

China: The World's Most Populous Country

30.1 Introduction

In the 1870s, there was a terrible **drought** in China. Crops failed and people began to starve. A witness to the suffering wrote,

*They wait for death in their houses, stripped of everything.
The cold winds pierce through their bones. They have no rice
to cook, and the cravings of hunger are most painful.*

This was not the first time the people of China had faced a terrible **famine**. There had been severe food shortages many times before. This one was made worse by a rise in China's population. By the time it was over, the famine had claimed almost 10 million lives.

This story of population growth and famine is, in some ways, the story of China. Since ancient times, China has experienced both. Despite hard times, China today is the world's most populous country. One out of every five of the world's 6 billion people lives in China.

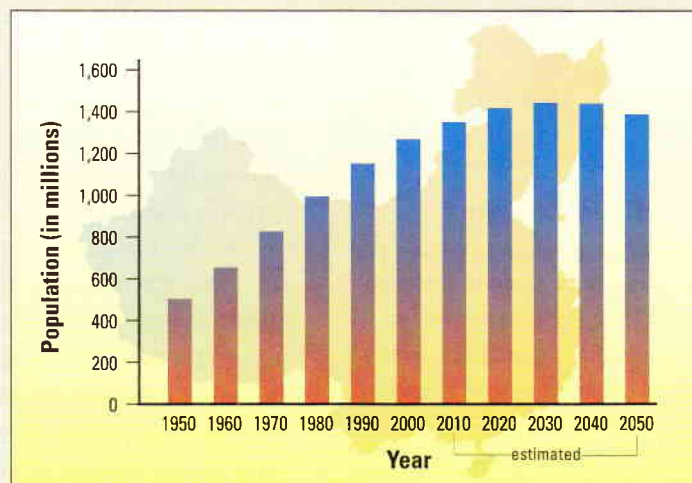
Feeding such a huge population is a great challenge. To help meet it, China is working to achieve **zero population growth**. This happens when a country's population stops growing. The number of people who are born each year roughly equals the number who die. In this chapter, you will learn how China is dealing with the challenges created by its huge and still growing population.

Essential Question

How does a country meet the challenges created by a large and growing population?

This graph shows the population of China from 1950 to 2050. The numbers after 2000 are estimates. Note how fast China's population grew between 1950 and 1990. Today, China has more than 1.3 billion people. Keep this graph in mind as you try to answer the Essential Question.

Graphic Organizer



Source: United Nations Population Division, "World Population Prospects: The 2004 Revision Population Database," esa.un.org/unpp/.

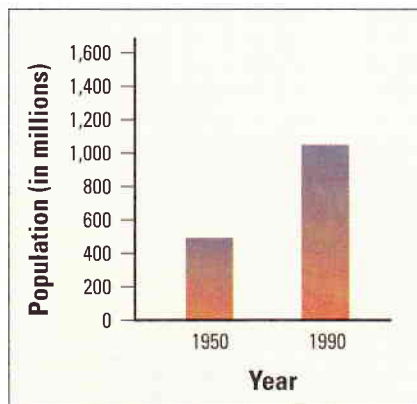
Natural Increase and Doubling Time

Rate of Natural Increase	Doubling Time (years)
3%	23
2%	35
1%	70
0%	no doubling time

Population Math

This table shows the relationship between the rate of natural increase and doubling time. A rate of natural increase that is greater than 2 percent a year is considered high. At that rate, a country's population will double in 35 years. The rate of natural increase varies widely around the world.

Population Growth in China



China's Doubling Time

As this bar graph shows, China's population more than doubled between 1950 and 1990. For a population to grow so rapidly, it must have a rate of natural increase above 2 percent.

30.2 The Geographic Setting

The ancient Chinese believed that China stood at the center of the world. They didn't think there were any other civilized societies on Earth. This was understandable. China was isolated from the rest of the world. To the west, **deserts** and mountains cut China off from the rest of Asia. To the east was the vast Pacific Ocean. Even today, the Chinese refer to their country as Zhong Guo, "the Middle Kingdom."

A Diverse Landscape If you picked China up and placed it on top of the United States, the two countries would match up pretty well. They are nearly equal in shape and size, although China is slightly larger. China's **landscape**, however, is very different.

Geographers sometimes describe China as a giant slope. This slope stretches from the towering mountains of Central Asia in the west to the Pacific Ocean in the east. If you stood at the top of the slope, you would look down on the mountains, **plateaus**, and **basins** that make up western China. If you took a giant step down the slope, you would be in central China. There you would find lower mountains, hills, and plateaus. You would also find the Gobi Desert.

A final giant step down would take you to eastern China. Here you would find low hills, fertile river valleys, and plains. You would see vast **floodplains** covered with rice fields. This is where most of China's 1.3 billion people live.

The First Billion-Person Country China has been the world's most populous country for hundreds of years. In the 1980s, it became the first country to reach 1 billion people.

A population grows when its **birth rate** each year is higher than its **death rate**. These rates are determined by the average number of births or deaths per 1,000 people. Birth and death rates are often shown as a percentage. To calculate the birth rate, for example, divide the number of births by 1,000. If there are 30 births for every 1,000 people in a year, the birth rate is 3 percent. Similarly, if there are 20 deaths per 1,000 people, the death rate is 2 percent.

To find out how fast a population is growing, subtract the death rate from the birth rate. In the example just given, a 3 percent birth rate minus a 2 percent death rate equals a 1 percent growth rate. This means the population is growing by 1 percent each year. This annual growth rate is also known as the **rate of natural increase**.

China's population grew a lot in the second half of the 20th century. In 1950, China had about 550 million people. Only 40 years later, in 1990, it had twice as many people. The population had doubled to about 1.1 billion. The time it takes for a population to double like this is called the **doubling time**.

The rate of natural increase and doubling time are tied to each other. The higher the rate of natural increase, the shorter the doubling time. Looking ahead from 1990, the Chinese could see that if nothing changed, their population would likely double again in just another 40 years.

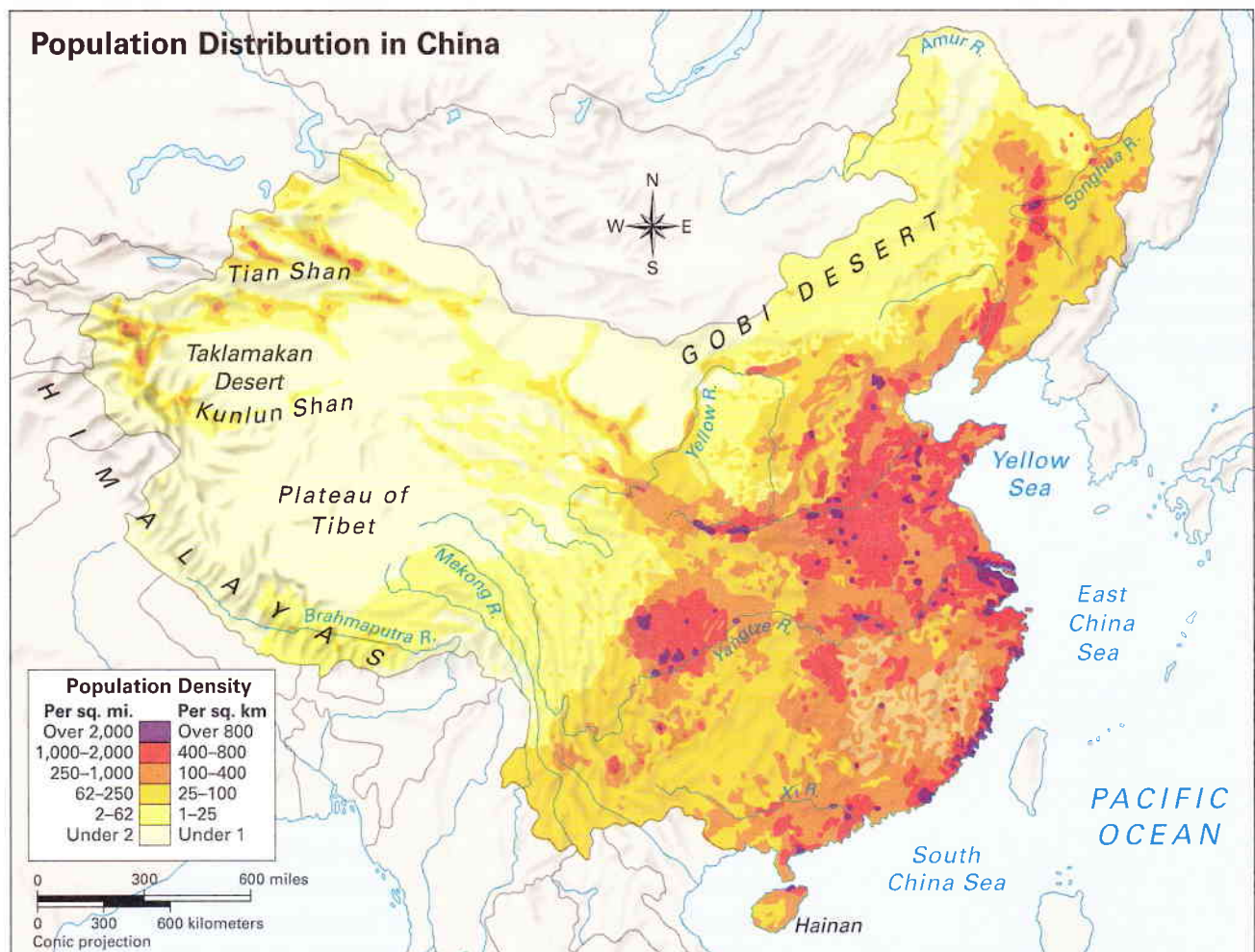
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doubling time the length of time it takes for a population to double

famine a severe shortage of food that results in widespread hunger

rate of natural increase the annual rate of population growth. This percentage is calculated by subtracting the death rate from the birth rate. It does not include people moving into or out of a country.

zero population growth a condition in which the population of a country does not grow but remains stable. This condition comes about when the birth rate plus immigration equals the death rate plus emigration.



Where the Chinese Live

The purple areas on this map indicate a population density of more than 2,000 people per square mile. Notice that the majority of Chinese live in the eastern part of the country. Rivers flowing across this lowland region provide fish for food and water for irrigation. They are also used as transportation routes.



为四化一对夫妇只生一个孩

The Use of Posters in China

China uses posters to promote government policies. This poster supports the one-child policy. Traditionally, boys are favored. The government, however, is trying to change this way of thinking. This poster shows parents who are happy with their one daughter.

30.3 Plan One: Slow Population Growth

Great Teacher. Great Leader. Great Supreme Commander. Great Helmsman. These names were used to describe one of China's most important leaders, Mao Zedong. Mao led a revolution that brought a communist government to power in China in 1949. He ruled the new People's Republic of China until his death in 1976. During his long rule, Mao brought big changes to China.

The Challenge: Rapid Population Growth Mao believed that large families would make China strong. Under his rule, China's population grew rapidly. The average woman had four or five children. The natural rate of increase rose to about 3 percent.

In 1958, Mao launched a program called the Great Leap Forward. This was a plan to help China become a modern industrial country. In other countries, modernization had come with the use of new **technology**, such as machines and computers. Mao thought China could "leap forward" by getting more work out of its huge population.

One goal of the Great Leap Forward was to increase steel production. Across the country, small "backyard furnaces" were set up. People were told to melt down their metal possessions. Bicycles, cooking pans, iron bed frames, and even doorknobs were melted to make steel. Another goal was to increase food production. Small farms were lumped together to create large factory farms.

Despite people's hard work, the Great Leap Forward did not turn China into an industrial giant. Production did not increase as Mao had hoped. At the same time, there were severe droughts across China. The result was famine. More than 20 million people died of starvation between 1958 and 1962. Those deaths were a tragic reminder that China could no longer support its rapidly growing population.

The Proposed Solution: The One-Child Policy Mao died in 1976. After his death, the government took steps to control population growth. In 1979, it began a family-planning program known as the *one-child policy*. This program limited each married couple to just one child. The government rewarded those who followed the policy and punished those who did not.

The one-child policy is still in effect. There have been changes, though. The focus now is on rewards rather than punishments. Families receive benefits, including cash, for having just one child. In some **rural** areas, couples are allowed to have a second child. Punishments for having more children than allowed are less severe than in the past. Overall, though, Chinese families still must strictly limit the number of children they have.

The Benefits: Slower Population Growth China has not yet reached zero population growth. But the one-child policy is moving the country toward that goal. A majority of families today have only one child. The population is still growing, but at a much slower rate.

Slower population growth has had many benefits for China. It has reduced the strain on food and water supplies. It has also reduced the problem of having too many workers for too few jobs.

Families have benefited in other ways. Mothers and babies tend to be healthier in small families. With fewer children to support, parents have more money to spend on other things. With fewer children to care for, women have more time for a career.

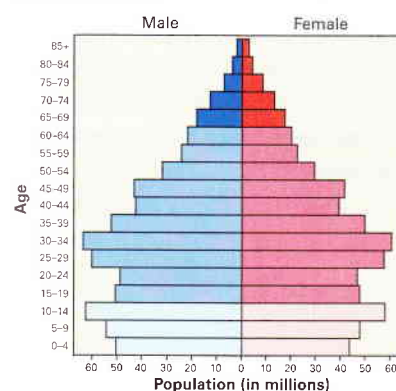
The Costs: Less Choice and an Aging Population The one-child policy has not been completely successful. Many people don't want to be told how many children they can have. This is especially true in rural areas where large families are a tradition. Economically, this makes sense. For a farming family, more children mean more workers to help with farmwork.

The policy has also clashed with ancient cultural traditions. Chinese families prefer having sons. The family name is passed on to sons. Sons are expected to care for aging parents. In contrast, daughters leave their parents to become a part of their husband's family. For these reasons, many people desperately want a son if they can have only one child.

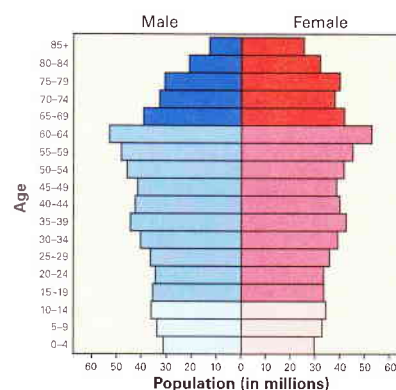
Modern medicine makes it easy to determine the sex of a baby before it is born. Rather than give birth to a girl, some couples choose to end a pregnancy and try again for a boy. This practice is illegal. But still, boys are preferred over girls. Today, about 120 boys are born for every 100 girls in China. Boys already outnumber girls in most classrooms. In the future, this difference may lead to a shortage of wives for young men in China.

There is another cost as well. In the past, old people in China were cared for by their children, especially their sons. As a result of the one-child policy, there are fewer children to care for older family members. As a result, China will need to find new ways to take care of a large and aging population.

China, 2000



China, 2050 (Estimated)



Source: United Nations Population Division, "World Population Prospects: The 2004 Revision Population Database," esa.un.org/unpp/.

Population Changes in China

The one-child policy has changed the population distribution in China. Compare the two population pyramids. If slow growth continues, China's population distribution will eventually look like the pyramid on the bottom.



The Three Gorges Dam in 2003

The Three Gorges Dam was not complete when this photograph was taken, but it was already generating clean energy. As the lake behind the dam fills, much of the beautiful scenery in the Three Gorges area will be lost.

30.4 Plan Two: Provide More Clean Energy

Huge populations require huge amounts of energy. Most of the electricity the Chinese people need is supplied by power plants that burn coal. Smoke containing **toxic chemicals** such as mercury pours out of China's power plants. High winds carry the poisonous plumes around the world. In the United States, mercury **pollution** from China has been discovered from California to New England.

The Challenge: Meeting Rising Energy Demands China has the second-largest **consumption** of energy in the world. Only the United States consumes more energy. China uses coal to meet 65 percent of its energy needs. It burns more coal than any other country.

As its population grows, China's energy needs will grow. The country has large deposits of coal. But coal is not a clean fuel. When burned, it pollutes the air. Diseases related to air pollution have become leading causes of death in China. One way to reduce air pollution is to install equipment at power plants to clean the smoke. But this equipment is very expensive.

The Proposed Solution: Generate More Hydroelectric Power

To meet its growing energy needs without increasing pollution, China looked for cleaner sources of energy. One of the cleanest sources is **hydroelectric power**. It is generated by water flowing through power plants in dams.

In 1993, China began building the world's largest dam. It will span the Yangtze River, the longest river in Asia. It flows more than 3,700 miles through China. For thousands of years, it has been used to transport people and cargo. It has also provided water for homes and crops. After the dam is finished in 2009, it will provide as much as one ninth of China's electricity as well.

The dam across the Yangtze is being built in a beautiful canyon area called the Three Gorges. When complete, the Three Gorges Dam will be over 600 feet high and more than 1.3 miles wide. The **reservoir** behind the dam will stretch upstream for about 400 miles.

The Benefits: Clean Energy, Flood Control, and Shipping

Hydroelectric dams provide many benefits to the countries that build them. One is clean energy from a **renewable resource**. The power plant at the Three Gorges Dam will have 26 electric generators. These generators will produce more electricity than any other hydroelectric plant in the world. And they will do so without polluting the air.

A second benefit is flood control. Historically, the Yangtze River has flooded about every 10 years. These floods have caused widespread death and destruction. The dam will reduce flooding by holding back the extra water that flows downstream during heavy rains. This will improve life for people living near the river below the dam.

The dam will help river shipping, too. Before the dam was built, the Three Gorges area was difficult to navigate by boat. The lake forming behind the dam will be safer for river travel. Locks will lift boats from the river below the dam up to the lake. When the dam and locks are finished, shipping on the river is expected to increase rapidly. At the same time, shipping costs should drop by about a third.

The Costs: Lost Cities and Habitat While the Three Gorges Dam will surely benefit China, there are costs as well. The Three Gorges area contains hundreds of ancient settlement **sites**. When water backs up behind the dam, these archeological sites will disappear. All that they could have revealed about China's distant past will be lost.

The reservoir will cover up more than history. It will drown 13 cities, 140 towns, and hundreds of villages. Tens of thousands of acres of farmland will be submerged as well. More than a million people are being forced to move as their homes disappear under water. The government has promised to help them start new lives elsewhere. But that won't make up for what these people have lost.

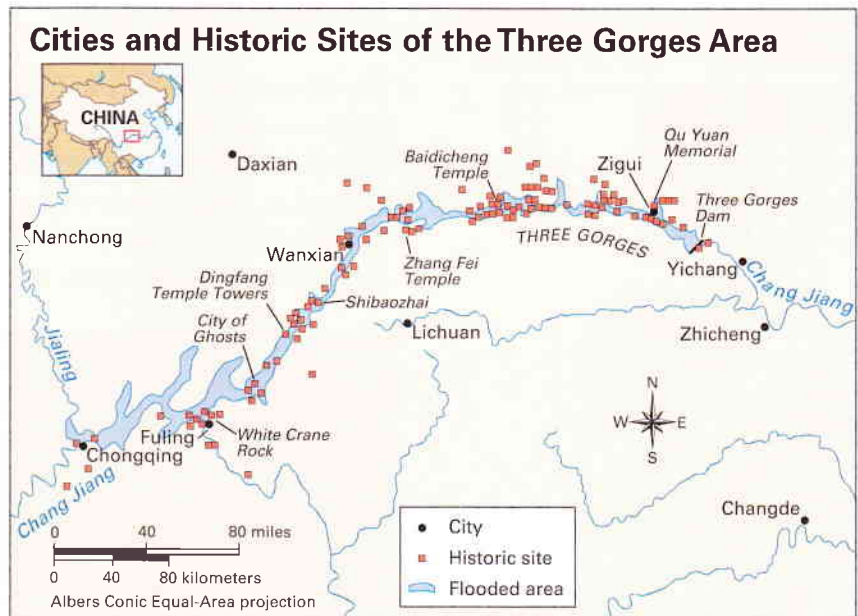
The dam will also change the Yangtze River **ecosystem**. As the lake fills, hundreds of plant and animal species will lose their **habitats**. The Chinese river dolphin and the Chinese paddlefish

are two threatened species that live only in the Yangtze River. The damming of the river may put their survival even more at risk.

Finally, the dam sits on an earthquake **fault**. Some scientists worry that the weight of the dam and the water it holds may make a major earthquake more likely to occur. If such a quake damaged the dam, a wall of water from the reservoir could rush downstream. The result would be a disaster worse than any previous Yangtze flood.

Lost Cities and Historic Sites

The damming of the Yangtze will affect the landscape for hundreds of miles along the river. Because of this, some people have called the dam project "China's new Great Wall." This map shows the cities and historic sites that will be lost under the reservoir's waters. Some of these sites date back to before 2000 B.C.E.



30.5 Plan Three: Promote Economic Growth

Special Economic Zones



China's "Open" Areas

The map shows some of China's special economic zones (SEZs) along with their capital cities. It also shows "open cities," which operate like SEZs. In these "open" zones, businesses are not as tightly controlled as in other parts of China.

A fish tank that cleans itself. A cellular phone that looks like a tube of lipstick. A belt that can be inflated into a life jacket in five seconds. These were just a few of the inventions displayed in 2004 at the China Hi-Tech Fair in the city of Shenzhen. The fair is held each year to promote Chinese technology to visitors from around the world. This is just one way China is working to promote economic growth.

The Challenge: Increasing Jobs and Wealth China was not always open to businesspeople from other countries. Under Mao Zedong, the country looked inward. Mao's goal was to make China self-sufficient. His government controlled the economy. Government officials decided what should be produced and at what price. They controlled who should do what job and for what pay.

You read about the failure of Mao's Great Leap Forward. Just as China's economy began to recover from that experiment, Mao launched a new one. In 1966, he called for a "cultural revolution." His goal was to create a new society in China. In this society, everyone would follow his ideas and work for the common good.

Like the Great Leap Forward, the Cultural Revolution was a disaster. Many people suspected of not being loyal to Mao were sent to prison. Schools were closed as students joined the revolution. Factory and farm production dropped because there weren't enough workers. The country was in chaos.

The Proposed Solution: Special Economic Zones After Mao's death, new leaders took control of China. They were more interested in economic growth than in changing society. These leaders gave up the goal of a self-sufficient China. Instead, they made plans to open China to the rest of the world. They hoped foreign companies would start businesses, create jobs, and bring modern technology to China.

From Farmland to SEZ

Before 1990, Pudong was boggy farmland. Today, the Pudong New Area is a booming special economic zone. Like other SEZs, Pudong has attracted many foreign businesses.



There was just one problem with this new policy. Foreigners did not want to come to China if the government planned to control their businesses. They demanded far more freedom than the government was willing to give to Chinese businesses.

China solved this problem by setting up special economic zones (SEZs). These special areas have laws that are different from those in the rest of the country. In China's SEZs, businesses have the freedom to decide what to produce and at what prices. Most of the goods produced in the SEZs are for export to other countries.

The first four SEZs opened on China's south coast in 1979 and 1980. Shenzhen is the capital of one of them. Many more have been added.

The Benefits: More Jobs and Better Standard of Living

Special economic zones have brought economic growth to China. In 1980, Shenzhen was a sleepy town of perhaps 20,000 people. Today it is an international trade center with over 3 million people. Other SEZs have seen similar growth.

China's SEZs have created millions of new jobs. These jobs are often filled by **migrant workers** from rural areas. Although wages are not high, most SEZ factory workers earn more than they could in their home villages. Many make enough to support themselves and send money back home to their families. With this extra money, their families can improve their **standard of living**.

The Costs: Income Gaps and Crime Special economic zones have created problems as well. One is a widening income gap between rich and poor. China's booming SEZs have created a lot of wealth. But that wealth is not spread evenly over the country. Much of China remains very poor. The income gap between rich and poor may lead to unrest if it continues to widen.

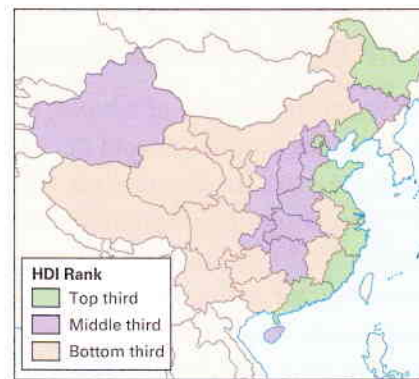
Another problem has been the creation of a "floating population" of rootless migrant workers. These workers drift back and forth between their villages and SEZs. They often find only low-paying, part-time jobs. Sometimes they can't find work at all. Some turn to crime in order to survive.

30.6 Beginning to Think Globally

In this chapter, you read about the most populous country on Earth. You learned about the role of population growth and famine in China's history. You saw how a population's rate of natural increase and doubling time are related. You also looked at how China is working to achieve three goals: zero population growth, clean energy, and economic growth.

China is not the only country trying to deal with population growth. By 2050, the number of people in the world is expected to increase by over 2.5 billion. Most of that growth will happen in **developing countries**. Think about the problems these countries will face as you look at rates of natural increase in the next section.

HDI Rank by Province



Source: United Nations Development Programme, "China Human Development Report 2002," hdr.undp.org.

Varied Living Standards

The Human Development Index (HDI) measures the well-being of a people. Rankings are based on per capita GDP, education levels, and life expectancy. As this map shows, some parts of China rank higher than others on this index. The top-ranked provinces are home to most of China's special economic zones.

30.7 Global Connections

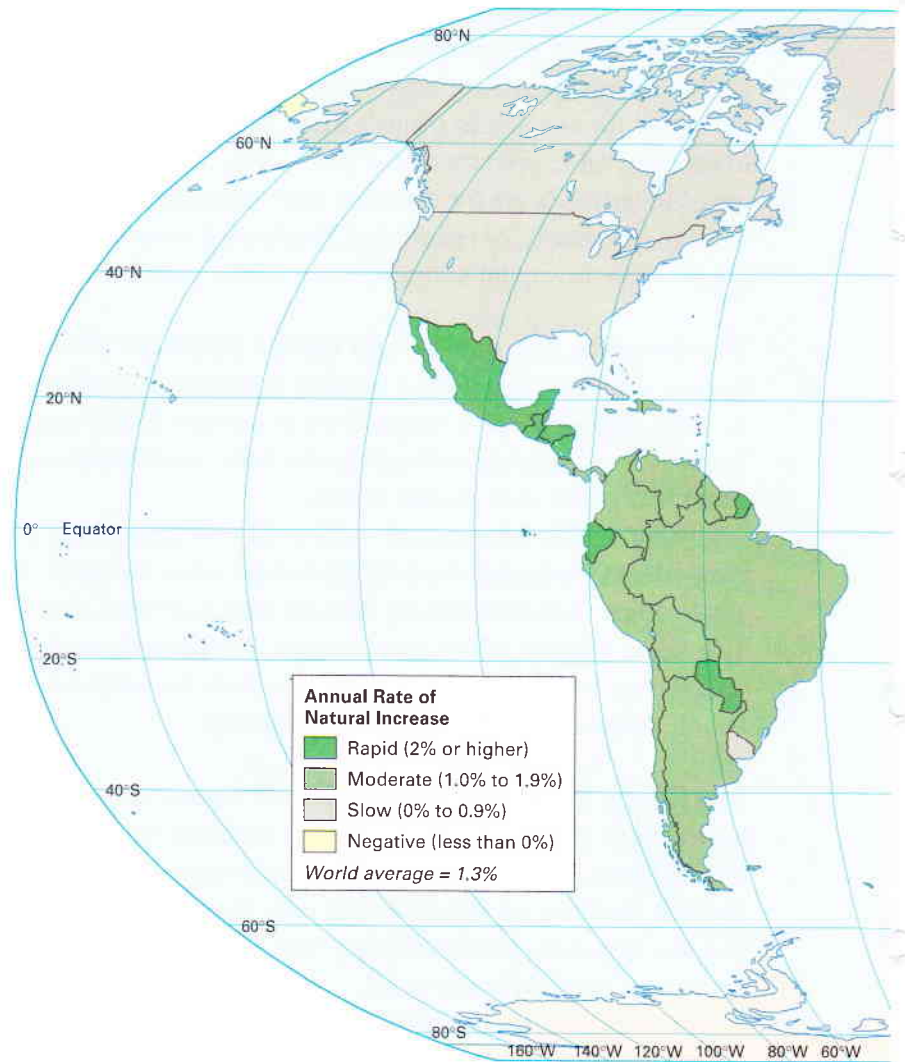
The map shows rates of natural increase in countries around the world. At these rates, the populations of the 50 poorest countries will more than double by 2050. The tables look at education for women and spending on health care in countries with various rates of growth.

How might money spent on health care affect a country's rate of natural increase? With better health care, a country's **infant mortality rate** drops. **Life expectancy** rises as well. Parents worry less that their children won't survive childhood. Because of this, they may have fewer children. Better health care also means better access to modern family-planning methods. This helps couples plan how many children they will have.

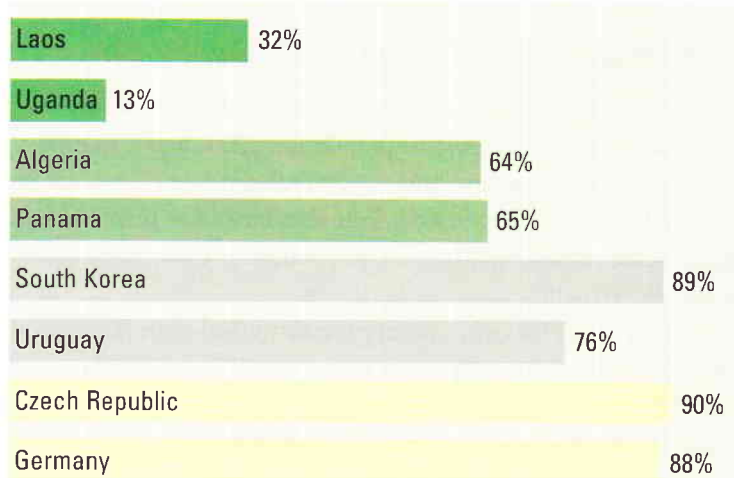
How might money spent on educating women affect a country's rate of natural increase? Women who are educated generally have more control over the number of children they have. Educated women often marry later. They may put off having children to focus on a career. When they do have children, they usually have fewer than women who lack an education.

How might a country with rapid population growth benefit by slowing its rate of natural increase? Countries that slow their rates of natural increase generally grow wealthier. With fewer children, they are better able to educate each child. They also have more money for health care. A healthy, educated population attracts trade and business. This often leads to economic growth and a rise in living standards.

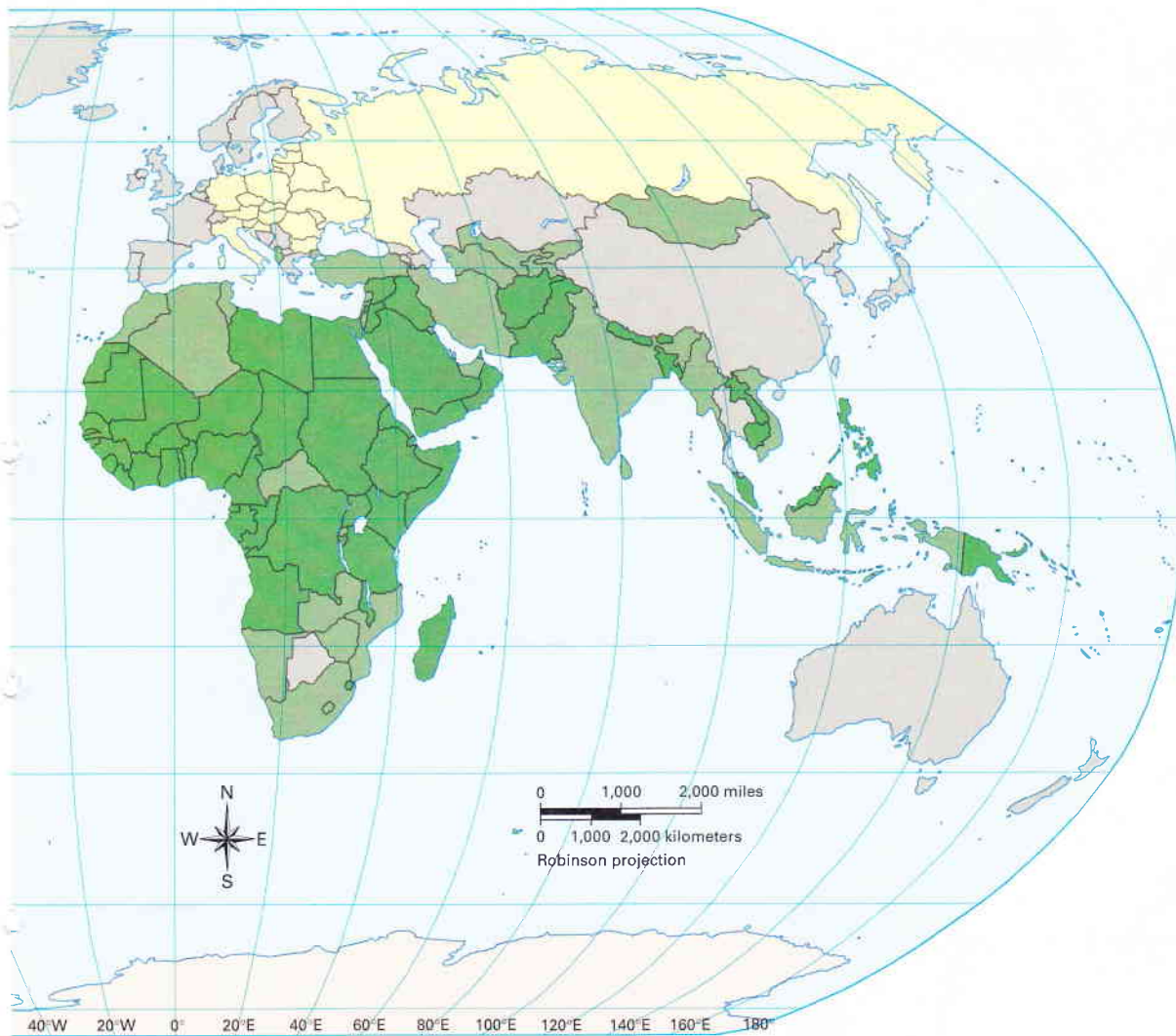
Rate of Natural Increase Around the World, 2004



Females Enrolled in Secondary Schools, 2004



Source: United Nations Development Programme, "Human Development Reports," hdr.undp.org.
 *Data are for the appropriate age group (for example, 14 to 18 years of age).



Source: Population Reference Bureau, "2004 World Population Data Sheet," www.prb.org.

Health Care Spending and GDP in Eight Countries, 2004

	Rate of Natural Increase							
	Rapid		Moderate		Slow		Negative	
Country, Rate	Laos, 2.4%	Uganda, 3.0%	Algeria, 1.5%	Panama, 1.8%	South Korea, 0.5%	Uruguay, 0.6%	Czech Republic, -0.2%	Germany, -0.2%
Per Person Spending on Health Care*	\$49	\$57	\$169	\$458	\$948	\$948	\$1,129	\$2,820
Per Capita GDP*	\$1,759	\$1,390	\$5,740	\$6,170	\$16,950	\$7,830	\$15,780	\$27,100

Source: United Nations Development Programme, "Human Development Reports," hdr.undp.org
*Data computed in U.S. dollars.