary & Review

What causes the acid rain in Canada?

- Factories, coal burning power plants, and cars pollute the air with chemicals like sulfur dioxide and carbon dioxide which mix with the water molecules, creating acid rain

Summary & Review

Why cant Canada solve their acid rain problem on their own?

- Because in certain parts of southern Canada 50% - 75% of the air pollution that causes acid rain comes from the United States

Summary & Review

How does mining in the Canadian Shield impact its environment?

- It destroys the land and ruins the environment. Sulfur dioxide put into the air during the mining process causes acid rain & waste from the mining operations is dumped into lakes and rivers, killing the plant and animal life living there

Summary & Review

Describe the benefits provided by Canada's many forests

- The forests in Canada provide a habitat for many plants and animals. They also provide oxygen to breathe and filter pollutants out of the air

Summary & Review

How does clear cutting in Canada impact the environment?

- Clear cutting can lead to reduced water quality, erosion of the soil, and loss of habitat for plants and wildlife