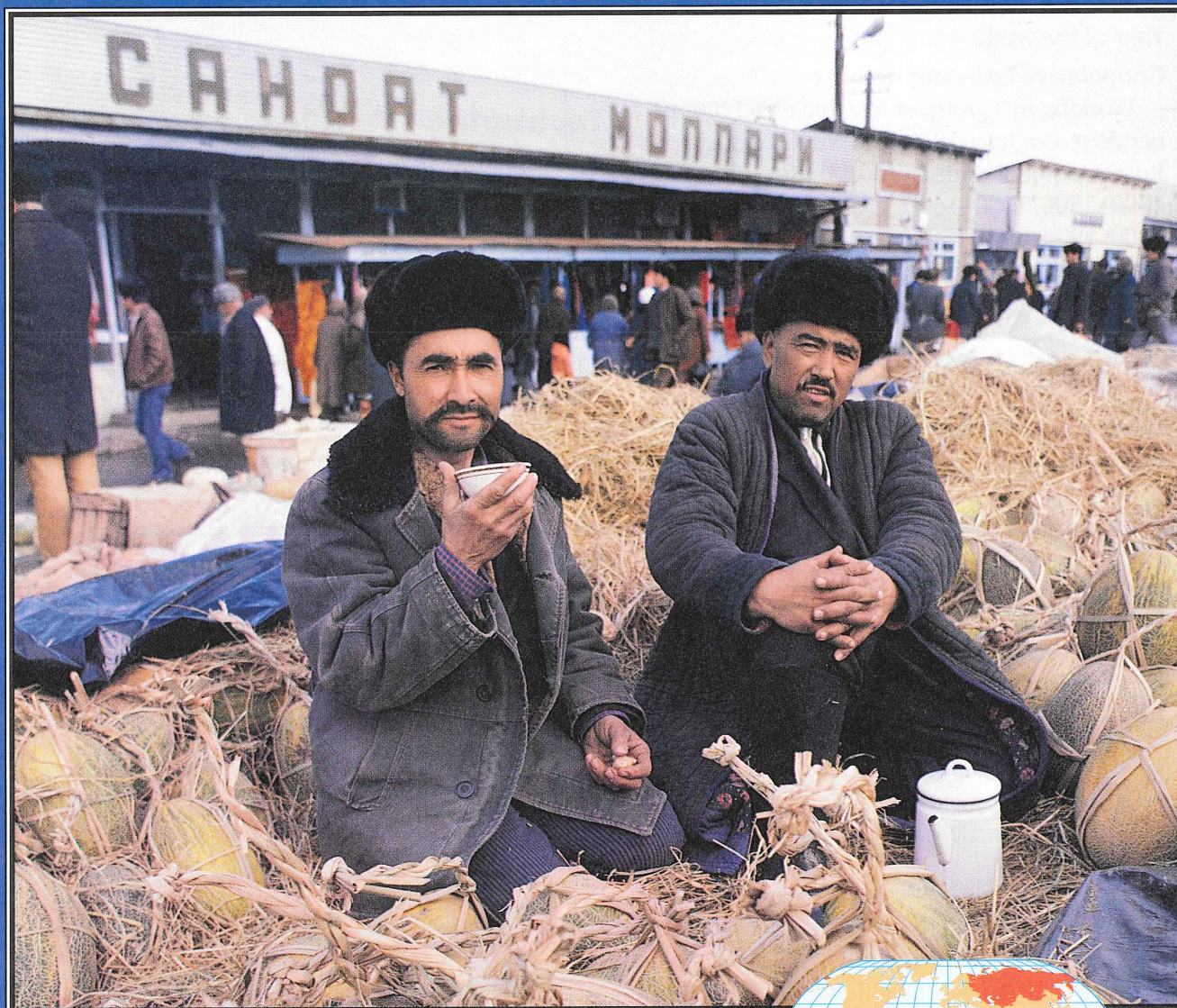


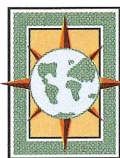
Russia and the Eurasian Republics Today



CHAPTER FOCUS

Geographic Setting

Most of the heavy industry of Russia and the Eurasian republics is located north of the Black Sea and in the Ural Mountains, where energy resources and raw materials are readily available.



Geographic Themes

Section 1 Living in Russia and the Eurasian Republics

PLACE Russia and the Eurasian republics are trying to move away from the single, centrally controlled economy to various free enterprise economies.

Section 2 People and Their Environment

HUMAN/ENVIRONMENT INTERACTION The badly damaged and heavily polluted environment is a matter of great concern throughout Russia and the Eurasian republics.

▲ **Photograph:** Street vendors in Bukhara, Uzbekistan

Living in Russia and the Eurasian Republics

SETTING THE SCENE

Read to Discover . . .

- how the economies of Russia and the Eurasian republics changed after independence.
- how agriculture and industry in Russia and the Eurasian republics changed after independence.
- how the communication and transportation systems of Russia and the Eurasian republics work.
- what economic ties bind Russia and the Eurasian republics.

Key Terms

- command economy
- consumer goods
- black market
- market economy
- *sovkhozes*
- *kolkhozes*

Identify and Locate

Kazakhstan, Baku, Baltic Sea, White Sea, Don River, Black Sea, Vladivostok, Lake Baikal, Amur River, Polotsk, Mozyr, Tbilisi

Fergana, Uzbekistan
Dobry dyen, I am writing to you from my summer house in the mountains. It is cool up here, even when it is hot down in the valley. Yesterday we had a picnic by a beautiful waterfall. The water comes from a large glacier on the mountain and flows down into the valley. Please come visit me sometime.

*Your friend,
 Tatyana Yeremenko*



Tatyana Yeremenko writes from Uzbekistan, a Eurasian republic that relies on irrigation for its productive agriculture. For many decades, the economies of Russia, Uzbekistan, Ukraine, and the other Eurasian republics were in the hands of the Soviets. The Soviets ran their vast nation as a single economy, one of the largest centrally planned economies in the world. Today, however, each republic is moving at its own rate, trying to make its own way, and struggling to develop its own separate economic path.

REGION

Changing Economies

As Russia and the Eurasian republics make the transition to generally free enterprise economies, they must meet the challenges of providing sufficient food and jobs for their citizens. They must also compete successfully in world markets by producing goods efficiently and cost-effectively.



Geographic Themes

Place: Minsk, Belarus

Belarusian shoppers make purchases in a Minsk department store. *During the Soviet period, what problems did shoppers face in finding food or clothing?*

The Soviet Command Economy

Under the Soviets, Russia and the Eurasian republics had what is known as a **command economy**, an economy in which some central authority makes economic decisions. The Soviet government owned most of the banks, factories, land, mines, and transportation systems. It decided what and how much to produce, how to go about producing, and who would benefit. It also planned and controlled the distribution and pricing of most goods.

Most people worked for the state. While there was no unemployment, no one was paid very much. The government's main concern was heavy industry, the manufacture of such goods as machinery, electric generators, tanks, and military hardware. It was not particularly interested in services or **consumer goods** such as bicycles, shoes, and toys.

This attitude helped make the Soviet Union a leading industrial giant. At the same time, it meant that very often people had to do without many things. Often people could find some items on the **black market**, the ille-

gal market where goods were sold at much higher prices than those set by the government. Very few Soviet citizens, however, could afford to pay the inflated prices.

When Mikhail Gorbachev came to power in the mid-1980s, he began to move from a state-run system to a **market economy**, in which businesses are privately owned and what people buy or do not buy determines what and how much is produced. As part of his program of perestroika, or restructuring, Gorbachev cut back some controls, allowed Soviets to start small businesses, and encouraged investment from the West. These changes, however, could not save the Soviet system.

The New Economies

When Russia and the other republics became independent, each took charge of its own economy. For each, this meant a certain amount of burden and pain. In the early 1990s, the republics lifted state-set prices and began to turn over government-owned businesses to private owners. Prices skyrocketed at first, but within a year they became more stable. Meanwhile, more food, clothing, and other goods were available in stores.

By the late 1990s, prospects for economic reform were less bright. In Russia, a small group of business leaders and former Communist officials blocked measures aimed at boosting competition. They used profits to enrich themselves rather than to make needed improvements. Because of widespread mismanagement, production fell sharply, and the government even had difficulty collecting taxes. To meet its obligations, the government borrowed more and more money at high interest rates.

As the international community lost confidence in the Russian economy, financial aid from abroad became more difficult to obtain. In 1998 global economic problems finally led many foreign investors to withdraw their money from Russia. Hoping to avoid total collapse, Yeltsin yielded to the demands of Communists and key business leaders for a halt to further reforms.

Agriculture and Industry

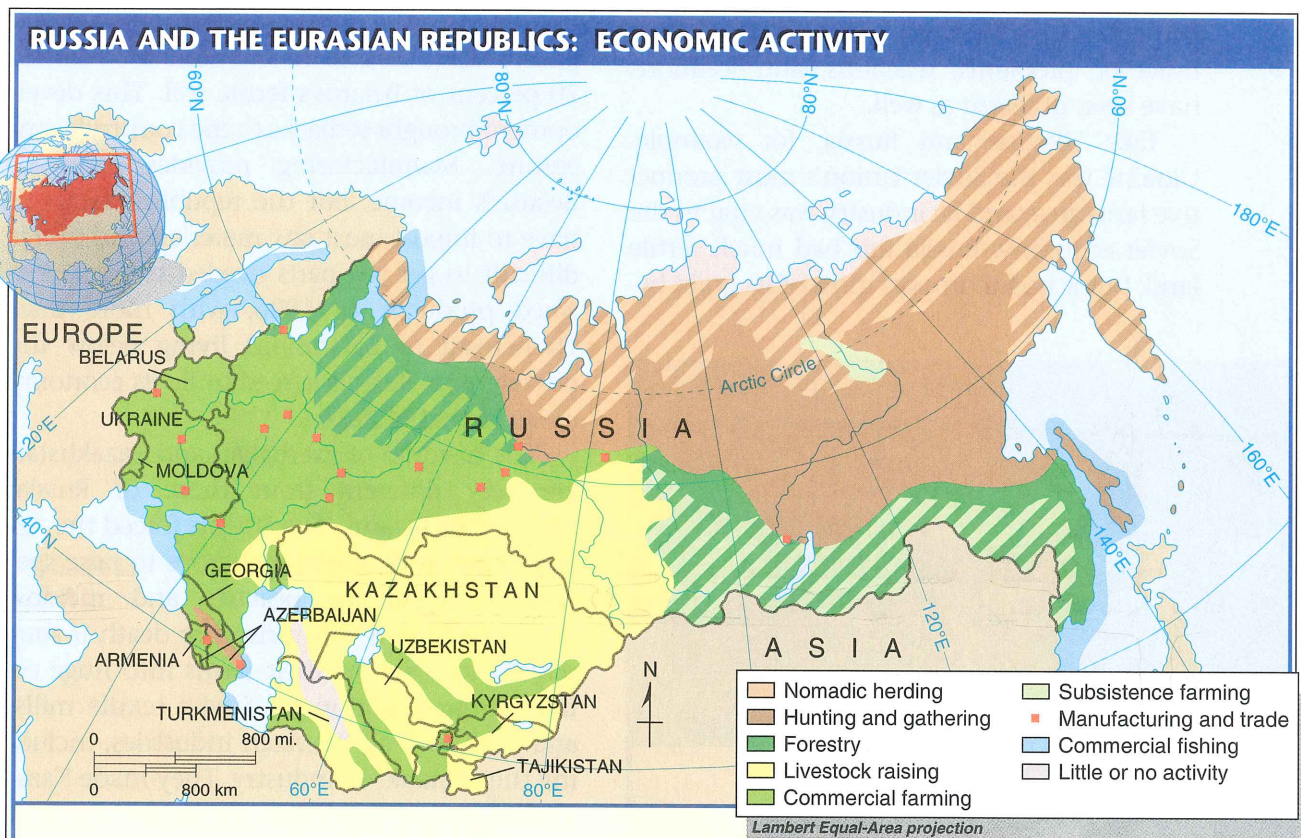
Under the Soviets, the government controlled agriculture and industry. In its efforts to make the Soviet Union one of the leading industrial countries of the world, the government pushed steadily forward, ignoring the wants and needs of its people.

The Soviet System

Under the Soviets, most farmers worked on huge state-owned-and-run farms called *sovkhozes* or on large collective farms called

kolkhozes. The state paid sovkhoz workers wages for the number of items they produced, all of which they turned over to the government. Peasant families worked the kolkhoz. Each family had its own home, household goods, a few animals, and a small plot of land. Everything else, from livestock to buildings to machinery, belonged to the government, which for a set price bought a specific amount of everything the workers produced.

Government control was as strong—or stronger—when it came to industry. Government was the only employer. People worked where the government told them and accepted the wages the government was willing to pay. Government agencies ran the factories. In



FOCUS ON GEOGRAPHIC THEMES



- Region:** What are the leading economic activities in Ukraine and central Russia?
- Human/Environment Interaction:** How does climate affect the types of economic activity in the northern parts of Russia?
- Location:** Where are manufacturing centers in the region concentrated?



most cases workers were paid not for the number of hours they worked but for the number of “pieces” they produced.

Both agriculture and industry suffered because workers were not motivated. They had no reason to be because all decisions were made for them, including exactly how much they had to produce within a given time. For many years, factory managers were not even allowed to buy raw materials on their own.

Change came first under perestroika. Factory managers were given much greater freedom to decide what and how much to produce. Farmers were encouraged to leave the state-run farms and lease land, equipment, buildings, and other property from the government.

Changing Farms and Factories

Reform and change continued after independence. Because each republic was different, however, problems, reactions, and solutions have been different as well.

Take Ukraine and Russia, for example. Ukraine was the Soviet Union’s most productive farm area, and its industry was vital to the Soviet economy. Russia too had much fertile land, but it had to import most of its grain be-

cause its farms did not produce well. At the same time, though, Russia had some of the world’s largest steel mills, automobile and truck factories, and chemical plants.

Today both Ukraine and Russia allow people to have their own farms and encourage foreign investment in industry. In Ukraine, one-third of the land is used for crops or pasture, and mines provide coal and steel to industrial centers. Despite hardships caused by the closing of inefficient factories and mines, the share of output from privately owned firms reached 48 percent by the late 1990s. In Russia at this time, farms were not producing well, and most Russian factories found it hard to compete with more up-to-date Asian and European firms.

Belarus, on the other hand, has rejected market reforms. In addition, it has faced a slightly different set of problems. In 1986, radiation from the damaged Chernobyl nuclear plant located in Ukraine contaminated almost 20 percent of Belarus’s fertile soil. This development brought setbacks to the country’s agriculture. Manufacturing provides most of Belarus’s income, but the republic’s factories have to import most raw materials and find it difficult to get the parts needed to make finished products. In 1996, with more than 70 percent of Belarusians living below the poverty line, Belarus agreed to tie its economy closer to that of Russia.

The histories of Azerbaijan and Kazakhstan are very different from those of Russia, Ukraine, or Belarus. The Soviets forced the Azeris to put aside traditional crops to raise specialized crops like peaches and melons, threatened them with prison or death if they refused to combine their farms into huge estates to grow cotton for Soviet textile mills, and took over all the Azeri industries, including the valuable oil industry. They made Kazakhstan part of the Virgin Lands project, sent thousands of Russian and Ukrainian farmers there to plow up and plant millions of acres of steppes, and changed for all times not only the land itself but the makeup of the people who lived on it.

Today Azerbaijan earns a fair amount of export income from agriculture, especially from



Geographic Themes

Region: Ukrainian Steppes

Ukraine is a rich agricultural area that provides grain to Russia and the other Eurasian republics. *How much of Ukraine’s land is being farmed or used as pasture?*



cotton, and Kazakhstan is an important grain-producing area. Azerbaijan has developed a large-scale petrochemical industry, and the port city of Baku is fast becoming an important shipbuilding hub. Kazakhstan, meanwhile, has had a painful transition to free enterprise. Government mismanagement of the economy has discouraged Western investment, and the country relies increasingly on Russia, Belarus, Kyrgyzstan, and China for trade and other economic benefits.

MOVEMENT

Communications and Transportation

There is a saying that a nation is only as strong as its systems of communications and transportation. In Russia and the Eurasian republics, the communications systems are not as highly developed as the governments would like, and railroads are still the major means of transportation.

Communications

Under the Soviets, the government owned and controlled all the mass-communication networks from newspapers and magazines to postal, telegraph, and telephone services. Censorship committees reviewed everything and made sure that there was no criticism of the government. The media was a way to manipulate the news and put forth Communist views and beliefs. The people and news reporters from other countries got their information from a special Soviet news agency called Tass that dispensed official government statements and commentary.

With independence came greater freedom of expression. For the most part, now there is little or no government censorship. People can read books, newspapers, and magazines that once were banned because of their content, because the author was not in favor with the Communists, or simply because they were “foreign” or the wrong kind of influence.



Geographic Themes

Movement: Moldova's Economy and Trade

These garment workers are manufacturing clothing in a factory in Chisinau, the capital of Moldova. *What major challenge do factories in the former Soviet Union face from abroad?*

Rivers and Canals

Russia and the Eurasian republics have many waterways—both natural and artificial. For many centuries, these waterways were the chief transportation system.

Ships loaded and unloaded their cargoes at Georgian and Ukrainian ports along the Black Sea. With most northern ports closed for almost half the year because of ice, the Black Sea was a major and vital Soviet shipping route. The Ukrainian docks alone handled a tenth of the Soviet Union's ocean freight.

Rivers and canals were—and still are—important links in the system. Belarus and Ukraine are just two of the republics that still depend on a network of canals and rivers for transportation of raw materials and goods. The Volga River, for example, is connected to other rivers by a seemingly endless system of inland waterways.





Geographic Themes

Movement: Trans-Siberian Railroad

The Trans-Siberian, built during the 1890s and early 1900s, is the longest railroad in the world. How has the Trans-Siberian helped in the development of Russia?

Roads and Rails

Roads provide vital transportation links in the region today. In some areas, such as the Caucasus, roads provide the only access to the outside world. Because of the mountains, most freight is carried by road in Armenia. Azerbaijan and Georgia have rail networks on which they tend to depend, but they too have many places reachable only by road.

Even so, in many republics, including Russia, good roads, especially paved ones, are still scarce. A major highway system does link Moscow with some of the other major cities, but there are not all that many cars and much of the system is used for trucking. In reality, the trucks do not move much freight, less than 10 percent of the total. Most of what they do carry is farm products or manufactured goods that are not going very far. In winter, the trucks often use frozen rivers as roadways, especially in Siberia.

Railroads are the major means of transportation, one that the republics are commit-

ted to maintaining. One-tenth of the world's railway tracks crisscross the region. The area has the longest railroad in the world—the Trans-Siberian—that stretches from Vladivostok across China and Siberia to the Ural Mountains and north of China from Khabarovsk to Kuenga.

Planes and Pipelines

The Soviet Union was the first country to use jet airplanes for passenger traffic, although the Communists discouraged or regulated travel for most Soviet citizens. Since the republics became independent, travel restrictions have been lifted, and the network of air routes are heavily used. Moldova, for example, has direct flights from its capital city of Chisinau to Bucharest, Romania, making it easier for Moldovan companies to move their exports to foreign markets. Aeroflot, the national airline of Russia, carries both passengers and cargo to most major cities in the republics and to many



countries outside the region, including the United States.

Pipelines have also become much more important as a means of transporting oil and natural gas. The Soviets laid thousands of miles of pipeline, some to carry oil to countries in eastern Europe and some to transport natural gas within their own country. Many of these pipelines are in independent republics. Belarus, for example, controls an important pipeline through which Russia pumps its oil westward to central Europe. Along this pipeline Belarusian refineries at Polotsk and Mozyr process the crude oil for fuel. In Azerbaijan, Soviet-built pipelines carry refined oil from Baku to Batumi and transport natural gas from Karadag to Akstafa and to Tbilisi in Georgia.

REGION

Interdependence

Shortly before the Soviet Union collapsed, one reporter offered this information to her readers:

Both Soviet and Western economists warn that a total break now from the giant, if tottering, Soviet economy would only leave individual republics scrambling for survival. Decades of Moscow's central planning have ensured that the republics are interdependent in every economic sphere: energy, food, consumer goods, light and heavy industry.

Russia and the Eurasian republics soon discovered the truth of the economists' warning. They knew that they had inherited a flawed economic system that could not produce enough goods to satisfy the needs of all their people. They soon found out that it also was a system in which no single republic was totally independent. For example, one republic might have industries but no raw materials or

parts, while another republic had the raw materials or parts but no industries. One by one, the republics concluded that interdependence was necessary for survival.

Belarus, for example, does not have enough oil and natural gas fuels, but Russia has an abundance of these resources. As a result, much of Belarus's economy hinges on exchanging goods with Russia and Belarus's other neighbor—Ukraine.

Moldova's economy also depends on trade with Ukraine and Russia. When the Soviet Union fell apart, its currency—the ruble—became far less valuable. Rubles were also the currency of Moldova. Because the rubles were worth so little, factory managers in Moldova could no longer buy the raw materials they needed with them. So they had to depend on bartering with other republics.

Other republics have similar dependence on their neighbors. Ukraine, for example, must import oil. Armenia needs petroleum and natural gas, as well as metals, farm machinery, and some consumer goods. Kazakhstan depends on Russia for the chemicals and other products its factories need.

SECTION 1 ASSESSMENT

Checking for Understanding

- 1. Define** command economy, consumer goods, black market, market economy, *sovkhozes, kolkhozes*.
- 2. Locating Places** What were two of the early changes in industry and agriculture under the Soviets?
- 3. Movement** What is the major means of transportation in Russia and the Eurasian republics?
- 4. Region** For what does Ukraine have to depend on the other republics?

Critical Thinking

- 5. Making Comparisons** In what ways is the market economy more or less adopted by the independent republics different from the Soviet economy?

THE DYING ARAL SEA

Demand for water will outstrip resources in the very near future. With further population rises, increased affluence, climate change, and more international conflicts about water, we are going to have to think much more about how we use water.

David Pimentel, Professor, Cornell University
World Rivers Review, April 1997

The Aral Sea lies in central Asia in the republics of Kazakhstan and Uzbekistan. In 1960 the Aral covered 25,660 square miles (66,459 sq. km) and had a fragile, but rich environment. The huge, inland saltwater lake provided a healthy living for the fishing communities around its shores.

By the 1980s, when the Soviet Union (now the Commonwealth of Independent States) opened its doors under the policy of *glasnost*, or openness, the Aral Sea had shrunk to a third of its former size. The delicate environment had disappeared, every marine plant and animal replaced with salt-coated sand. The fishing industry was a shadow of what it had once been, and people living near the lake were suffering from severe health problems.

THE ISSUE

Scientists claimed that water from the Amu Darya River, the sea's source, had been diverted for irrigating cotton and rice farms. For 30 years, very little

water had been flowing into the Aral. To restore the sea, they said, the water must be allowed to flow along its original course back into the Aral Sea.

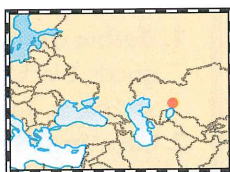
Government officials said that it was impossible to return the full flow of the Amu Darya to the Aral Sea. They pointed to the 3 million acres (about 1.2 million hectares) of irrigated land on either side of the canal. The irrigation, they said, had made once-arid land productive, growing about half of the former Soviet Union's cotton crop. In addition, the diverted

water had increased the acres planted with rice and fruits.

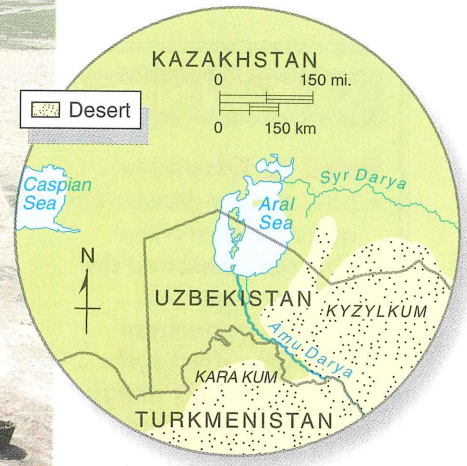
THE BACKGROUND

The Aral is an inland saltwater sea with no outlet. It is fed by two rivers, the Amu Darya and Syr Darya. The freshwater from these two rivers held the Aral's water and salt levels in perfect balance.

In the early 1960s, the Soviet central government decided to make the Soviet Union self-sufficient in cotton and increase rice production. Government officials ordered the



A stranded ship lies beached on the shrinking coastline of the Aral Sea.



Over the past few decades, the Aral Sea has experienced a severe drop in water level, its shoreline receded, and its salt content increased.

additional amount of needed water to be taken from the two rivers that feed the Aral Sea.

Raushan Tuliagakov, a member of the Committee to Save the Aral Sea, said, "We knew the problem as far back as 1960, but we were not allowed to speak out."

Large dams were built across both rivers, and an 850-mile (1,368-km) central canal with a far-reaching system of feeder canals was created. When the irrigation system was completed, millions of acres along both sides of the main canal were flooded.

During the next 30 years, the Aral Sea experienced a severe drop in water level, its shoreline receded, and its salt content increased. The marine

environment became hostile to the sea life in it, killing the plants and animals. As the marine life died, the fishing industry suffered.

THE POINTS OF VIEW

Since the mid-1980s, scientists have spoken out more strongly for saving the Aral Sea. Agricultural officials, however, say that it is impossible to demolish the canal system. Too many farmers depend on the income from cotton. Argues an official, "We could [reduce by half the amount of land being irrigated]. But we have to think of the people who depend on the irrigation for work. What will they do then? What will they eat?"

THE ISSUE TODAY

Government leaders have said that the amount of land for cotton will be reduced and

large amounts of water will be pumped back into the Aral Sea until the year 2005. The government, however, has also indicated that the welfare of the cotton farmers must come first. Exported cotton is a major source of income.

Most scientists believe that the Aral Sea cannot ever be as it was before. The best they hope for is some sort of stabilization of the sea and the survival of the rivers' two deltas. Saving the deltas could lead to new commercial fishing activity.

Reviewing the Case

1. Who is involved in the concern over the Aral Sea?

2. **Human/Environment**

Interaction How did governmental policy damage the Aral Sea?



2 SECTION People and Their Environment



SETTING THE SCENE

Read to Discover . . .

- how nuclear disaster and other concerns have affected Russia and the Eurasian republics.
- how environmental problems affect some bodies of water in Russia and the Eurasian republics.
- about the effects of industrial and pesticide

pollution in Russia and the Eurasian republics.

Key Terms

- industrialize
- polluted
- pesticide

Identify and Locate

Tian Shan Mountains, Chernobyl, Kiev, Belarus, Ust-Kamenogorsk, Metsamov, Nayirit, Semipalatinsk, Caspian Sea, Lake Sevan, Razdan River, Lake Baikal, Central Siberian Plateau, Dniester River, Bishkek, Yerevan

Almost from the time they took over, the Soviets pushed to **industrialize**, or develop industry, and to make their nation a world power. In the process they neglected and abused the environment. Rivers and lakes, urban areas and rural areas, even the air people breathe—all have been very badly damaged, in some cases permanently. This pollution, most of it caused by the long-term Soviet emphasis on heavy industry, has put millions of people in the republics at risk and made public health a matter of great concern.

HUMAN/ENVIRONMENT INTERACTION

Nuclear Energy

Under the Soviets, a number of different kinds of energy were used as sources of fuel. One of these was nuclear energy, which the government championed as an economical source of fuel. The uranium the Soviets needed to power any nuclear plants they might build lay in their own country, much of it in the area northwest of the Black Sea and in the Tian Shan range.

Committed to nuclear energy as a major source of electric power, in 1986 the Soviets

were building 18 new nuclear power stations. They already had other nuclear power stations and two nuclear heat supply stations, each intended to generate enough heat for a city of about 400,000. All that came to a halt—some of it permanently—because of an accident at a nuclear power station in a small Ukrainian town called Chernobyl.

Disaster at Chernobyl

In 1986 Chernobyl was a small, quiet town in northern Ukraine about 60 miles (96 km) from Kiev. It was also the site of one of the Soviet Union's nuclear power stations. On April 26, at a little before 1:30 A.M., an explosion ripped apart a nuclear reactor at the station. The blast started more than 30 fires and released tons of radioactive particles into the atmosphere.

Two days later, scientists in Sweden discovered increased amounts of radiation in the air over their country and began asking questions. It turned out that the Soviet government already knew about the explosion but had not told the public about it or warned them of the dangers it had brought. Because people were not evacuated at once, about 100,000 people in the vicinity were exposed to deadly levels of radiation. Most of those peo-



ple probably will die prematurely from radioactivity-related diseases.

Aftermath of Chernobyl

The great cloud of radioactive dust released at Chernobyl poisoned a vast area of northwestern Europe. Thousands of people, many of them children, suffer from cancer, blood diseases, and stomach disorders because of the increased radiation in the area. Each year some young Ukrainians are sent to northern Europe and to the United States for a few months to lower the levels of radiation in their bodies.

Chernobyl no longer exists as a populated town. It was evacuated and its houses and trees bulldozed and buried beneath its contaminated soil. The destroyed reactor was put in a special steel and cement building. It is unlikely that anyone will ever be able to live in Chernobyl again, even in the very distant future.

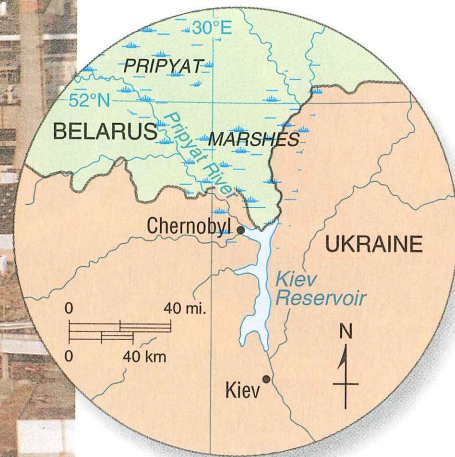
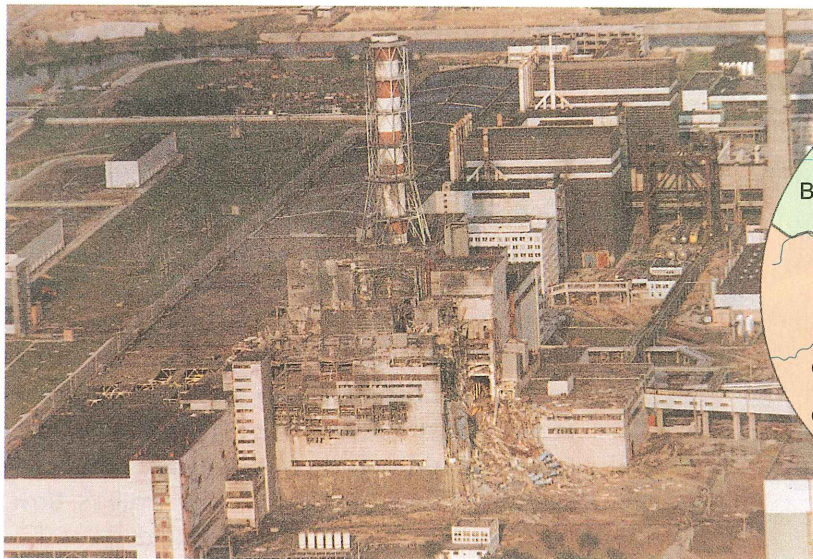
It is estimated that there were 2 million victims of Chernobyl. Many of them live in Belarus, where the wind carried 70 percent of the fallout. Here too much of the soil was contaminated and many people infected with cancer, stomach diseases, breathing ailments, and

other serious illnesses. Thousands of acres of rich farmland cannot be used and hundreds of villages cannot be inhabited. Farmers have been told that it is no longer safe to grow crops in some of the soil on their farms. Because the demand for food keeps growing, however, they keep on raising vegetables, fruits, and livestock in soil they know is not safe. Villagers still eat food from their gardens, and many still live in homes and villages they have been told were poisoned by radiation.

After Belarus became independent, the government started to monitor radiation levels. When they found villages where the levels were high enough to indicate contamination, the government made people leave. Experts calculate that the accident at Chernobyl caused radiation ailments in 2 million Belarusians, 500,000 of them children. To help treat all these people, the government also built new clinics that specialize in treating radiation poisoning.

Nuclear Concerns

What happened at Chernobyl made people stop and think about the dangers of nuclear power and led Belarusians, Ukrainians,



Geographic Themes

Place: Chernobyl, Ukraine

The atomic explosion at the Chernobyl nuclear plant killed scores of people and released a radioactive cloud that contaminated surrounding farmland. *What will be the long-term effects of Chernobyl?*



and others to hold protests against nuclear plants and weapons. It was because of these efforts that some reactors completed by the Soviets never opened, and some still in the planning stages were never built. In 1990, when an explosion at the Ulba nuclear fuel processing plant at Ust-Kamenogorsk released beryllium gas into the air, 60,000 people demanded that the plant be closed.

Many Russians are now speaking out against some of the older nuclear power stations in their republic. They say that because the reactors were not well designed in the first place and lack needed spare parts, the reactor plants could become dangerous to operate. Armenians are also expressing their views about two nuclear power plants in their republic, one at Metsamov and one at Nayirit. Even though some of the Metsamov reactors have been shut down, many people still doubt the wisdom of having nuclear power stations in a nation known to have earthquakes.

For some, nuclear weapons and testing are also a cause for concern. For many years the Soviets developed and stocked up on nuclear weapons. When the Soviet Union broke up, what would happen to those weapons became

a major—and a controversial—issue. The four republics holding nuclear weapons—Russia, Ukraine, Belarus, and Kazakhstan—agreed that Russia would assume command of the weapons. Ukraine later declared itself a nuclear-free zone and dismantled its nuclear arsenal.

This, however, has not changed the damage that past nuclear testing has already done in certain areas. One is the Semipalatinsk area of Kazakhstan, where the Soviets once had nuclear bases. Kazakhstan is believed to still have several thousand nuclear warheads within its borders. The Soviet army tested its nuclear weapons in the Semipalatinsk area and its chemical and biological weapons in other places in the republic. In 1989 a Semipalatinsk Oblast Peace Committee announced that there had been radiation leaks in the area as a result of nuclear weapons testing. It will be years before all traces of contamination will be gone.

HUMAN/ENVIRONMENT INTERACTION

Water Problems

The Soviet emphasis on heavy industry and desire to grow certain crops where there was not enough water for them took its toll on some of the rivers, lakes, and seas of Russia and the Eurasian republics. In some cases, water levels have shrunk drastically, endangering the plant, fish, and animal life and changing the nearby landscape. In other cases, the water is being **polluted**, contaminated by harmful substances.

The many industries and farms in the Volga River basin, for example, use huge amounts of river water. Much of that water ends up back in the Volga with different kinds of pollutants discharged by the industries and farms. A fast-flowing river can purify itself. Because so many dams slow the Volga's flow, however, the river remains polluted.

Shrinking of the Caspian Sea and Lake Sevan

The Caspian Sea lies on the border between Europe and Asia, bounded on the west by Rus-



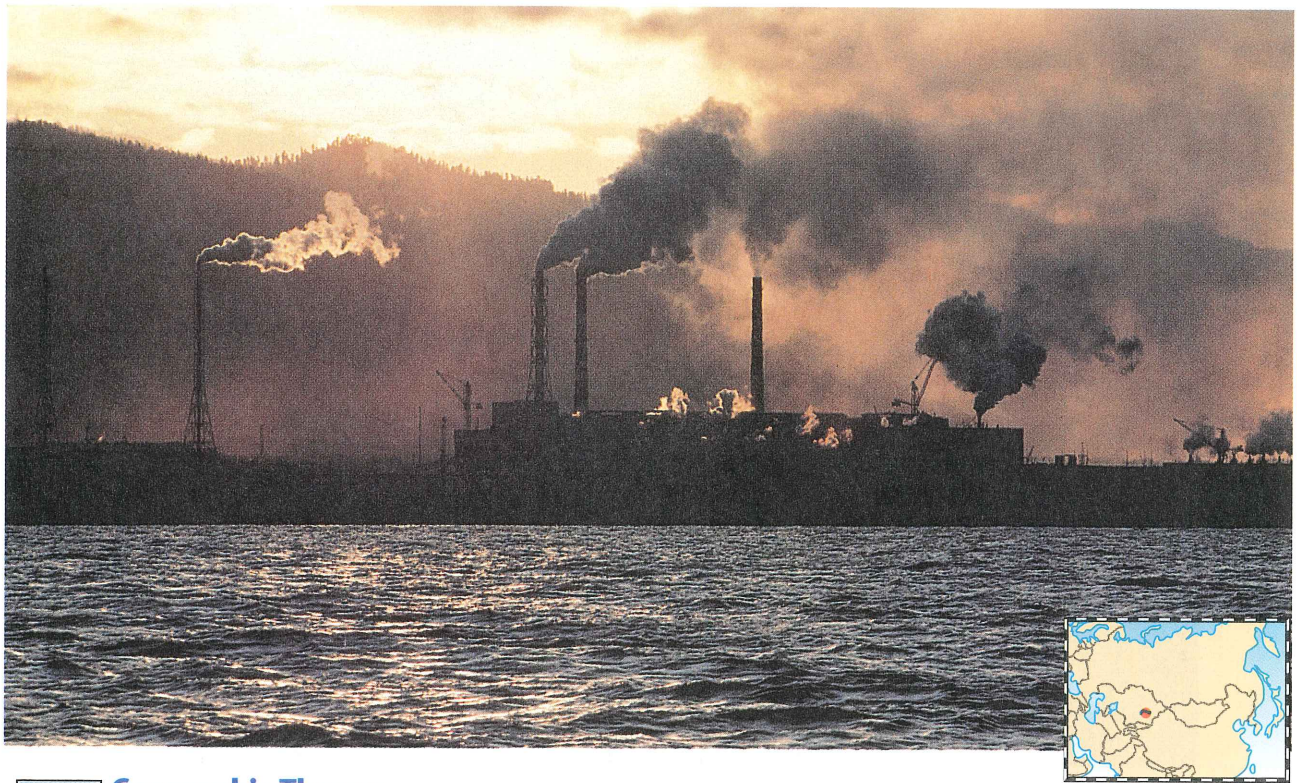
Geographic Themes



Human/Environment Interaction: Caspian Sea

The Caspian Sea, the largest inland body of water in the world, is an important source of a fish called sturgeon. *How has human activity contributed to the shrinking of the Caspian Sea?*





Geographic Themes

Human/Environment Interaction: Lake Baikal

Lake Baikal, the world's deepest lake, is more than 5,315 feet (1,620 m) at its deepest point. *What are the major causes of the pollution problems affecting Lake Baikal?*

sia and Azerbaijan, on the north by Russia and Kazakhstan, and on the east by Kazakhstan and Turkmenistan. Lake Sevan, one of the highest lakes in the world, lies in northeastern Armenia and is surrounded by the Caucasus Mountains. The two bodies of water share a common problem—they have been shrinking.

Kazakhstan and the other central Asian republics do not get much rain. So their land had to be irrigated to grow the cotton and other crops the Soviets demanded of them and to yield the hay and fodder they needed to feed their animals during the winter. Much of the water used for irrigation was diverted from the Caspian Sea. From 1960 to the mid-1970s, the water level of the Caspian dropped 8 feet (2.4 m). Although since then it has risen a little, several thousand square miles have dried up.

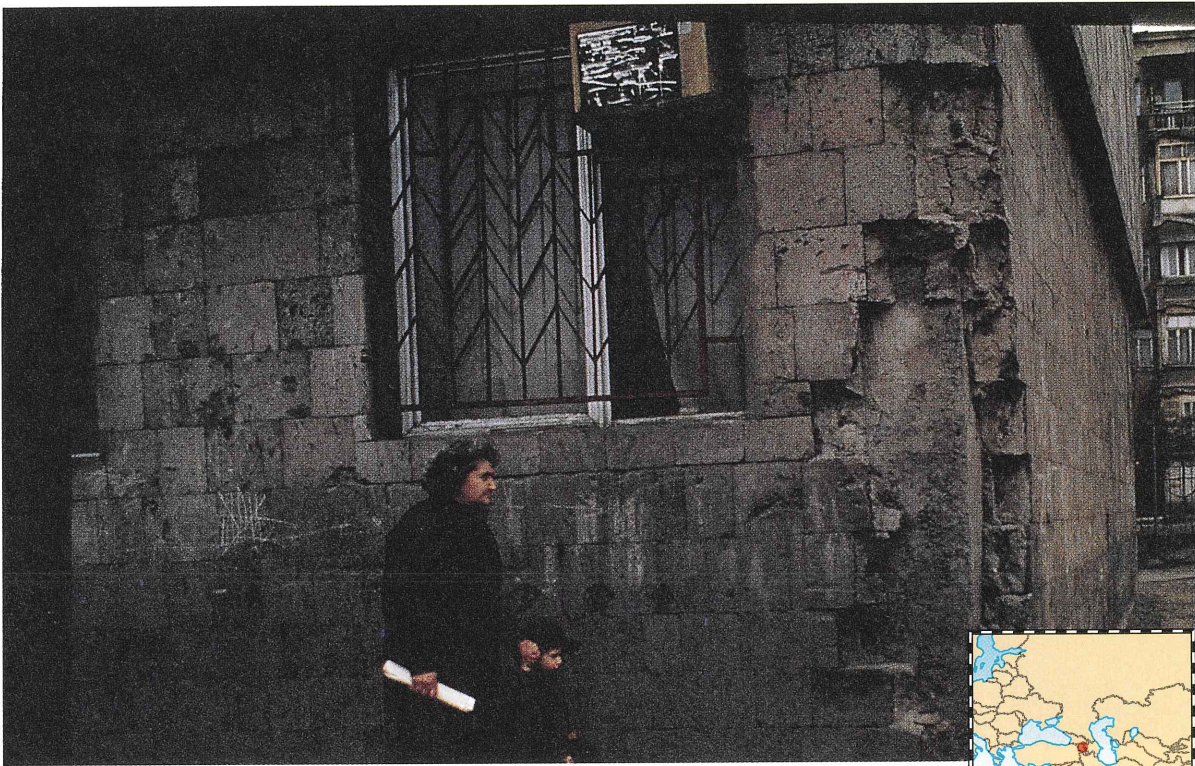
Lake Sevan also suffered because its waters were steadily drained over a long period of time. The lake feeds the Razdan River. For more than 60 years, Armenians have drawn

water from the river to power hydroelectric stations and to irrigate their farms. In the 1970s concern about the loss of water in the lake led the Soviets to build a tunnel to reroute water to the lake from the Arpa River in Azerbaijan. Even with the tunnel, the water level kept going down. At the same time, organic waste from nearby cities and towns polluted the lake. By the mid-1990s, plans were underway to build a pipeline to keep the wastes out of the Razdan River. Although the pipeline will help keep the water clean, it will not solve the problem of water level, which has dropped almost 20 feet (6 m).

Pollution of Lake Baikal

Lake Baikal lies on the southern edge of the Central Siberian Plateau. It holds a huge volume of water that influences the weather around it, making the area nearest the lake warmer in winter and cooler in summer than areas farther away from the lake.





Geographic Themes

Human/Environment Interaction: Yerevan, Armenia

Air pollution from nearby industries has eroded many buildings in Yerevan, Armenia. How has the development of industry contributed to the pollution of waterways in Russia and the Eurasian republics?

About 40 years ago, a huge paper and pulp mill that had grown up along the southwestern shore of the lake began to spill toxic chemicals into its waters. On top of this, rivers flowing into the lake were depositing farm fertilizers and other poisonous chemicals. All this pollution upset the chemical balance of the lake, posing a real threat to plants and animals.

In the late 1980s, Soviet writers and scientists urged the government to stop pollution. They wanted equipment installed to reduce the amount of waste the paper and pulp factory was emptying into Lake Baikal. In 1987 the pulp plant was ordered to stop polluting the lake. Not long after, plans to build other factories along the shores of the lake were halted. The next step to be undertaken by the Russian government is to make the factories already on the shores of Lake Baikal convert to cleaner production processes—or to tear them down completely.

HUMAN/ENVIRONMENT INTERACTION

Pollution

Pollution affects more than just the rivers, lakes, and other bodies of water of Russia and the Eurasian republics. It affects the land and the air as well. Just about every feature of the physical and natural environment of the region has suffered because of the Soviet passion to industrialize and to grow more, different, bigger, and better crops.

Under the Soviets, factories dumped toxic wastes into almost every river of Russia and the Eurasian republics. In 1983, for example, when a dam on a tributary of the Dniester River in Ukraine collapsed, hazardous wastes from a fertilizer plant poured into the river. The wastes poisoned the waters that ran downstream through Moldova to the Black Sea, killing fish and putting at risk Moldovans who had to get their water from the Dniester.



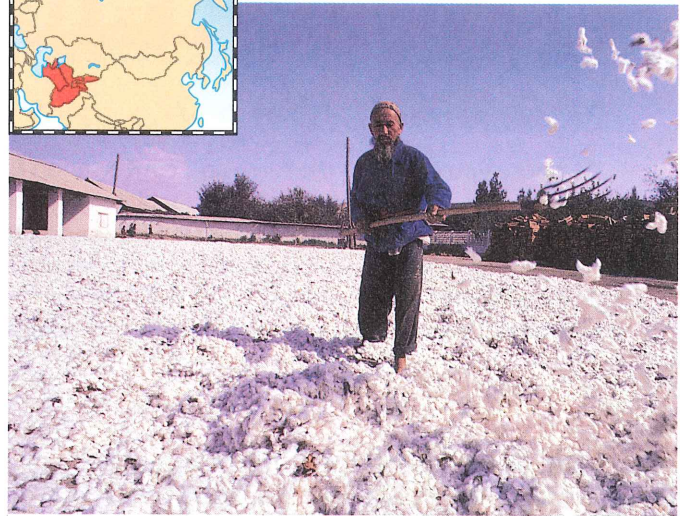
Because soft brown coal was plentiful in the region, most Soviet factories burned it even though they knew it polluted the air. Because most factory smokestacks did not have pollution-preventing equipment or devices, they released incredible amounts of soot, sulfur, and carbon dioxide. The wind carried the pollution to other areas. Emissions from smokestacks in Ukrainian and Romanian factories, for example, drifted over Moldova, adding to the pollutants already released into the air by Moldovan factories.

Soviet industries dumped wastes wherever they wanted—even after the Soviets passed laws that were supposed to keep such things from happening. Republics like Moldova that accepted toxic wastes for landfills that did not meet international sanitary regulations only made an already-bad problem worse.

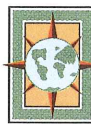
No republic has escaped the effects of the different kinds of pollution associated with industry. People in Kazakhstan, for example, suffer from health problems linked to toxic chemicals in the atmosphere. The chemicals are there because planners in Moscow insisted on building up heavy industry in Kazakhstan. The increase in infant mortality in Kazakhstan has been linked directly to the pollution problem as well. In Kyrgyzstan, too, the development of heavy industry has polluted the air. In Bishkek, for example, the concentration of benzopyrene in the atmosphere is more than 10 times greater than what it should be.

One of the most polluted of all the cities of Russia and the Eurasian republics, though, is Yerevan, the capital of Armenia. Three-fifths of Armenia's industries are located in and around the city, and most are devoted to kinds of heavy industry that produce significant pollution—synthetic rubber, fertilizers, chemicals, nonferrous metals, and equipment.

Not all of the pollution comes from factories. In some areas, much of it is from pesticides, chemicals used to kill insects, rodents, and other pests. To rid cotton, vegetables, and fruits of insects and other pests that were destroying them, Soviet farmers began spraying and dumping huge quantities of pesticides on their fields. This went on for more than 30 years. By the 1990s most farmers all across the



Geographic Themes



Region: Central Asia

The growing of cotton is an important agricultural activity in central Asia. *What major source of pollution affects farmers in Russia and the Eurasian republics?*

region were doing it. Banning certain pesticides did not stop some farmers from using them. DDT, one of the most deadly pesticides, was officially banned by the Soviet Union—as well as most other countries—more than two decades ago. But Azeri farmers, who produce more cotton than anyone else in the Caucasus, still spray strong doses of it on their crops.

SECTION 2 ASSESSMENT

Checking for Understanding

- 1. Define** industrialize, polluted, pesticide.
- 2. Locating Places** What happened at Chernobyl in 1986?
- 3. Movement** Why were so many people in Belarus affected by the accident at Chernobyl?
- 4. Human/Environment Interaction** What caused the water levels of the Caspian Sea and Lake Sevan to drop?

Critical Thinking

- 5. Determining Cause and Effect** What was the major cause of the environmental problems of Russia and the Eurasian republics?



CRITICAL THINKING SKILLS

Distinguishing Fact From Opinion

Suppose you overhear the following conversation between two girls who are eating ice cream cones.

Tanya: This is absolutely the best chocolate ice cream in the city!

Lisa: Well, yesterday I had another kind of chocolate ice cream. It was richer and better.

Tanya: But this chocolate is so dark. This is definitely the best. It's a fact.

Is it? Although Tanya and Lisa claim to know the facts about chocolate ice cream, they are actually expressing opinions. It's important to know the differences between them.

REVIEWING THE SKILL

Facts are statements that can be checked for accuracy. They explain what happened, when and where it happened, who was involved, and so on. However, not all factual statements are true or correct. For example, read the following statement: "In the mid-1990s Russia produced almost 50 million metric tons of iron ore." Because you can check the accuracy of this statement in government reports and other sources, it is a fact. In this case, however, the statement is incorrect. Russia produced almost 75 million metric tons at that time.

Opinions, on the other hand, are statements of feelings, emotions, and beliefs. It is impossible to check their accuracy. For example, suppose someone says, "The breakup of the Soviet Union was the most exciting political change of the 1990s."



Although this statement expresses the speaker's beliefs, no one can prove or disprove it. Therefore, it is an opinion, not a fact. Opinions often begin with phrases such as, *I believe, probably, it seems, or in my view*. They often contain qualifying words such as *may, might, could, should, ought*, and superlatives such as *best, worst, greatest, outstanding*, and *extraordinary*.

To distinguish facts from opinions:

- Identify facts by looking for verifiable statements such as names, dates, places, numbers, and specific actions.
- Identify opinions by looking for statements expressing beliefs or feelings.

PRACTICING THE SKILL

 For each statement, write F if it is a fact, or O if it is an opinion. Explain each answer.

1. By mid-1991, Russian oil production was down to 7.8 million barrels a day, 17 percent below the rate in 1988.
2. In all likelihood, Soviet carbon emissions will continue to fall in the next few years.
3. The accident at the Chernobyl nuclear reactor could result in hundreds of thousands more cancer deaths.
4. Nuclear power is the most dangerous environmental threat in the world today.
5. In 1967, a hot, windy summer dried up Lake Karachay, a dumping site for Soviet nuclear waste in the 1950s; radioactive dust spread contamination to 41,000 people.

For additional practice in distinguishing fact from opinion, see Practicing Skills on page 344 of the Chapter 16 Assessment.



The **Glencoe Skillbuilder Interactive Workbook, Level 2** provides instruction and practice in key social studies skills.

1

SECTION

**Living in Russia
and the Eurasian
Republics**

KEY TERMS

- command economy (p. 328)
- consumer goods (p. 328)
- black market (p. 328)
- market economy (p. 328)
- sovkhoses (p. 329)
- kolkhoses (p. 329)

SUMMARY

- For many decades, Russia and the Eurasian republics constituted a single economy controlled by the Soviet government.
- Upon becoming independent, each republic took charge of its own economy and is trying to move toward a market economy.
- Russia and the other republics all are taking steps to privatize agriculture and industry.
- Independence brought greater freedom of expression to the communications systems and most forms of media.
- Although waterways, roads, and railways remain vital methods of transportation for freight and passengers, airlines and pipelines are growing in importance.
- Because they were parts of the Soviet system for so long, Russia and the Eurasian republics today are not totally independent of one another.



Farmers harvesting wheat in Kazakhstan

2

SECTION

**People and Their
Environment**

KEY TERMS

- industrialize (p. 336)
- polluted (p. 338)
- pesticide (p. 341)

SUMMARY

- In their push to industrialize, the Soviets neglected and abused the environment.
- Committed to nuclear power as an economical source of electric power, the Soviets built numerous nuclear power stations in various parts of the nation.
- The Chernobyl disaster led to doubts and protests about nuclear energy and weapons.
- Pollution caused by heavy industry and the use of pesticides presents a major problem for Russia and the Eurasian republics.



Fishing in the Caspian Sea



Reviewing Key Terms

Choose the vocabulary term that best completes each of the sentences below. Write your answers on a separate sheet of paper.

- consumer goods (p. 328)
- black market (p. 328)
- kolkhozes* (p. 329)
- industrialize (p. 336)
- polluted (p. 338)
- pesticides (p. 341)

SECTION 1

1. Most Soviet citizens could not afford to buy goods on the _____.
2. In the Soviet Union large collective farms were called _____.
3. People in Russia and the Eurasian republics suffered from a shortage of _____.

SECTION 2

4. Heavy industry has _____ many rivers in Russia and the Eurasian republics by dumping toxic wastes in their waters.
5. To kill insects destroying their crops, farmers in Russia and the Eurasian republics use _____.
6. In their drive to _____, the Soviets severely damaged the environment.

Reviewing Facts

SECTION 1

7. What was the role of the Soviet government in the economy?
8. What problems did the republics face in creating market economies?
9. In what ways have communications changed since independence?

SECTION 2

10. What concerns some Russians and Armenians about nuclear power plants?
11. What agreement was reached by Russia, Ukraine, Belarus, and Kazakhstan?

12. How did Lake Baikal, on the Central Siberian Plateau, become polluted?

Critical Thinking

13. **Analyzing Information** Do you think it is important for the independent republics to cooperate with one another? Explain your answer.
14. **Expressing Problems Clearly** How have factories contributed to pollution in Russia and the other republics?



Geographic Themes

15. **Movement** How have railroads aided economic development in the region?
16. **Human/Environment Interaction** How has industrialization affected the environment of Russia and the Eurasian republics?



Practicing Skills

Distinguishing Fact From Opinion

For each statement below, write F if it is a fact or O if it is an opinion. Explain each answer.

17. The collapse of the economies in Russia and the Eurasian republics is a plus for the global environment.
18. The nuclear physicist appointed to supervise the cleanup at Chernobyl estimates that this process has already claimed between 5,000 and 7,000 lives.

Using the Unit Atlas

Refer to the physical geography section of the Unit Atlas on pages 286–287.

19. What Asiatic part of Russia is rich in mineral deposits?
20. What body of water is the center of the sturgeon fishing industry?

Projects

Individual Activity

Imagine that you are an American entrepreneur interested in investing in a business in a Eurasian republic. Write a letter that indicates in which republic the business is located, what kind of business it is, and why it would be a good investment.

Cooperative Learning Activity

Working in a group of six, two people will research the history and routes of the Trans-Siberian Railroad, while two others research the history and routes of the Baikal-Amur Mainline. For each railroad, one person takes the role of a construction worker and the other that of a passenger. The remaining two students will interview the others for a television railroad documentary.

Writing About Geography

Cause and Effect You are captain of a barge that carries freight along a waterway in one of the republics. Research the waterway area and what has happened to it over the last 50 years. Write a letter to the president of the republic explaining how industrialization and agriculture have changed the waterway.

Technology Activity

Developing Multimedia

Presentations Research information about the Chernobyl power station. Then imagine that you are a news reporter covering the nuclear disaster. Create a short multimedia presentation about the disaster and its effects on Ukraine and surrounding areas.

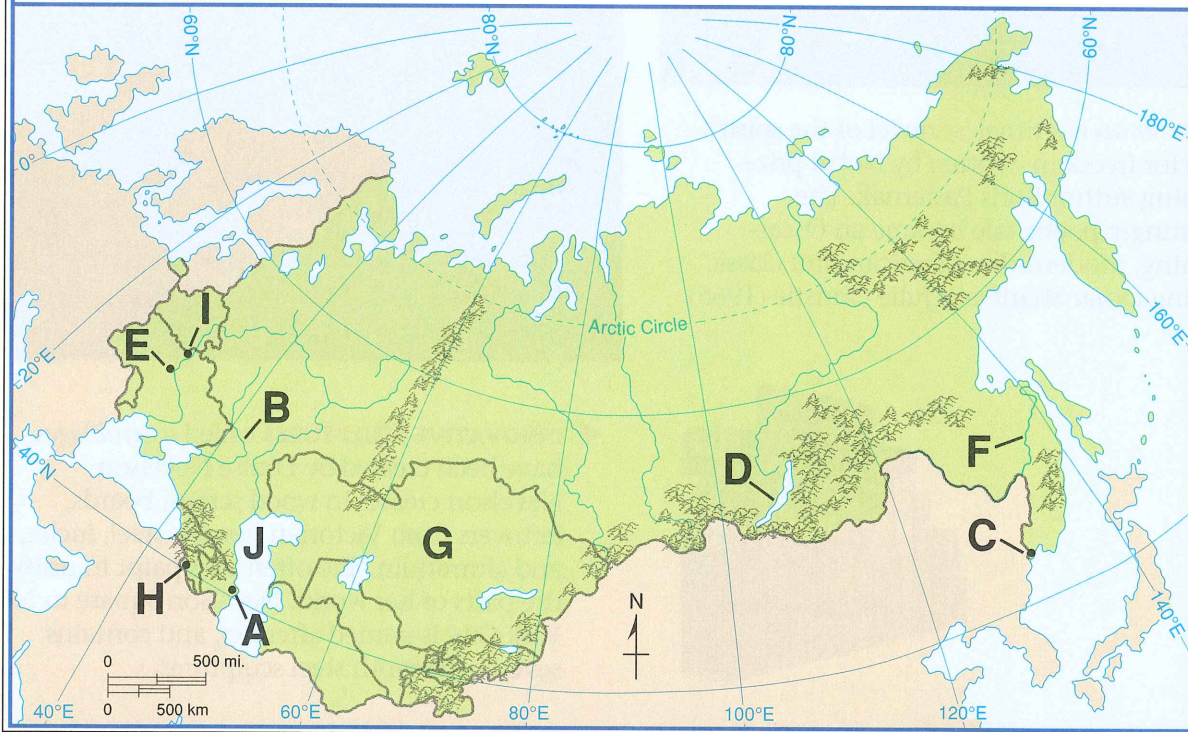


Locating Places

THE PHYSICAL GEOGRAPHY OF RUSSIA AND THE EURASIAN REPUBLICS

Match the letters on the map with the places and physical features of Russia and the Eurasian republics. Write your answers on a separate sheet of paper.

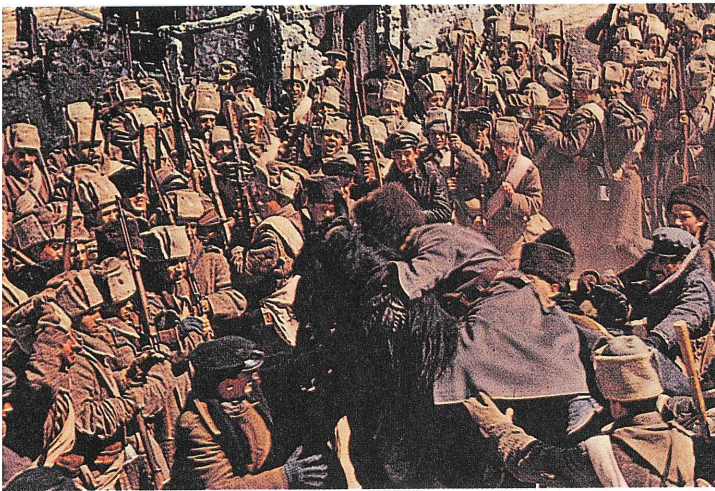
- | | |
|----------------|-----------------|
| 1. Baku | 6. Amur River |
| 2. Don River | 7. Kazakhstan |
| 3. Vladivostok | 8. Yerevan |
| 4. Lake Baikal | 9. Chernobyl |
| 5. Kiev | 10. Caspian Sea |



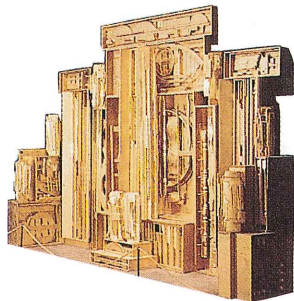
Russia and the Eurasian Republics and the United States

THE FINE ARTS

Russian artists have influenced many areas of the fine arts in the United States—music, ballet, modern dance, literature, poetry, film, painting, sculpture. Russians have applied their deep love of the lyrical and the beautiful to create works of enduring significance.



▲ **DR. ZHIVAGO** is a timeless novel of the spirit's need for freedom, written by Nobel prize-winning author Boris Pasternak. The hauntingly poetic tale became an Oscar-winning, modern-day American film classic starring Omar Sharif and Julie Christie (1965).

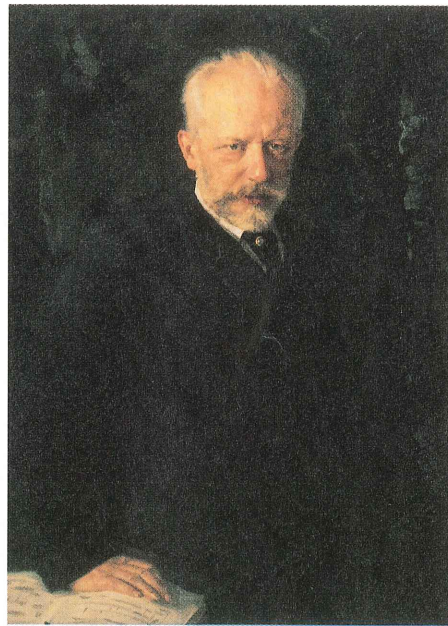


◀ **INNOVATIVE SCULPTURES** called *assemblages* have been created by Louise Nevelson. Nevelson creates in wood scraps, boards, leftovers from Victorian houses, steel, lucite, and aluminum. She often uses paint to unify the parts of her works. Nevelson Square in New York City is named after her, and contains seven mammoth steel sculptures.



◀ **MIKHAIL BARYSHNIKOV**, a Russian ballet dancer who settled in the United States, delighted his audiences with his flying leaps into the air. Famous for this dynamic style, Baryshnikov executed his moves with great brilliance and daring. He defected to the West in 1974, discontented with the lack of freedom and the limits that the Soviet Union placed on his dancing. Joining the American Ballet Theater, Baryshnikov gave his imagination and style full rein.

◀ **MODERN ART** movements were led by Wassily Kandinsky and Marc Chagall. Kandinsky's clear, pure colors and free-form shapes and lines earned him recognition as the first abstract expressionist. Chagall transformed the "shattered" techniques of the cubists to create graceful, dreamlike surrealist art.



◀ **RUSSIAN COMPOSER PETER TCHAIKOVSKY** produced works that have become classical standards. Instantly recognizable to most Americans are his orchestral composition, *Nutcracker Suite*, and his three ballets, *Swan Lake*, *Sleeping Beauty*, and *The Nutcracker*.



◀ **GEORGE BALANCHINE** aroused affection and loyalty from every dancer he developed and the millions of fans who loved his ballets. Just a year after arriving in the United States, he cofounded the School of American Ballet, guiding and nurturing it until it became the famed New York City Ballet. Balanchine remained with the ballet from its cofounding in 1934 to his death in 1983, creating more than 200 ballets.

Checking for Understanding

1. Who are two Russian dancers who have influenced American ballet?
2. **Movement** Who are three artists who influenced modern American art?

