

What Are Natural Resources?

SECTION

1

**BEFORE
YOU
READ**

Reach Into Your Background

How much do you throw away each day? How much do you recycle? What do you

own that is made of recycled material? Jot down your answers.

Questions to Explore

1. What are natural resources?
2. What is the difference between renewable and nonrenewable natural resources?

Key Terms

natural resource
raw material
recyclable resource
renewable resource
nonrenewable resource
fossil fuel

What can we do with the garbage we create? People are searching for answers. Some are unique. In 1995, architect Kate Warner built a house in Martha's Vineyard, Massachusetts. She used materials most people call trash. The builders mixed concrete with ash left over from furnaces that burn trash. Then they used the mixture to make the foundation of the house. To make the frame of the house, they used wood left over from old buildings, not fresh lumber. Warner wanted glass tiles in the bathroom. So she had glassmakers create them out of old car windshields. "We ask people to recycle, but then we don't know what to do with the stuff," Warner says. "By making use of waste materials, the manufacturers of these new building materials are creating exciting new markets and completing a loop." In this loop, materials are used over and over again. Garbage becomes a natural resource.

Natural Resources

Kate Warner is one of many people who want to use the Earth's natural resources wisely. These people believe this is the only way for humans to survive. A **natural resource** is any useful material found in the environment. Usually when people talk about natural resources, they mean such things as soil, water, minerals, and vegetation. A natural resource, then, is anything from the Earth that helps meet people's needs for food, clothing, and shelter.

▼ Factories make new steel for bicycles and buildings by combining iron and other natural resources with recycled or "scrap" steel.



The World: Natural Resources



KEY

-  Copper
 -  Bauxite
 -  Gold
 -  Silver
 -  Phosphates
 -  Uranium
 -  Lead
 -  Nickel
 -  Tungsten
 -  Tin
 -  Diamonds
- Robinson Projection

Map Study Many of the world's countries are wealthy in natural resources. For example, South Africa has gold and diamonds. China mines tungsten, which is used in lighting and electrical equipment. **Interaction** Many countries have a

wealth of natural resources. Yet not all of these countries have prospered from these resources. Why do you think this is so?

All people need food, clothing, and shelter to survive. People drink water. People eat the food that the soil produces. So do the animals that provide eggs, cheese, and meat. People get such things as fish and seafood from the ocean. Homes are made from wood, clay, and steel. Every day you benefit from the natural resources in the environment.

People can use some resources just the way they come from nature. Fresh water is one. But most resources must be changed before people can use them. For example, people cannot just go out and cut down a tree to make a house. Even if they want to build a log cabin, they must cut the tree into pieces first. For a modern home, the wood must have the bark shaved away. Then the wood is cut into boards of various sizes. Resources that must be altered, or changed, before they can be used are called **raw materials**. Trees are the raw material for paper and wood.

Three Kinds of Resources The environment is full of natural resources. But not all resources are alike. Geographers divide them into three groups. The first group of resources cycle naturally through the environment. They do so because of the way the Earth works. In the water cycle, water evaporates into the air and falls as rain, snow, hail, or sleet. This happens over and over again. Therefore, the Earth has

same amount of water, although there may be too much of it in some places and not enough in others. For this reason, geographers call water a **recyclable resource**. Some other materials that cycle through natural processes as recyclable resources are nitrogen and carbon.

A second group of resources includes trees and other living things on the Earth. These things are different from recyclable resources. It is possible for people to gather plants or hunt animals until they no longer exist. But it does not have to happen. For example, a timber company may cut down all the trees in an area. But the company may then plant new trees to replace the ones they cut. Every day the people of the world eat many chickens and ears of corn. But farmers and chicken ranchers make sure there are always more corn plants and chickens to replace the ones people eat. If a resource can be replaced, it is called a **renewable resource**. If people are careful, they can have a steady supply of renewable resources.

The third group of resources is called **nonrenewable resources**. When they are used up, they cannot be replaced. Most nonliving things, such as minerals, coal, natural gas, and petroleum—or oil—are nonrenewable resources. So are metals. City recycling programs are often eager to recycle aluminum cans and plastic bottles. That is because these cans and bottles are made of nonrenewable resources.

Ancient Energy: Fossil Fuel Often people take some things for granted. Lights turn on when a switch is flicked. The house is warm in winter or cool in summer. The car runs. All of these things require



Visualize Visualize the world if people do not take care to replace renewable resources. What would your town or city look like?

Rain Forests: A Fragile Resource

Rain forests once covered millions of acres in Asia. Today, the rain forests of Asia are rapidly disappearing. Using heavy equipment to harvest the most valuable woods, loggers often damage huge areas of forest. In this photograph of the Malaysian rain forest, notice the sawmills that process the valuable tropical lumber and the roads that carry the wood out of the area. Once this rain forest is cut down, it will be very difficult to replace.



fossil fuels, which include coal, natural gas, and petroleum. Fossil fuels were created over millions of years from the remains of prehistoric plants and animals. These fuels are no longer being created. As a result, fossil fuels are nonrenewable resources. If people continue using coal, natural gas, and petroleum at today's rate, the Earth will run out of fossil fuels in 100 to 200 years.

A Special Resource: Energy

Imagine that you are in your room, reading your geography book. What items around you require energy? Some are obvious. A clock, a radio, or a lamp all use energy directly, in a form called electricity. Other items are not so obvious because they use energy indirectly. Consider a water glass on a dresser or athletic shoes on the floor. These things were manufactured in a factory, and the process uses energy.

What about things made of plastic—a toy, a comb, or a pen? If you have a rug, it may be made of synthetic material that looks like wool but is really a kind of plastic. These things are manufactured, so they use energy indirectly. But they also use energy directly. The reason is that plastics are made from petroleum, and petroleum is an energy source.

Getting everything to your room required energy, too. Your family bought them at a store, so you used energy to travel back and forth. The store bought them from a manufacturer, which required more energy. It takes a great deal of energy to produce a small plastic glass in your room. It is easy to see why people value energy sources so highly.

Energy "Have's" and "Have Not's" Everyone in the world needs energy. But energy resources are not evenly spread around the world. Certain areas are rich in some energy resources. Others have very few.

World Petroleum Consumption

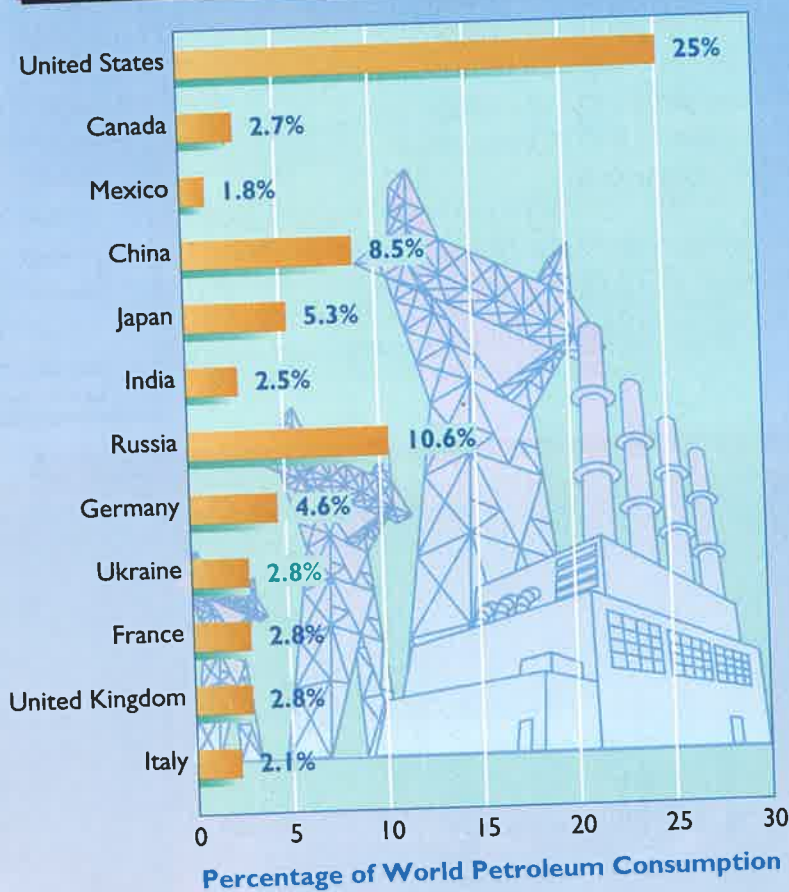
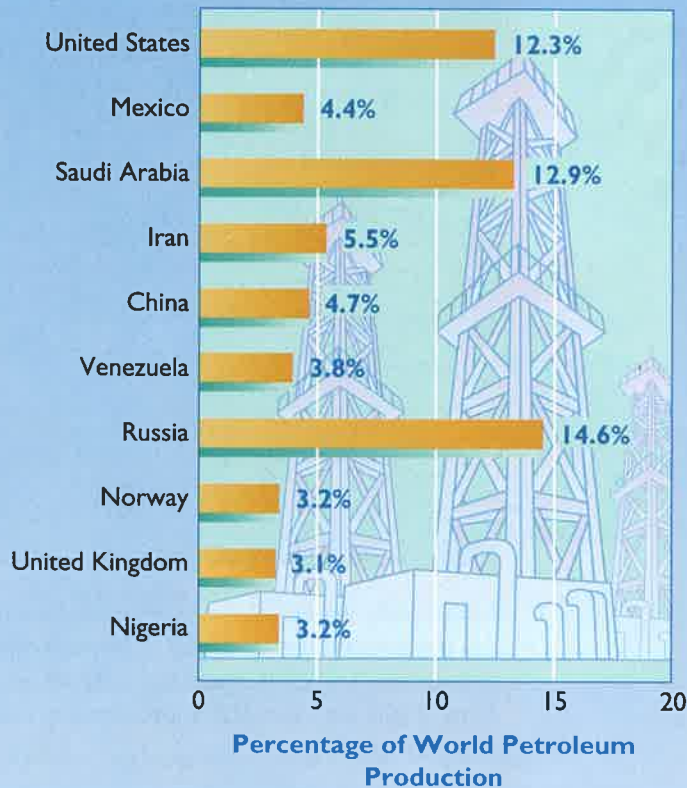


Chart Study Products made from petroleum are used to provide heat for buildings and power for automobiles, airplanes, and factories. People use so much petroleum that experts think that world supplies will be almost exhausted in 100 to 200 years. **Critical Thinking** What countries consume the most petroleum? Think of some ways that these countries could reduce their consumption of petroleum.

World Petroleum Production

Chart Study Petroleum is a nonrenewable resource, one that cannot be replaced once it is used. As a result, it is very valuable. Countries that have deposits can sell petroleum for a profit. **Critical Thinking** Compare this chart with the one on the previous page. Notice that the United States uses about twice as much petroleum as it produces. How does Russia's production compare with its consumption?



Countries like Saudi Arabia and Mexico have huge amounts of oil. Others, like the United States and China, have coal and natural gas. Countries with many rivers, such as the countries of Northwestern Europe, can use water energy to create electricity. Others, such as Japan, have very few energy sources. These countries must buy their energy from other countries.

Growing Needs and the Search for New Supplies In 1973, members of the Organization of Petroleum Exporting Countries (OPEC) decided to sell less of their oil. In the United States, this caused a shortage of gasoline, which is made from oil. When there is a shortage of something, it is more expensive. The price of gas more than doubled. Drivers sat in long lines at gas stations. Companies that used fuel oil to make electricity sent notices to families and businesses. The notices asked people to use as little electricity as possible. How could OPEC members have such an effect on the United States?

The answer is that just because a country uses large amounts of energy does not mean that country has its own large energy resources. The biggest users of energy are industrial countries like the United States and the nations of Western Europe. Japan, which has few petroleum resources of its own, uses over twice as much energy as all of



Connect What things can you and your family do to use fewer fossils fuels in your everyday life?

Oil From Under the Ocean



In the chilly waters of the North Sea, European companies drill deep wells to tap the area's large oil deposits. Increased production of North Sea oil may reduce the world's demand for oil from Southwest Asia. **Critical Thinking** How might technological improvements such as more modern drilling rigs cut the cost of oil?

Africa. If a country does not have enough energy resources of its own, it must buy them from other countries. In the 1970s, the United States used so much energy that it had to buy oil from OPEC members. When they limited the supply of oil, they could charge much more for the product. The United States had to pay whatever the producing countries asked. The oil shortages of the 1970s made people see they needed to find more sources of energy, including petroleum.

SECTION 1 REVIEW

- 1. Define** (a) natural resource, (b) raw material, (c) recyclable resource, (d) renewable resource, (e) nonrenewable resource, (f) fossil fuel.
- (a) Name two renewable resources. (b) What are two nonrenewable resources?

- 3.** Name some ways that people use fossil fuels.
- 4.** What is the difference between indirect energy use and direct energy use?

Critical Thinking

- 5. Expressing Problems**
Clearly Explain why people must be careful about how they use nonrenewable resources.

Activity

- 6. Writing to Learn** Early pioneers in North America used forests and grasslands as they pleased. Write a paragraph explaining why it might have been less important then to replace those resources.

How People Use the Land

SECTION

2

**BEFORE
YOU
READ**

Reach Into Your Background

How many manufactured, or factory-made, items do you

use in a day? What natural resources were used to make them? Make a list of these resources.

Questions to Explore

1. What are the stages of economic development?
2. How do different cultures use land?

Key Terms

manufacturing
developed nation
developing nation
commercial farming
subsistence farming
plantation
foreign aid

“**A**ll this water started flowing, but we were told it was restricted for use only by the oil company and we were not allowed to use it,” said Li Lixing, a Chinese farmer. “We had to go at night and secretly take some for our crops.” Li Lixing lives in a village by the banks of the Huang He. People have farmed here for hundreds of years. In Li’s region, the government wants to help the economy by supporting businesses like the oil company. Farmers, therefore, face problems.

Many countries face problems of limited resources, increasing population, and growing demand. Studying how countries use their natural resources shows three basic patterns of economic activity.

Stages of Resource Development

Water from the Huang He is essential for Chinese farmers like Li. But industry needs resources, too. Which group is more important? In some cultures, industry comes first. In others, farmers do. Geographers study how people in different cultures use land and develop their resources. This tells geographers much about a culture. Geographers also compare land use and resource development all over the world.

First-Level Activities Geographers study three stages of economic activity. In the first, people use land and resources directly to make products. They may hunt, cut wood, mine, and fish. They also may herd animals and farm. This is the first stage of activities. People are beginning to develop their land. About half the world’s population works in first-level activities. In countries like the United States, however, fewer people do this kind of work every year.

Harvesting Corn



Farmers in the midwest United States are part of the first level of economic activity. Before you eat this corn, it may be frozen, canned, or processed. It may be made into corn meal, cornflakes, corn tortillas, grits, or even corn muffins. Then it must be delivered to a store where you can buy it.



Second-Level Activities Suppose a farmer takes his corn crop to a mill and has the miller grind the corn into corn meal. This is an example of the second step in developing a resource. People turn raw materials into things they use. When a product is processed, it is changed from a raw material into a finished product. That process is called **manufacturing**. The farmer can pay the miller for his service and take the corn meal back home. Or the miller can sell the corn meal to someone else for further processing. Manufacturing may turn the farmer's corn crop into cornflakes for your breakfast.

Third-Level Activities In the third stage, a person delivers boxes of corn flakes to a local grocery store so you can buy one. In this stage, products are distributed to people who want them. People who distribute products do not make them. They produce a service by making sure products are delivered to people who want and need them. Industrial nations require service industries. Transportation systems carry products from manufacturer to consumer. Communication systems help people and businesses—doctors' offices, shopping malls, and fast-food stores—are part of everyday living.



Connect Think about members of your family and friends who work. Do they do first-, second-, or third-level activities?

Economic Patterns: Developed and Developing Countries

Today, most manufacturing takes place in factories. Two hundred years ago, that was not so. People produced goods in their homes or small shops. Then came a great change. People invented machines to make goods. They built factories to house the machines. They found new sources of power to run the machines. This change in the way people made goods was called the Industrial Revolution.

The Industrial Revolution created a new pattern of economic activity. It separated countries into two groups—those with many industries and those with few. Countries that have many industries are called **developed nations**. Countries with few industries are called **developing nations**. People live differently in developed and developing nations.

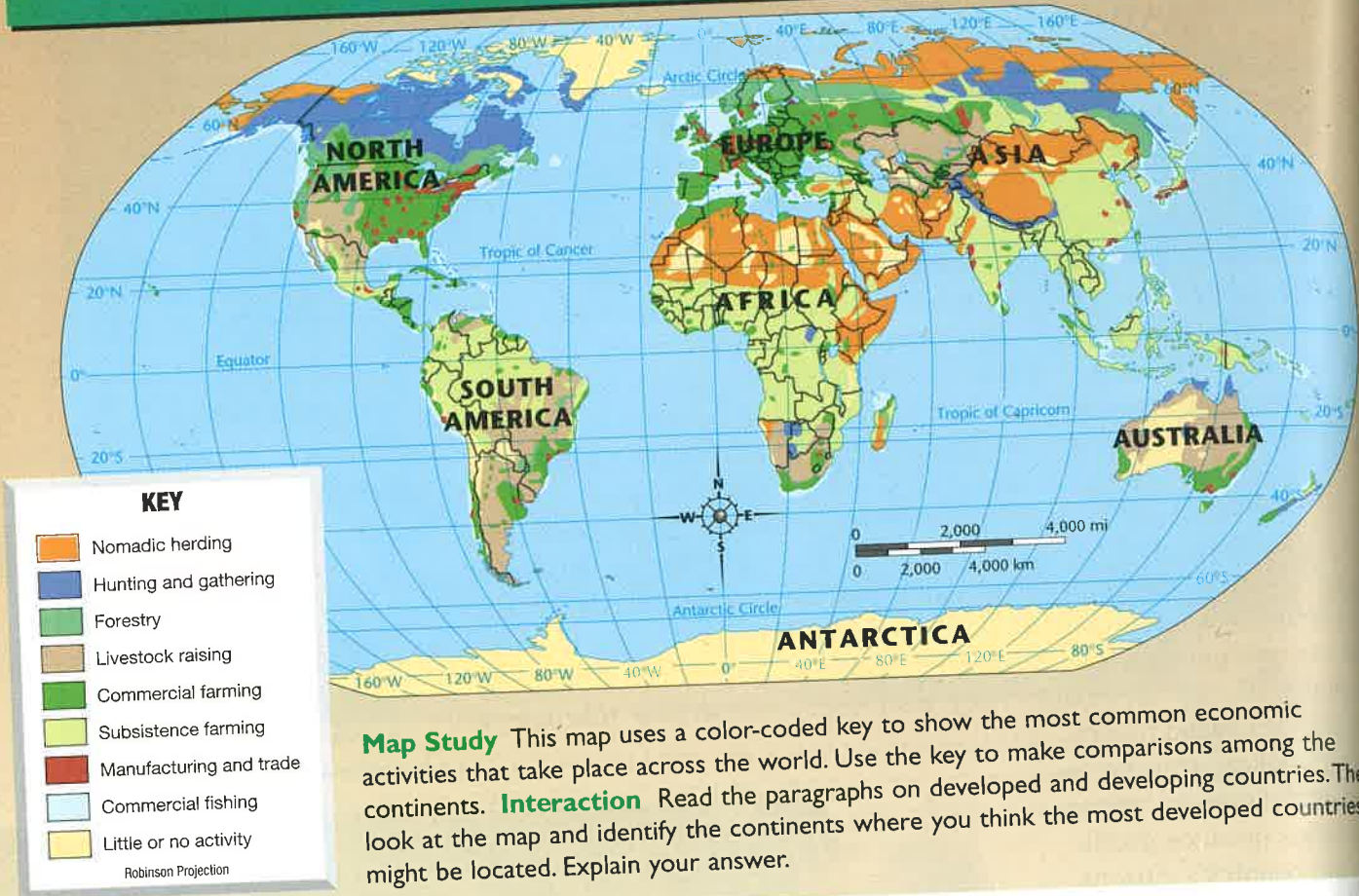
Industrial Societies: Providing Goods and Services

Only about one quarter of the people in the world live in developed nations. These nations include the United States, Canada, Japan, Singapore, Australia, and most European countries. People in these nations use goods made in factories. Their industries consume great amounts of raw materials. They also use power-driven machinery. Businesses spend money on technology, transportation, and communications. Factories produce goods for the country's citizens and extra goods to sell to other countries.

▼ In a Detroit factory, a worker carefully assembles the same part on each automobile that comes down the power-driven assembly line.



The World: Economic Activity



Map Study This map uses a color-coded key to show the most common economic activities that take place across the world. Use the key to make comparisons among the continents. **Interaction** Read the paragraphs on developed and developing countries. Then look at the map and identify the continents where you think the most developed countries might be located. Explain your answer.

In developed countries, most people live in towns and cities. They work in business and industry. Machines do most of the work. Most people have enough food and water. Most citizens can get a good education and adequate health care.

Developed nations rely on **commercial farming** to produce enough food for their people. Commercial farms are very large. Companies run most of them, not single families. These farms rely on modern technology, so they often need far fewer workers than small traditional farms. Commercial farms are very successful. In the United States, a few million farmers raise enough food to feed more than 250 million people. There is plenty left over to sell to other countries.

People in developed nations depend on each other. Farmers rely on industries for goods and services. City people depend on farmers for food. Anything, like wars and natural disasters, that stops the movement of goods and services can make life hard for everyone.

Developed nations can have some serious problems. Unemployment is a challenge. Not everyone can find a job. Manufacturing can also threaten the environment with air, land, and water pollution. Heavy production uses up natural resources, so shortages develop. Developed nations are working to solve these problems.



Predict What are the problems of developed nations?

Developing Nations It is important to remember that every culture is not like that of the United States. Most of the people of the world live in developing countries. Many of these countries are in Africa, Asia, and Latin America.

Developing countries often do not have great wealth. Many people work at **subsistence farming**. That means farmers raise enough food and animals to feed their own families. The farms require much labor, but they do not yield many crops. Often, the only commercial farms are **plantations**. These farms employ many workers but are owned by only a few people. Plantations usually raise a single crop for export, such as bananas, coffee, sugar cane, or tea.

In some developing countries, certain groups herd animals that provide families with milk, meat, cheese, and skins. In the deserts of Africa and Asia, vegetation and water are scarce. Herders in these regions are nomads. They travel from place to place to find food and water for their animals. In some developing nations, some people live as hunter-gatherers. Such groups are found in the Kalahari Desert in Africa and the Amazon region of South America.

Challenges in Developing Nations Developing countries often face great challenges. These include disease, food shortages, unsafe water, poor education and health services, and changing governments. Farmers often rely on one or two crops. That puts farmers at risk if the crops fail. Thousands move to cities, but jobs there are often scarce.

Some challenges are connected to rapid population growth. It strains resources. For example, in the late 1990s, the supply of fresh water was becoming a problem. As populations grow, they need more water. Larger populations also need more food. This means that farms need more water. Industries also require large amounts of fresh water.

Developing countries are working to improve their people's lives. One way is to use their natural resources or sell them to other countries. Some countries have grown richer by selling natural resources, such as oil and other minerals, to others.



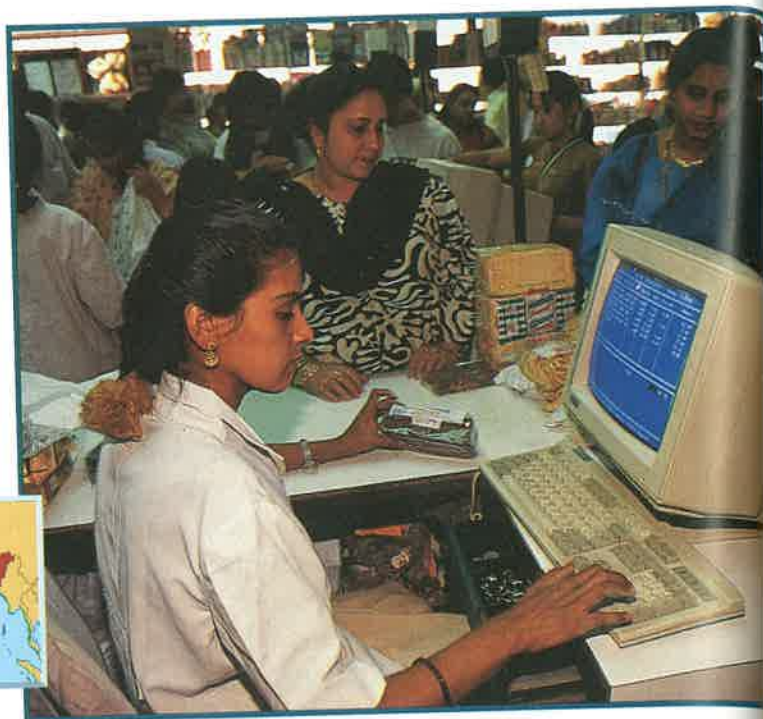
A Nation of Herders The Tuareg of the Sahara in northern Africa herd camels, goats, sheep, and cattle. They travel along the edge of the great desert. Here there are seasonal rains so there is pasture for the herds. Men and women are equals in Tuareg culture. Both can own their own herds of animals and other property.

Construction in Vietnam

Vietnam's economy is run by a communist government. But the government now allows some forms of free enterprise. As a result, the economy is improving. Hanoi, the capital of Vietnam, is a trade center. It is located on the Red River, which provides access to the Pacific Ocean. Most workers in Vietnam are farmers. In Hanoi, however, workers can find jobs in factories that process food or produce bicycles and farm machinery. Or, like these workers, they can help to construct new buildings as Hanoi expands.



► This woman works in the city of Bangalore, India. In recent years, many Indian businesses have improved their services by using computers.



Developing countries sometimes receive help from developed nations. The help could be in the form of **foreign aid**, or gifts and loans from one government to another or from the United Nations. This aid is often used for special projects, such as building roads to move food and other goods from one area to another. Sometimes conflicts arise when the two governments do not agree on the best way to use foreign aid funds.

Sometimes help comes from businesses in developed countries. They may build factories in developing nations. This provides jobs and money for people. Sometimes building communication systems helps spread new ideas for farming and industries.

SECTION 2 REVIEW

- 1. Define** (a) manufacturing, (b) developed nation, (c) developing nation, (d) commercial farming, (e) subsistence farming, (f) plantation, (g) foreign aid.
2. What are the characteristics of a developed nation? Of a developing nation?

3. How is subsistence farming different from commercial farming?
4. How can countries use their natural resources?
5. What challenges face developed nations? Developing nations?

Critical Thinking

6. **Identifying Central Issues** How are developing nations working to improve their people's lives?

Activity

7. **Writing to Learn** People who work at your school have jobs in a service industry. Interview a teacher, a server in the cafeteria, or a receptionist in the office. Find out what that person's duties are and what that person likes about his or her job. Write a brief profile for your school newspaper.