Why It Matters

Russia continues to adjust to difficult political and economic challenges, including the transition from the Soviet-controlled command economy to a market economy. This transition requires Russia to find a way to balance its need for economic growth with preservation of the environment.

Section 1: The Economy

Patterns of economic interdependence vary among the world’s countries. Russia’s transition from a Soviet-controlled economy to a market economy continues as the country builds relationships within the global community.

Section 2: People and Their Environment

Human actions modify the physical environment. Russia must repair serious damages from the Soviet era while protecting and making the best use of natural resources for economic growth.

Geography ONLINE

Chapter Overview Visit the World Geography and Cultures Web site at glencoe.com and click on Chapter Overviews—Chapter 16 to preview information about the region today.

Overlooking the Moskva River, the Moscow Kremlin is the official residence of the president of the Russian Federation. On the right is St. Basil’s Cathedral.
Identifying Information Make a Four-Door Book to help you identify information about the Chernobyl disaster, which took place in the Soviet Union in 1986.

Reading and Writing As you read the chapter, write down details about the Chernobyl disaster. Imagine yourself as a news reporter on the scene in 1986, gathering details to present a complete report about the causes of the disaster.
The Economy

Russians hoped that independence would bring quick and painless economic change. Though the shift toward a freer economy has brought hard times and many challenges, many Russians are hopeful about the future. A successful Russian company president, Anatoly Karachinsky, reflects that outlook:

"'There is the old economy of the U.S.S.R., and it has a much tougher road. Many enterprises will first have to die to be reborn. Then there’s the resource economy—oil, gas, aluminum—a large part of the gross domestic product. It’s making a good profit and moving ahead. Then there’s the new economy, the economy that didn’t exist ten years ago, and we’re part of that.

"If you just focus on the old economy, the country looks in terrible shape... But something entirely new is being born here. Russia is just at the beginning of an economic climb. Overall, I’m pretty optimistic.'"

—Fen Montaigne, “Russia Rising,”
National Geographic, November 2001

Guide to Reading

Section Preview
Russia is making the transition to a market economy and attempting to expand international trade and build political and financial relationships within the global community.

Content Vocabulary
- command economy (p. 391)
- consumer good (p. 391)
- black market (p. 391)
- market economy (p. 391)
- privatization (p. 391)
- kolkhoz (p. 392)
- sovkhoz (p. 392)

Academic Vocabulary
- illegal (p. 391)
- successor (p. 391)
- stability (p. 392)

Places to Locate
- Siberia (p. 393)
- Chechnya (p. 393)
- Dagestan (p. 393)

Reading Strategy
Organizing Complete a graphic organizer similar to the one below by listing changes in Russia’s economic system and the effect of each.

<table>
<thead>
<tr>
<th>Economic System</th>
<th>Changes</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Economy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Changing Economies

MAIN Idea Russia has faced many challenges in its transition from a command economy to a market economy.

GEOGRAPHY AND YOU When the U.S. economy fluctuates, are people in urban and rural areas affected in similar ways? Read to learn how economic and political changes have affected Russia’s people.

Since the fall of communism in 1991, Russia has faced economic challenges, such as providing jobs and expanding trade.

The Soviet Command Economy

Under Communist leaders, the Soviet Union operated as a command economy in which the government made key economic decisions. The government owned banks, factories, farms, mines, and transportation systems. The government decided what and how much to produce, how to produce it, and who would benefit from the profits. It also controlled the pricing of most goods and decided where they would be sold.

Unemployment was nearly nonexistent, but wages were low in the Soviet Union. Some people could not afford consumer goods, or goods needed for everyday life. Even when people had enough money, such goods were hard to find. Some items could be bought on the black market, an illegal trade in which scarce or illegal goods are sold at high prices. Most workers, however, could not afford to pay these high prices.

By the 1970s and 1980s, many developed countries had turned away from heavy industry to focus on technology. The Soviet system, however, focused on increased industrial production and did not invest in high-technology industries. As a result, its economy stagnated, and the standard of living declined.

The Market Economy

When Mikhail Gorbachev came to power in 1985, the Soviet economy was in trouble. So he began to move toward a market economy, in which businesses are privately owned. Gorbachev reduced some government controls, allowed people to start small businesses, and encouraged foreign investment. Boris Yeltsin, Gorbachev’s successor, expanded this process.

Privatization Russia’s economy continued to change after the fall of the Soviet Union. Russian president Boris Yeltsin removed 90 percent of price controls and encouraged the mass privatization—a change to private ownership—of state-owned companies. This change favored people who could afford to purchase large companies. Rather than reinvest in Russia, many invested their profits outside the country. Most average Russians neither earned nor were spending the new wealth.

The Transition Continues The Russian economy experienced ups and downs throughout the 1990s. Although more consumer goods were available, prices soared, and many people could not afford to buy the goods. Between 1990 and 1995, Russia’s GDP fell by 50 percent. Following a 1998 financial crisis, the ruble—Russia’s currency—lost 71 percent of its value. The international community made large loans to Russia.

Yeltsin resigned as president of Russia in 1999. His successor, Vladimir Putin, inherited an unstable economy that lacked a strong banking system. The Russian military was also in need of improvements. However, Putin needed to avoid overspending on the armed forces at the expense of overall economic growth.

A weak banking system, foreign debt, unstable currency, and corruption threaten economic stability. However, progress has been made, including reforms to balance the budget and cut inflation, an increase in the number of small businesses, and a growing middle class in Moscow and other cities. This new wealth, however, has not yet reached many of the provinces.

READING Check Regions What economic transition has Russia been making since the 1980s?
Economic Activities

MAIN Idea Russia’s transition to a market economy has transformed agriculture and industry.

GEOGRAPHY AND YOU Where are major manufacturing industries located in the United States? Read to learn about Russia’s major industries.

Russia’s transition to a market economy has included restructuring agriculture, privatizing industry, opening markets to foreign investors, and managing natural resources more efficiently.

Agriculture

Soviet-era farms were organized into state-controlled kolkhozes (kahl•KAW•zehz) and sovkhozes (sahf•KAW•zehz). Kolkhozes were farms worked by farmers who shared, to a degree, in the farm’s production and profits. Sovkhozes were farms run more like factories, with the farmworkers receiving wages. However, the government controlled the prices and production in both the agricultural and industrial sectors. These sectors suffered because the system did not motivate workers.

In 1991 President Yeltsin began restructuring state-run farms so they could function better in a market economy. However, Russian farmers—accustomed to the stability of Soviet controls—continued to operate many of Russia’s farms as kolkhozes or sovkhozes. Most farmers could not afford to buy land, and they worried that wealthy Russians or foreign investors might use the land for nonagricultural development. Because of these concerns, progress toward a market economy for agriculture has been slow, and crop and livestock production has fallen. In 2002, however, a new land code made it easier for Russians to buy and sell farmland, which will help speed up the restructuring process. Recently, gains in farm productivity have helped reduce the need for agricultural imports.

Industry

Russian industry has been transformed since the early 1990s. The graph at the left shows that although GDP in the industrial sector fell after the collapse of the Soviet Union, it has slowly increased since the late 1990s. For many years, Russia’s state-owned aerospace industry and its military-industrial system were its economic and technical focus. Many of these components have become privately owned and provide export income. Russia has also encouraged foreign investment by selling shares of ownership in some Russian companies and by opening Russia’s markets to Western companies.

In general, Russia’s economy is expanding, particularly in the areas of industry and services. Russia’s most important industry is petroleum extraction and processing, and the country is one of the world’s largest producers of crude oil. Russia’s domestic oil provides its other industries with vital energy at a reasonable cost. While energy resources dominate Russian exports, minerals also provide important export income. The country is also a major producer of iron ore, manganese, and nickel. Huge forests in Russia produce one-fifth of the world’s softwood, and Russian supertrawlers, or fish-factory ships, process catches from both the Atlantic and Pacific Oceans.

GRAPH STUDY

1. Regions Describe the trends in Russia’s GDP from 1990 to 2002.
2. Regions Which segment of the economy contributes the least to the country’s GDP?

Use StudentWorks™ Plus or glencoe.com.
Transportation and Communications

MAIN Idea Russia is developing and improving transportation and communications systems to help with the transition to a market economy.

GEOGRAPHY AND YOU How might Russia’s physical geography and climate present obstacles to the country’s transportation and communications systems? Read to learn how Russia is trying to overcome these obstacles.

In an age of speedy transportation and the Internet, Russia struggles to find funds for new highways and high-tech communications.

Transporting Goods

Russia’s transportation systems must move resources great distances to reach consumers. A major highway system links Moscow with other major cities, but many roads are in poor repair. Melting snow and the spring thaw in places like Siberia often make roads impassable.

Because of its great size and climate extremes, Russia depends on railroads and waterways for most of its transportation needs. Russia boasts the world’s longest continuous railroad line, the Trans-Siberian Railroad. Major cities are found where the Trans-Siberian Railroad crosses large rivers. Millions of tons of goods travel along thousands of miles of navigable inland waterways, which connect seaports and inland cities.

Pipelines are effective in transporting petroleum products, although constructing and maintaining them can be difficult in areas of harsh climate. Pipelines crisscross Russia, providing Russian cities and parts of western Europe with fuel. Minor pipelines run through Chechnya and Dagestan (dah•guh•STAHN), republics in southwestern Russia. People in these republics are fighting for more self-rule from Russia, so control of the area’s oil reserves and pipelines is a major concern.

Transporting People

Most Russians live in cities, and many do not own cars. Therefore, public transportation—such as trains, buses, and subways—is common. Private car ownership doubled in the 1990s, but public transportation remains a practical option for Russians. The systems and equipment, however, need repair and improvements.

The Soviet Union used jet airplanes for passenger traffic, and the government financially supported air travel. The passenger airline Aeroflot was once the only one in the Soviet Union. After the fall of the Soviet Union, Aeroflot split into numerous smaller airlines. The high cost of fuel and reduced passenger traffic due to high ticket prices have forced many smaller Russian airports to close.

Mass Communications

During the Soviet era, the state owned and controlled all mass communications systems. State agencies reviewed all print and broadcast materials to make sure they contained no criticism of the government. Since the fall of the Soviet Union, Russians have heard and read new voices and fresh views. Under Putin, however, the Kremlin exerted greater control over national television networks.

The telecommunications industry is experiencing a boom. Cellular phone service has doubled in recent years, and nearly 25 percent of the population use cell phones. At 16.5 percent, Internet use in Russia is above the worldwide average of 12 percent.

READING Check Human-Environment Interaction Why does Russia depend on railroads and waterways for most of its transportation needs?
Trade and Interdependence

MAIN IDEA Russia is expanding international trade and is working to build political and financial relationships within the global community.

GEOGRAPHY AND YOU What role do energy resources have in U.S. involvement in the global economy? Read to learn about the importance of energy in Russia’s international trade relationships.

Russia has focused on becoming a full partner in the global community by expanding trade and building international relationships.

Trade

Russia is a major source of energy and fuels, which account for over 53 percent of its exports. The European Union, other former Soviet republics, China, and Japan are among Russia’s major trading partners.

Energy exports are expected to remain Russia’s main item of international trade until its manufactured goods improve in quality and become more competitively priced. Working to strengthen its industries, Russia became a member of the Asia-Pacific Economic Cooperation (APEC) in 1998. In 2006, Russia and the United States signed a bilateral agreement for Russia’s entry into the World Trade Organization (WTO).

International Relations

Russia works to maintain its role in world affairs. It benefits from occupying the former Soviet Union’s seat in the United Nations Security Council. It has also joined European organizations that support security and cooperation. Russia has helped settle conflicts and has supported peace efforts in several countries. Even as Russia asserts itself internationally, however, economic problems have drained money from its military.

Adequate financial resources are vital to Russia’s stability and progress in the global community. Other countries and world organizations have provided loans, and foreign investors have made funds available to Russian industry. With such help, Russia is trying to create secure and workable systems for banking, farming, manufacturing, transportation, and communications.

READING CHECK Place What natural resource accounts for the majority of Russia’s total exports?

Vocabulary

1. Explain the significance of: command economy, consumer good, black market, market economy, privatization, kolkhoz, sovkhoz.

Main Ideas

2. What challenges has Russia faced in its transition to a market economy?
3. How is Russia working to improve its transportation and communications systems?
4. What steps has Russia taken to expand international trade and build relationships in the global community?
5. Using a chart like the one below, fill in details about agriculture and industry in the Soviet command economy and in the Russian market economy. Then explain how these two sectors of the economy have been transformed.

<table>
<thead>
<tr>
<th></th>
<th>Soviet Command Economy</th>
<th>Russian Market Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Critical Thinking

6. What is Russia’s economic relationship to the global community?
7. Identifying Cause and Effect How did the transition from a command economy to a market economy affect the Russian people?
8. Analyzing Visuals Study the physical map on page 348 and the economic activity map on page 352 of the Regional Atlas, and the vegetation map on page 363. In what area is the raising of livestock concentrated? How is this related to the physical geography of the region?

Writing About Geography

9. Expository Writing Write a paragraph explaining how Russia’s vast size affects the availability of natural resources and the country’s ability to develop them.

Geography ONLINE Study Central™ To review this section, go to glencoe.com and click on Study Central.
People and Their Environment

Global demand for natural resources such as oil and timber has created a difficult challenge for Russia—how to manage its natural resources and balance economic growth with environmental conservation.

Voices Around the World

“I visited the Khabarovsk region . . . in mid-September. With Russia’s economy and its wood products industry on the rebound after the 1990s—when timber harvesting dropped by 60 percent—there was abundant evidence of logging. Train cars stacked high with lumber rumbled down the Baikal-Amur Railway, much of it bound for China, where a growing economy and a near moratorium on logging have created high demand for Siberian wood. Khabarovsk’s easily accessible forests have already been logged, forcing timber companies to forge ever deeper into the taiga. From the city of Komsomolsk on Amur I drove five hours to reach one of the closest logging areas. Along the way I passed numerous areas of burned forest—gray swaths of scorched tree trunks sprawling over the undulating landscape.”


Guide to Reading

Section Preview
Russia faces daunting environmental challenges, including repairing serious damages from the Soviet era and making the best use of vast natural resources for economic growth without causing further damage to the environment.

Content Vocabulary

• nuclear waste (p. 396)
• radioactive material (p. 396)
• resident (p. 397)
• cite (p. 398)

Academic Vocabulary

• contribute (p. 397)

Places to Locate

• Barents Sea (p. 396)
• Baltic Sea (p. 396)
• Bering Sea (p. 396)
• Chernobyl (p. 396)
• Lake Baikal (p. 397)
• Noril’sk (p. 397)
• Kamchatka (p. 397)

Reading Strategy

Organizing As you read about Russia’s environment, complete a graphic organizer similar to the one below by describing the environmental issues and concerns for each location.

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chernobyl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lake Baikal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kamchatka</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Russian timber worker
Human Impact

MAIN Idea The environmental damage caused by Soviet-era industrialization continues to pose risks to natural resources and human health.

GEOGRAPHY AND YOU How would you describe the quality of the water and air in your community? Read to learn why pollution is such a major problem for Russia’s water, soil, and air.

The Soviets’ disregard for the environmental effects of industrialization damaged Russia’s water, air, and soil.

Nuclear Wastes Between 1949 and 1987, the Soviet Union set off more than 600 nuclear explosions. Soviets developed and then stockpiled nuclear weapons throughout the Cold War. Today, the condition and fate of those weapons concern Russia and the rest of the world.

Nuclear wastes are the by-products of producing nuclear power and weapons. Some nuclear wastes can remain radioactive for thousands of years, posing dangers to people and the environment. The Soviets placed most nuclear wastes in storage facilities, but some radioactive materials—material contaminated by residue from the generation of nuclear energy and weapons—were dumped directly into the Barents Sea, the Baltic Sea, and the Bering Sea.

Chernobyl Past and Present In 1986 a fire in a nuclear reactor in the town of Chernobyl (chuhr•NOH•buhl), 60 miles (97 km) north of Kiev, Ukraine, released tons of radioactive particles into the local environment—400 times more radioactivity than was released at Hiroshima. Radiation covered tens of thousands of square miles of farmland and forests in the Soviet republics of Belarus, Ukraine, and Russia. Because of prevailing winds, other countries suffered as well.

Millions of people were exposed to deadly levels of radiation because Soviet officials were slow to alert the public to the crisis and did not evacuate people soon enough. Thousands of people died as a direct result of radiation poisoning. Millions more continue to suffer from cancer, stomach diseases, cataracts, and immune system disorders. Approximately 350,000 people were displaced from their homes. Today there is a tightly controlled exclusion zone surrounding the Chernobyl Nuclear Power Plant.

After the accident, international pressure prompted Soviet leaders to improve nuclear safety standards and to shut down dangerous plants. Despite concerns, 29 nuclear reactors continue to provide some of the country’s electricity. Experts think that many remaining Soviet-era reactors are poorly designed and unsafe. Russia plans to expand its nuclear power industry by building more reactors and new power plants.

In late 2000, the remaining reactor at Chernobyl was shut down. In 2006, twenty years after the explosion at Chernobyl, hazardous work began to build a new structure to replace the fragile sarcophagus that entombs the deadly reactor. The new structure will not be a permanent solution. However, it could help prevent another Chernobyl disaster if the old structure were to collapse and release radioactive dust, or if water leaking into the old structure were to set off a nuclear chain reaction.

1. Location Which European countries had areas with high or severe levels of radioactivity?
2. Regions Which subregion of Europe—eastern or western—was most affected by radioactivity?
**Water Quality** Industrialization has polluted most of Russia’s lakes and rivers. Fertilizer runoff, sewage, and radioactive material all contribute to poor water quality. The waters of the Moskva and Volga Rivers pose health risks. Dams along the Volga River trap contaminated water. Pollution also threatens the Caspian Sea.

Lake Baikal (by•KAWL) is the world’s oldest and deepest lake. It contains one-fifth of the world’s freshwater and 1,500 native species of aquatic plants and animals. Calling it “the Pearl of Siberia,” Russians consider the lake a natural wonder. In 1957 the Soviet Union announced a plan to build a paper-pulp factory along it’s shores. Although this plan was opposed by people in the area, their protests were ignored, and the factory was built. This factory and others that followed dumped industrial waste into the lake.

However, in response to ongoing protests, the most serious polluters have been closed. Others are working to reduce pollution. Pollution levels in the lake are now relatively low compared with many lakes in Europe.

**Soil and Air Quality** For decades, toxic waste dumps and airborne pollution poisoned Russia’s soil. Aging storage containers cracked, and toxic wastes leaked into the soil. Petroleum pipelines often broke, allowing petroleum to ruin the land. Overuse of fertilizers and pesticides—chemicals used to kill crop-damaging insects, rodents, and other pests—polluted farmland and water.

Russian experts believe that during the 1990s only 15 percent of Russia’s urban population lived with acceptable air quality. Air pollution as far north as the remote Siberian town of Noril’sk has been a factor since the time of Stalin.

Industries, vehicle emissions, and burning coal are all sources of air pollution. In addition to releasing soot, sulfur, and carbon dioxide into the air, burning coal leads to acid rain. Acid rain and chemical pollution have reduced Russian forests dramatically.

**Managing Resources**

**MAIN Idea** Russia is trying to repair past damage to the environment as well as manage natural resources without causing further harm.

**GEOGRAPHY AND YOU** What environmental issues are important in your community? Read to learn about the environmental challenges Russia faces today.

The World Bank’s Sustainable Forestry Pilot Project is helping Russia manage its forests. Using land more wisely, protecting forests, planting new trees, and increasing private investment all help Russia’s environment and economy. Increased employment opportunities in the forest industry and more stable local economies will be possible only if steps to conserve the forests are taken.

People have come together to oppose a mining operation in remote Kamchatka (kuhm•CHAHT•kuh) in eastern Russia. Environmental groups have demanded that the mining company meet strict environmental standards. The possible threat to the area’s salmon spawning grounds prompted the local fishing industry to support the effort. The mine also caused concern among local residents because it was close to a protected wildlife area. Even with growing environmental awareness, economic pressure continues to open other regions to development.

**READER Check** Human-Environment Interaction

Why is forest management important to Russia?

**Human-Environment Interaction** What factors contribute to poor air quality in Russia?
Challenges for the Future

**MAIN Idea** Russia faces many challenges as the country’s growing economy and demand for natural resources impacts the environment.

**GEOGRAPHY AND YOU** What impact does the world’s demand for oil have on the environment? Read to learn about some of the environmental challenges in Russia’s future.

Fish populations are shrinking worldwide, and Russia’s supertrawlers are largely to blame. Towing huge trawl nets—some large enough to scoop up a whale—supertrawlers are floating fish factories. These ships can catch and process more than 400 tons (360 t) of fish a day. Because supertrawlers want only certain kinds of fish, everything else hauled up in the nets gets discarded. Millions of fish and other marine animals die unnecessarily every year. Since smaller boats cannot compete with supertrawlers, the big ships threaten traditional fishing cultures. Supporters of supertrawlers cite the growing global demand for fish and fish products. Russian officials must balance the risk of destroying fish stocks with the need for a profitable fishing industry.

Pipelines built to transport oil and gas pass through wilderness areas and threaten the surrounding environment and wildlife. In 2006 Russia began constructing a highly controversial pipeline to carry oil from eastern Siberia to the Pacific Ocean. It will bring Russia billions of dollars from countries in the Asia-Pacific region. The pipeline will pass through a protected wilderness area near Lake Baikal. President Putin ordered that the proposed route be diverted farther away from the lake, but environmentalists still fear the irreversible damages that could be caused by an oil spill.

The widespread trend toward global warming is happening at a dramatic pace in western Siberia. An unprecedented thawing of the world’s largest peat bog could release into the atmosphere billions of metric tons of methane, a powerful greenhouse gas. Where permafrost once covered the sub-Arctic region of western Siberia, shallow lakes now stand.

### Critical Thinking

5. How did the Soviet government’s development of heavy industry affect the quality of Russia’s environment?

6. **Making Generalizations** What generalizations can you make about the relationship between economic development and the environment in Russia?

7. **Analyzing Visuals** Study the economic activity map on page 352. Think about the regions of Russia in which pollution is a problem. Describe the relationship between the location of manufacturing centers and pollution.

### Writing About Geography

8. **Expository Writing** Think about the challenges Russia faces concerning water quality. Write a paragraph explaining why Russians do not use more water from Lake Baikal to supply their freshwater needs.

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**Vocabulary**

1. Explain the significance of: nuclear waste, radioactive material, pesticide.

**Main Ideas**

2. How is Russia trying to reverse past damage to its natural resources as well as manage them responsibly today?

3. Describe the challenges Russia faces as its growing economy and the demand for natural resources impact the environment.

4. Create a graphic organizer like the one below to explain how the environmental damage caused by Soviet-era industrialization continues to pose risks to natural resources and human health.

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**SECTION 2 REVIEW**

**Geography ONLINE**

To review this section, go to glencoe.com and click on Study Central.
**An Economic Facelift**

**Command Economy**
- Under Communist leadership, the Soviet Union operated as a command economy.
- The government emphasized heavy industry, making it an industrial giant and a world power.
- The country struggled with low wages, poverty, and scarcity.
- While other countries invested in technology, the Soviet Union continued to push heavy industry.

**Market Economy**
- Russia shifted to a market economy in the 1990s.
- The government encouraged small businesses and foreign investment.
- Mass privatization resulted in a growing middle class.
- Today energy resources, particularly petroleum, dominate Russian exports.

**Preserving Russia’s Natural Resources**
- Russia is a land of abundant natural resources, such as oil and timber.
- The World Bank’s Sustainable Forestry Pilot Project is helping Russia protect against deforestation.
- The pollution of Russia’s water supply has been reduced thanks to new industrial and pollution regulations.
- Nuclear wastes, left over from the Soviet era, are still a problem in some parts of Russia.
Reviewing Vocabulary

Directions: Choose the word or words that best complete the sentence.

1. In a _______ economy, the government makes key economic decisions.
   A command
   B market
   C free
   D declining

2. A _______ sells goods illegally, usually at higher prices than regulations allow.
   A kolkhoz
   B flea market
   C black market
   D hypermarket

3. Generation of nuclear energy produces polluting _______.
   A heavy metals
   B acid rain
   C radioactive material
   D pesticides

4. _______ are chemicals used to kill crop-damaging insects and other organisms.
   A Nuclear wastes
   B Acids
   C Fertilizers
   D Pesticides

Reviewing Main Ideas

Directions: Choose the best answers to the following questions.

Section 1 (pp. 390–394)

5. In the Soviet era, Russians endured shortages of _______.
   A heavy industrial goods
   B military hardware
   C space exploration
   D consumer goods

6. What is Russia’s most important industry today?
   A steel making
   B automobiles
   C petroleum extraction and processing
   D textiles and clothing

Section 2 (pp. 395–398)

7. By the 1990s, _______ percent of Russia was under “ecological stress.”
   A 10
   B 25
   C 40
   D 50

8. After the accident at Chernobyl in 1986, what happened to energy production in the Soviet Union?
   A All nuclear power plants were shut down.
   B Nuclear power plants were inspected and renovated to a higher safety standard.
   C Much of the country’s electricity continues to come from the 29 remaining plants.
   D The ruins of Chernobyl were encased in a totally secure structure to prevent radioactive leaks.
Critical Thinking

Directions: Choose the best answers to the following questions.

9. The Soviet era left a legacy of environmental pollution because

A Soviet scientists were ignorant of environmental protection principles.
B foreign countries were uninterested in protecting the environment.
C industrialization was the main goal, and environmental protection was unimportant to the government.
D the Soviets believed theirs was the world’s best country.

Base your answer to question 10 on the map and on your knowledge of Chapter 16.

10. What part of Russia has the most complete transportation network?

A western Russia
B eastern Russia
C northern Siberia
D the Pacific coast region

Document-Based Questions

Directions: Analyze the document and answer the short-answer questions that follow the document.

Autocratic governments tend to be very secretive, not even distributing full and accurate information to their own people. Official Soviet government maps were incomplete and contained incorrect information. In 1989 the government cartographic office issued the first accurate street map of Moscow to the general public.

V. Yashchenko [chief of the Main Administration of Geodesy and Cartography] said: “Beginning last year, we have finally begun to get rid of the chronic complexes of spy mania and to get freed from the heavy burden which we had to carry since the Higher Directorate of Cartography came . . . to report to the NKVD (People’s Commissariat of Internal Affairs). This is where it all began . . . .”

However, times are changing. Fifty years were needed in order for this truth to become apparent: Why conceal from ourselves something that is no secret for others? So, work on declassification began. It appears that the world has not been profoundly surprised . . . .

In March or April, a map of Moscow will be released. As V. Yashchenko says, all streets and lanes of the capital city have never been shown on a map available to the general public so diligently . . . .

“Broad circles of the public have never seen such maps before. Believe me, they can rely on them completely,” noted V. Yashchenko.

—Jonathan Eisen, The Glasnost Reader

11. Why did the Soviet Union publish incomplete maps?

Extended Response

12. Describe the steps that are being taken in Russia to repair the environmental damage of the Soviet era.
PROTECTING PEOPLE AND THE ENVIRONMENT: How can the environment and indigenous peoples be protected as the oil and natural gas industry expands in Russia?

The world is hungry for oil and natural gas, and Russia has about 5 percent of the world’s known oil reserves and more than 20 percent of the known natural gas reserves. Even though Russia uses some of these resources, there is much more in the ground and discoveries of new oil fields are made regularly. As Russia develops its market economy, it looks to oil and natural gas exports as a way to earn income.

Understanding the Issue

The balance between using natural resources and preserving the environment and the ways of life of indigenous peoples can be viewed from several perspectives.

A Moral Issue Forests are often cut down to tap into the oil fields and transport the oil and natural gas. There is also a high risk for fires as oil may leak and can potentially catch fire, burning even more forests. Animal habitats may be destroyed, and the cultures of indigenous peoples disrupted. At the same time, money from selling oil and natural gas pays for infrastructure and other human needs. It also provides jobs.

An Economic Dilemma While oil and natural gas can bring great wealth to the country, Russia’s oil fields are located far from Russia’s population centers and other countries where the products can be sold. These locations also have extremely cold climates, and some are swampy or mountainous, making access difficult. Russia needs foreign investment to explore, extract, and transport oil and natural gas resources.

A Political Problem The United States, Western Europe, China, and Japan look to Russia to supply their growing energy needs. Russia wants to be sure to receive a fair price for their oil and natural gas and that their fragile northern environments are protected. Russian oil and natural gas may encounter further political problems. For example, in December 2005 the Russian government threatened to stop the flow of natural gas to Ukraine because of a political dispute. In January 2006, an agreement was reached, but the threat showed the vulnerability of Russian customers.
Possible Solutions

Solutions to the problem of using Russia’s oil and natural gas must be approached in several ways.

Environmental Protection Monitoring, pollution control devices, and high-quality transportation equipment can help prevent spills, fires, and pollution from oil and natural gas operations. However, these measures are expensive to implement and require trained workers.

Conservation Russia must keep environmental and conservation measures in mind when establishing new oil fields. Other countries can reduce their dependence on oil and natural gas through more efficient vehicles, better insulation of buildings, and greater use of public transportation.

International Relations Russia wants to sell its oil and natural gas to other countries, and doing so requires that it develop good relations with those countries. Better relations between consuming countries and other producers would also take some of the pressure off of Russia. This would encourage it to preserve the environment and the ways of life of indigenous peoples.
Understanding the Case

The primary sources below will help you understand the environmental problems of Russia’s oil and natural gas industry. Use these resources, along with what you have learned in Unit 5, to complete the activities on the next page.

The Situation

**Primary Source 1**


Long pipelines crossing fragile environments are used to carry Russia’s oil and natural gas to market. These projects pose great environmental threats.

... Transneft, the state pipeline monopoly, is proposing to build the $11 billion (£6 billion) pipeline from Eastern Siberia to the Pacific Coast, via the Chinese border, to supply oil-thirsty Asian markets.

The proposed route comes within 800m of Baikal, a Russian national treasure and a Unesco World Heritage Site that contains 20 per cent of the world’s unfrozen fresh water. Environmental activists said that they would fight the decision in the courts and organise protests in defence of Baikal, which is home to hundreds of species and revered by local ethnic minorities....

Transneft says that the pipeline will be completed within three years and will pump up to 1.6 million barrels a day to China and the Pacific coast. Most environmental activists say that they do not object to the pipeline, only its proposed route.

“Even if billions of dollars are at stake, the Russian Government cannot put Lake Baikal at risk,” said Andrei Poyarkov, a member of the expert panel and a biologist at the Institute of Ecology and Evolution in the Russian Academy of Sciences. “They do not have the right.”

One Effect

**Primary Source 2**


When oil and natural gas companies move in to extract resources, habitats are changed, and plants and animals are destroyed. These changes may lead to the interruption and destruction of the ways of life of indigenous peoples.

Indigenous leaders of the island of Sakhalin in the far east of Russia have joined forces as a new wave of oil and gas development on the island is encroaching on their traditional lands....

Despite their small numbers, the Sakhalin aborigines are standing up to multinational energy companies that are developing oil and gas deposits on the island....
The indigenous congress created a council which will represent the island’s indigenous population in negotiations with the oil companies and Russian government authorities. The council will advocate for an ethnographic study to assess the cultural impact of the oil and gas projects on indigenous peoples. This independent study would also evaluate the appropriate financial compensation that should be given to indigenous peoples for any damage resulting from the projects.

Sakhalin aborigines claim that the oil and gas projects are threatening their traditional lifestyle through deforestation, pollution, and by endangering the species that are central to their livelihoods. Many indigenous islanders still sustain themselves through reindeer herding and salt- and fresh-water fishing.

**Possible Solutions**

*Primary Source*

Excerpt from “Oil and Gas Exports in Russia and the Transition to Technological Development,” by Vladimir Voloshin (Economists for Peace and Security, April 2000).

Russia hopes to earn considerable income from the sale of oil and natural gas to other countries. If invested well, this income can pay for social services and for the upgrade of Russian industry and technology.

The future use of revenue derived from oil and gas exports is hotly debated among Russians today. Notwithstanding the multitude of opinions on how to resolve the debate, one thing is clear: decisions on fuel exports will have a profound impact on Russia’s economy and its ability to develop technologically.

Some argue that a high level of exports is needed to fund economic and technological development, while others fear that Russia’s role as raw-materials provider to industrially developed nations will become permanent and will hinder the country’s advancement.

With growing world oil prices, companies are currently receiving export “super profits.” Particularly during this time of economic transition, it is necessary to use at least some of this revenue to benefit society as a whole. Oil and gas, after all, [are] national property. There are countless ways this money could be used for the structural transformation of the economy and transition to technological development—one has only to think of safety nets for the ill and unemployed as well as for economic and technological development.

**Analyzing the Case**

1. **Drawing Conclusions** Review the information in the primary sources above. What are the major problems involved in developing Russia’s oil and natural gas resources?

2. **Making Predictions** If Russia pumps its oil and natural gas for export, what consequences might it face?

3. **Conducting a Debate** Use the following questions to conduct a class debate on whether

   Russia should continue to develop its oil and natural gas and build pipelines:
   • What benefits can result for Russia?
   • What environmental problems can result?
   • What are the possible effects for indigenous peoples?

4. **Writing About the Case** Write a one-page essay in which you answer one of the questions listed in #3 above.