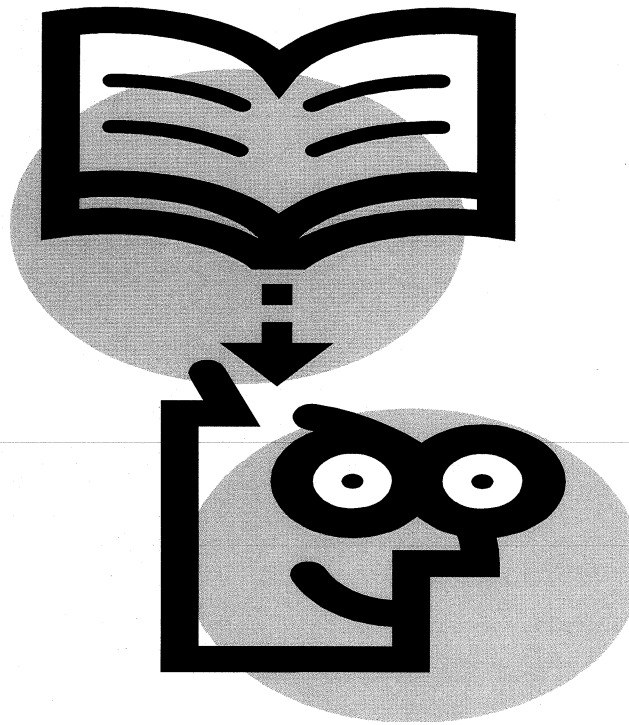


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**Edmond Public Schools
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**Required Reading for Common Core Literacy
in Social Studies:**

E. Hemis. Geography

THE BROWN DANUBE?

When Austrian composer Johann Strauss wrote his famous waltz "On the Beautiful Blue Danube" he romanticized the river. As one of Europe's most heavily used rivers, the Danube's water is never clear, nor blue, but usually brown. The Danube is Europe's longest river after the Volga in Russia. The Danube arises in Germany's Black Forest and flows for 1,777 miles eastward before emptying into the Black Sea. Its drainage basin is two-thirds as large as the Nile Basin. The Danube also drains parts of 15 countries.



The Danube has been a major east-west transportation route across Europe for hundreds of years. Trade on the Danube has consistently increased throughout history. Motorized vessels carrying both goods and passengers ply the river nearly its entire length. On a normal day, river traffic is constantly in view on the Danube, as it is one of the world's busiest rivers. More than 35 major ports are located along its banks and the Danube is connected by canals to several other waterways, including the

Main- Danube Canal to the Rhine River. This allows unbroken water transportation between the Black Sea and the North Sea.

The recent low-water problems on the Danube are a serious concern, as ships and barges have become stranded in shallow water. This has reduced or halted the intense commercial and passenger traffic that normally plies the river. Some summer's record heat and drought across Europe reduce precipitation runoff, influencing normal flows of streams all across Europe. Some of the normal flow in the Danube's headwaters comes from glacial melt in the Alps. Throughout the latter half of the past century, glaciers around the world have been melting. Continuing dry summer conditions in Europe may bring even greater loss of glacial ice and, consequently, further impact the Danube's normal flow.

If this trend continues, then there may be longer term climatic change that could have effects on long-term navigation on the Danube and other European rivers. The Danube is a vital artery for Central Europe. Anything that disrupts its use for transportation and generating hydroelectricity, as well as general water use, can create major economic problems for the region.

Geography in the News



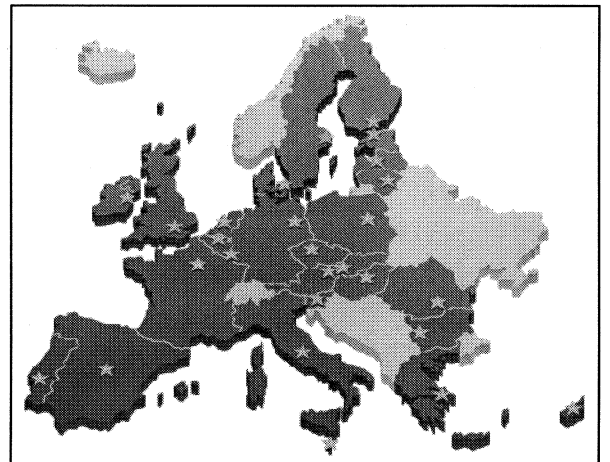
The European Union: Toward a “United States of Europe”?

After World War II, European leaders vowed to stop the endless cycle of wars on their continent. To achieve this goal, they began a process of economic and political unification that some hoped would lead to a “United States of Europe.” As the United States helped to rebuild Western Europe, it also encouraged the Europeans to eliminate national trade barriers like tariffs. This idea, however, seemed too radical for some Europeans and they resisted it at first. But gradually they came to view economic cooperation as a way to end rivalries that so often had led to war in Europe.

To do this, Western European nations would have to surrender some of their sovereignty (supreme authority). At first, only six European nations joined as members- France, Germany, Belgium, Luxembourg, the Netherlands, and Italy- to create a broad common market with the free movement of goods, services, and workers across the borders of the member nations.

The economic advantages of the European common market led to its enlargement. In 1992, a treaty provided for European citizenship to residents in the member nations. Another agreement led to the adoption of a single EU currency- the euro. The European Union today consists of more than two dozen member nations. Some are even former communist countries from Central and Eastern Europe.

And the European Union even has its own parliament. This legislature has more than 600 members elected for five-year terms. And the EU Court of Justice makes rulings on treaties and laws. It decides disputes among member nations, corporations, and individuals.



The European Union is similar to a “federal” system of government - a political system of shared powers with central government powers and individual state/nations’ powers.. The United States is also a federal system. The people of Europe will have to decide what sort of EU they want. Should it continue as it now operates? Or, should it become a full federal union, a “United States of Europe”?

For Discussion and Writing

1. Why did European leaders begin a process of economic unification?
2. Should the EU become the “United States of Europe”? Why or why not?

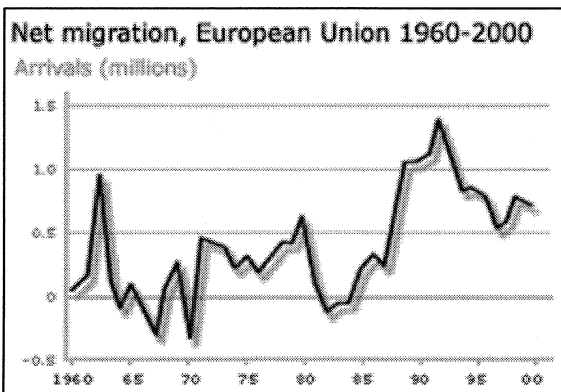
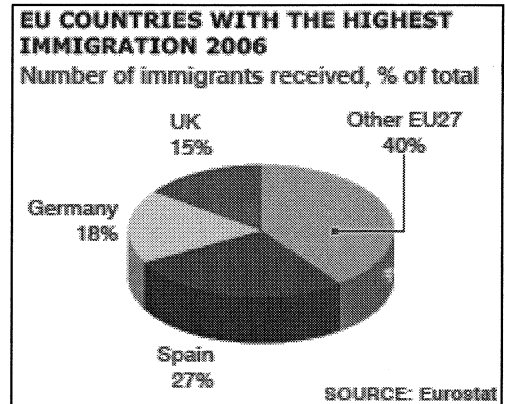
Source: *Bill of Rights in Action, Constitutional Rights Foundation*

Europe's aging workforce

Europe's rate of population growth is falling while its inhabitants are aging. Who will produce the wealth to sustain the retired population? Some analysts believe that immigration could be the "magic bullet" which will solve Europe's labor market and welfare state problems. A United Nations report on 'replacement migration' suggests that immigration could help solve population problems.

So, the European Commission has put its weight behind 'positive' European immigration policies. Both the UK and Germany have announced plans to attract skilled immigrant workers.

One reason for this enthusiasm for new immigration is that the rate of population growth is slowing across the EU. Data shows that between 1995 to 2025 the growth is expected to be only 3%. In addition, the working-age population is decreasing.



These population trends are seen in many countries. For example, Italy's natural growth rate is amongst the lowest in the world. The Italian population is falling despite the arrival of around 70,000 immigrants each year. But Italian public opinion appears to see immigration as a poison rather than a magic bullet.

Experts estimate the UK's population to rise by around 5 million people over the next 25 years, with immigrants accounting for around two thirds of this growth. Labor gaps and government spending on public services have created a need for nurses, teachers, doctors and other skilled workers. If there is

a need for immigrant workers then where will the workers come from?

While population growth slows in developed European countries, there is rapid growth in the developing world. This has created a major global imbalance. Yet, EU nations only want skilled workers and have tried to close the door to unskilled immigrants from the developing world.

The debate about immigration in Europe continues regarding whether it is good or bad, a boon or a disadvantage, a blessing or a curse. The fact is, international migration is inevitable. People move from, to, and within the EU for a host of economic, social and political reasons.



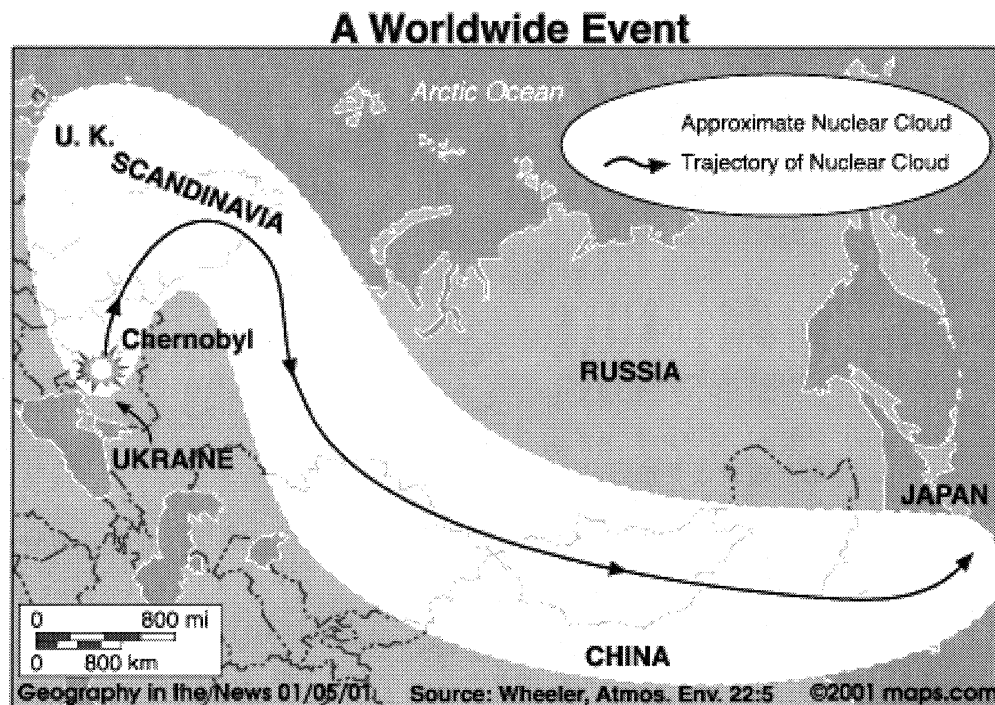
CHERNOBYL: WORLD'S WORST NUCLEAR ACCIDENT

An auspicious event on Dec. 15 made front-page news around the world. The last notorious Chernobyl nuclear reactor went off-line forever.

The Chernobyl power plant meltdown in 1986 was the world's worst nuclear accident.

Remembering Chernobyl's massive radioactive cloud that blanketed northern Europe in 1986, world leaders heralded the closure of Chernobyl's last reactor as a milestone.

In light of the magnitude of human suffering and ecological impacts of the radioactive release, the geography of Chernobyl's impacts is a story worth retelling to future generations.



The Associated Press (Dec. 16) estimates 4,000 Ukrainians contaminated during cleanup efforts have died since the meltdown in 1986, 70,000 people are disabled by the radiation, and the health of 3.4 million of Ukraine's 50 million people has been affected, including 1.26 million children with potential for

thyroid cancer. Long-term health impacts are unknown across the rest of Europe and Asia.

Chernobyl is a city of 1.8 million people, down from the 2.2 million prior to the nuclear accident. It is located just north of Kiev near the Ukraine-Belarus border. Prior to 1990, the Ukraine was one of the Soviet Union's most prosperous republics. The Ukraine produced more than a fifth of Soviet grain, half of its sugar beets and a fourth of its meat and dairy products. With its rich coal deposits, the Ukraine was highly industrialized, producing 60 percent of Soviet steel.

During the 1960s and 1970s, the Soviets built numerous power plants, not only coal-fired thermal generators, but nuclear reactor power stations, as well, to supply the demand for electrical power for its factories.

Under the central government of the Soviet socialist system, there were few adequate environmental safeguard regulations or watchdog groups overseeing engineering and construction of power plants such as Chernobyl. Consequently, shoddy work left Chernobyl as one of the world's most dangerous nuclear power plants.

On April 26, 1986, one of the Chernobyl power plant's four nuclear reactors exploded. A fire in the reactor's graphite core burned openly until May 5, emitting a continuous radioactive cloud.

Normally, the westerly winds would have dispersed the cloud eastward into the heart of Asia. But a very unusual set of meteorological events on April 26-28 caused the radioactivity to move northwestward into the United Kingdom and Scandinavia in just two days, according to geographer Dennis A. Wheeler (*Atmos. Env.* 22:5).

Then, driven by westerly winds, the cloud began to disperse eastward across Siberia, China and Japan, finally circling the earth in just 10 days. Eastern Europe and Scandinavia were hardest hit, as the trajectory of the initial plume of radioactivity surged northward.

In an effort to maintain secrecy about the event, Soviet planners at first refused to acknowledge the magnitude of the explosion and the peril to the surrounding population. Even as the fire burned and workers exposed themselves to deadly levels of radiation in efforts to extinguish it, leaders were unwilling to release information. As a result, there was far greater human exposure to radioactivity than was necessary.

Finally, on May 5-10 days after the meltdown began-workers placed a poorly engineered and haphazardly constructed steel and concrete sarcophagus over the reactor. Within a few years, the cover began leaking radiation. Now, according to the Associated Press, it is emitting high levels of atmospheric radiation and leaking contaminated water.

Beneath the sarcophagus lies up to 66 tons of melted nuclear fuel and perhaps 37 tons of radioactive dust, according to the Associated Press. The next major feat will be to secure the sarcophagus, but even that operation will likely expose more workers to radiation hazards.

The Chernobyl-style nuclear reactor was of inferior design, as reported in 1992 at the International Geographical Congress by Dr. Ludmila N. Ilyina, a distinguished Russian scholar. She counted 46 operating reactors across the former Soviet Union, with 26 more under construction at that time. Almost all of the older reactors were of an inferior design, and several were of the Chernobyl design.

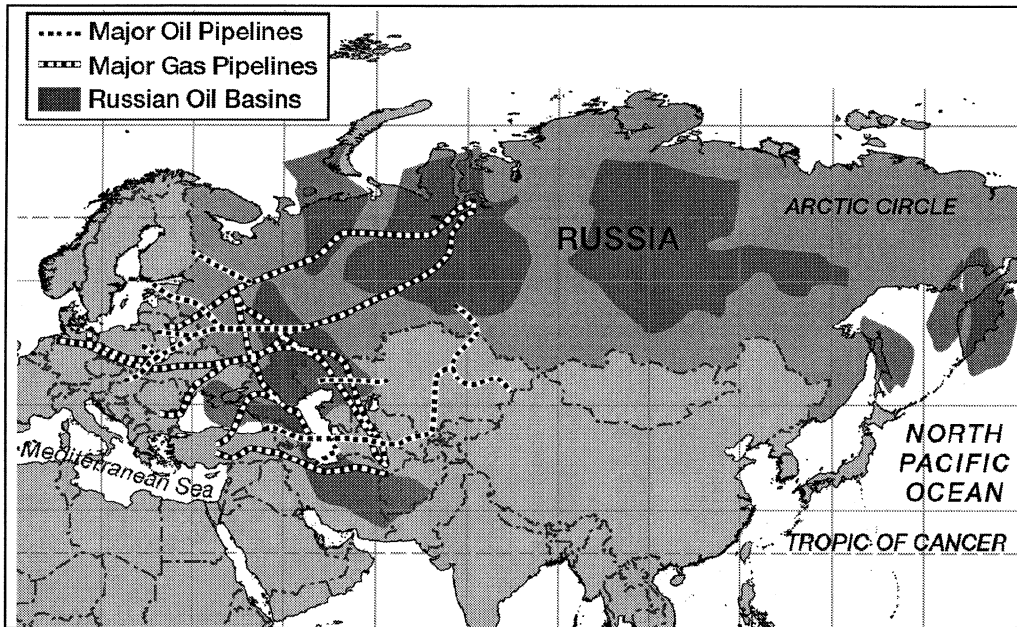
Nuclear power plant accidents are not limited to the Chernobyl design, however. The Chalk River plant near Ottawa, Canada, had a partial meltdown in 1952. Windscale Pile No. 2, north of Liverpool, England, contaminated a 200-square mile (518-sq. km.) area after a reactor fire in 1957. A Greifswald, East Germany, plant experienced a near meltdown in 1976. After a fire in one of its two reactors, the Three Mile Island plant near Harrisburg, Penn., had a partial meltdown in 1979. And there are others.

None of these other disasters approaches Chernobyl in the magnitude of radioactivity release. As nuclear plants age, however, their threats increase, particularly in countries with declining economies, political unrest and poor environmental laws.

Among the lessons learned from the Chernobyl disaster is that political boundaries offer no protection from a radioactive cloud.

RUSSIAN OIL IMPACTS POLITICS

High oil prices continue to focus media attention on countries where unrest and politics influence the price of oil. Russia, however, is now a major player among the world's energy producers and is flexing its muscles in European oil and gas markets. Russia has more proven natural gas reserves than any other country and is among the top 10 in proven oil reserves. Already the largest exporter of natural gas, Russia is the second-largest oil exporter and the third-largest energy consumer in the world.



Most of Russia's oil and gas reserves are found in Siberia, a vast region located in Northern Asia. Siberia actually composes around 77 percent of Russia's territory but only 30 percent of Russia's 42.2 million people live there. Geographically, Siberia includes a large part of the Eurasian Steppe and extends eastward from the Ural Mountains. Siberia once was a mostly uninhabited and little

explored region. Indigenous people and a few exploratory missionaries and traders inhabited Siberia. The only other people sent to Siberia were exiled prisoners.

But the construction of the Trans-Siberian railway brought many changes to the region. Large-scale extraction of Siberia's vast natural resources, including oil and gas, occurred throughout the 20th century. Consequently, many industrial towns appeared throughout Siberia. After the fall of the Soviet Union, business investors took over the economy's private oil and gas sectors. They reaped quick profits but ignored long-term national interests. They stripped the country's natural resources for personal financial gain.

Under President Putin the Russian government dismantled and took over many of these private companies. The true Russian oil boom began. Over the last few years, Russian oil production has risen strongly and world oil prices have been high. Energy exports have driven the country's economic growth. Now, Russia's ability to maintain and expand its oil and gas exports is facing some major challenges. Some of Siberia's older wells have reached their natural limits. And Russia has not fully implemented modern energy technology to develop new wells.

Russia's oil and gas boom may fizzle in only a few short years. Researchers estimate that if the situation stays the same, Russian oil production will soon begin to decline dramatically. That prediction could be very serious for a country where the oil sector supposedly funds about a third of the national budget. Natural gas and oil exports account for the country's \$600 billion in foreign exchange. Russia has plenty of oil and gas reserves. The problems the industry faces are primarily manmade. Russia's economic future may depend on how well the government can manage the industry. The fact is, however, that Europe needs Russia's oil and gas and Russia needs European oil and gas markets to keep its economy functioning.

NORTH SEA OIL BOOM

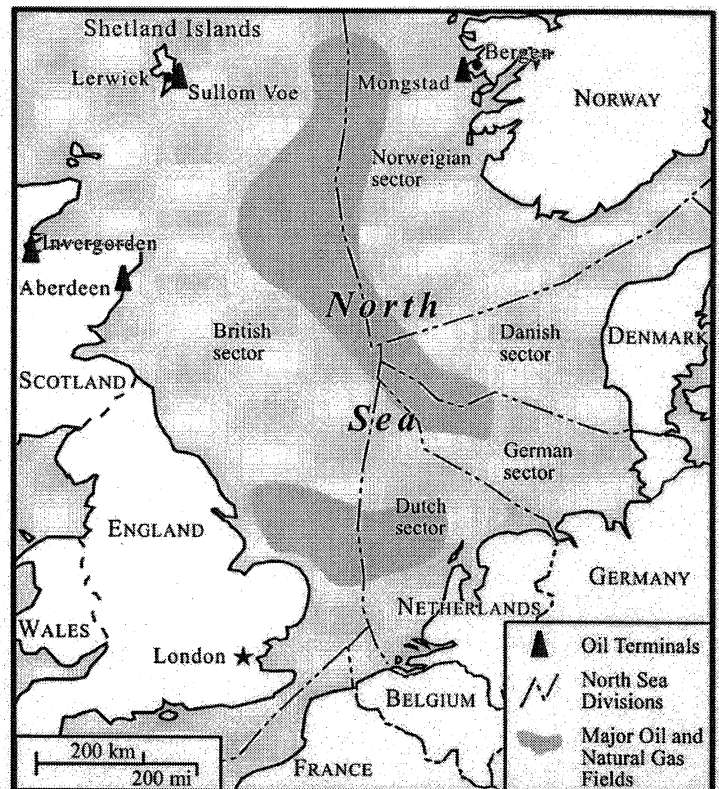
Did you know that Norway is the world's second largest oil exporter, a fact that may surprise many Americans. Recent North Sea oil discoveries have benefited most of the surrounding countries, but none more than Norway.

The North Sea is situated between Great Britain and Scandinavia. It is a high latitude sea, often buffeted by high winds and rough waters. Best known as Europe's prime fishing grounds, oil was first discovered in the North Sea sixty years ago. The discoveries necessitated the careful division of the sea floor among the surrounding countries, such as Norway, Denmark, Germany, and the United Kingdom. But Norway and the UK received the largest and most promising shares of the oil wealth.

Over the next three decades, hundreds of offshore oil rigs sprang up across the North Sea. Ships and pipelines carried crude oil to terminals in Scandinavia and Great Britain, where elongated glaciated valleys, now devoid of glaciers, provided numerous sites for oil terminals. These terminals then transferred the crude for shipment to oil refineries where the final products are used for gasoline and plastics.

Prior to the discovery of oil, Norway had developed its abundant hydroelectric potential, already giving it one of Europe's highest standards of living. A strong industrial base was built on inexpensive electricity, such as shipbuilding, chemicals, and food processing. Oil discoveries accentuated the nation's wealth. Today, the North Sea oil reserves are worth over \$300 billion. So, when Europe is asked by other regions to increase production in order to lower world prices, it is an uphill battle. It just doesn't make good sense to the Norwegian and British governments.

Geography in the News, April, 2000



WATER WARS of the MIDDLE EAST

CONFLICTS:

Middle East conflicts are usually tied in the media to religion or oil, but water has become a major factor in recent disputes. In prominent watersheds such as the Jordan River Basin and the Tigris-Euphrates Basin, water supplies can be critical especially when they are being shared among multiple countries. These rivers play a very important role in the agriculture and economic development of these states.

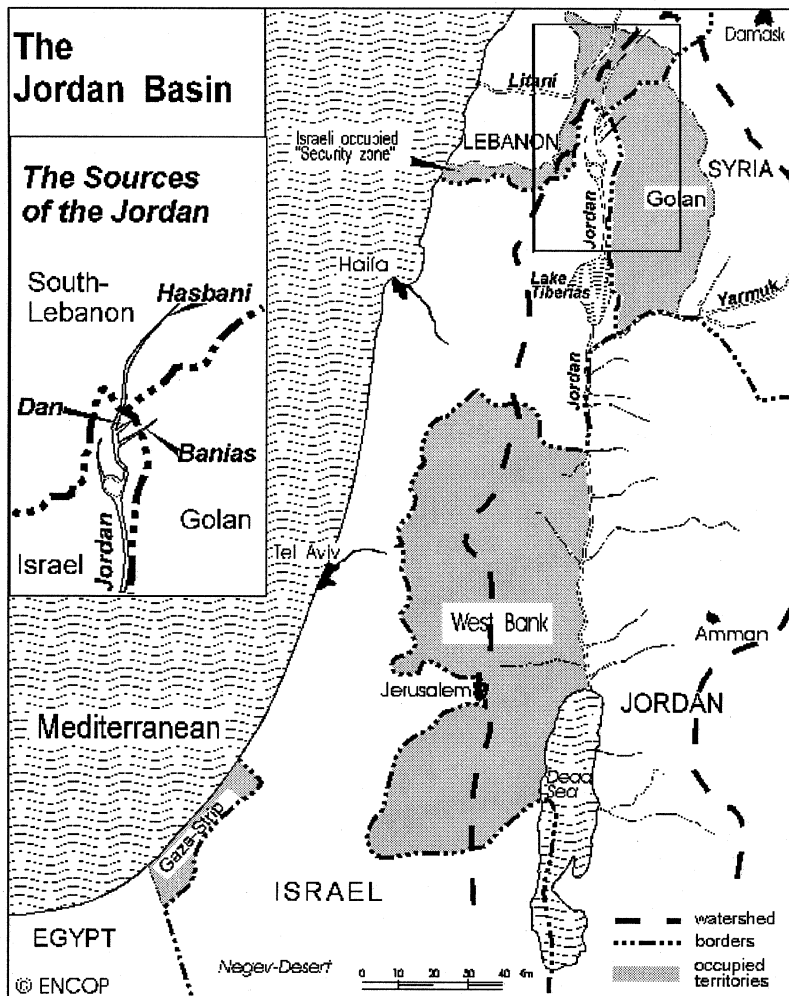
Jordan River Basin

The area of the Jordan River Basin, including parts of Lebanon, Syria, Israel, Jordan, and the West Bank, is primarily an arid region. The river originates in Lebanon and consists of the Jordan and Yarmuk River, which flows from Syria. With the arid climate and low precipitation in this region, water has become the most valuable resource. Most countries in the Jordan River Basin are among

some of the poorest countries in the region. Groundwater aquifers are the principle source for water supplies to the states that rely on the Jordan River.

Israel uses the greatest amount of water available in the basin. The patterns of water use, overuse, and political territorial issues are resulting in disagreement over water distribution. The increase in population at Israeli settlements has led to significant challenges in managing limited water supplies. Without the existence of a legitimate water sharing agreement, the countries of Syria and Israel have taken over the water supplies.

The Mountain Aquifer underneath the West Bank is a point of contention between Israelis and Palestinians. Issues include the domination of groundwater supplies by the Israeli state and settlers, and the walling off of Palestinian access to water supplies.



Tigris-Euphrates Basin

The scarcity of water supplies in the river basin of ancient Mesopotamia has long fed disagreement among neighboring nations. The Tigris and Euphrates rivers originate in Turkey, and their watershed covers a much larger area than the Jordan River basin. The river system is shared by several countries and ethnic groups who regularly disagree on water issues. Like the Jordan River Valley, rising population in these areas is heavily affecting the availability of water. Syria obtains approximately 85 percent of the renewable water supply while Iraq obtains 100 percent from the combination of both rivers.

The Turks and the Kurds who live in southeastern Turkey are less dependent on the rivers, yet they still have plans for irrigation to increase their utilization of both rivers. Along the Tigris and Euphrates rivers, conflict arises from north to south. Dams along the rivers installed by Turkey have prevented some of the water from flowing downstream to these warmer, drier countries. All three countries have constructed dams on the rivers for purposes of agriculture, hydroelectric power and industrialization.

Turkey and Syria have increased hostilities towards one another over the use of the Euphrates River. Hostilities between Syria and Iraq escalated due to the filling of Lake Assad by Syria, resulting to the reduction of downstream flow in the 1970's. Iraqi's began accusing Syria of holding back water supplies. Among all three countries, the water supply conflict is equated with their national security. The 1991 Gulf War brought on water crisis in Iraq due to the bombing of water treatment facilities in Iraq by the U.S., triggering water shortages in the country. Out of the seven major water pumping stations, four were destroyed. The targeting of sewage and water treatment plants contributed to the mass contamination of the Tigris River, and triggered many waterborne diseases. The bombing during the 2003 Iraq invasion again targeted civilian infrastructure, and left many southern Iraqis with little or no access to water.

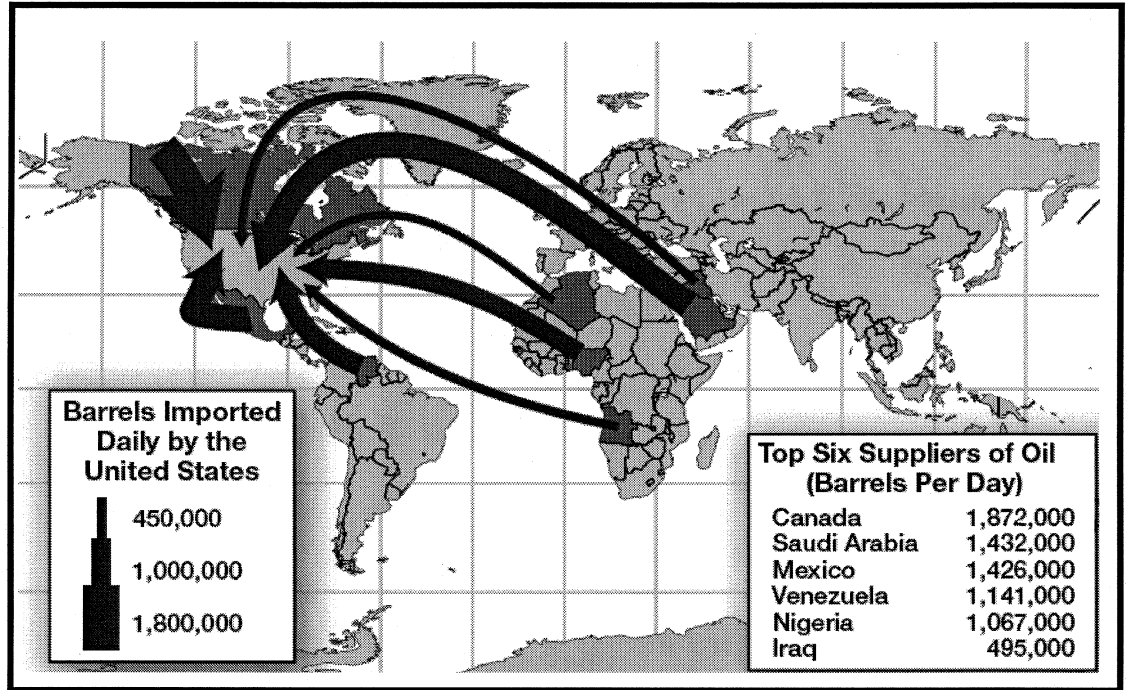


INTERNATIONAL OIL TRADE

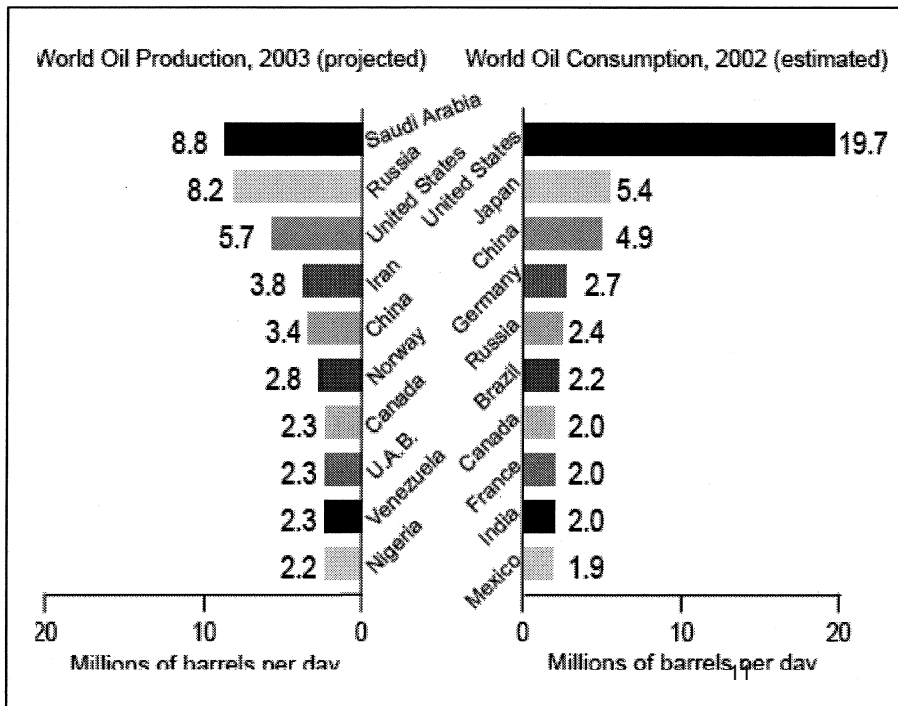
Saudi Arabia has the western powers over a barrel, so to speak- an oil barrel. As the OPEC country with the largest petroleum reserve in the greatest capacity for rapidly increasing production, Saudi Arabia literally controls prices on the world's oil market.

World oil consumption is increasing at nearly 2 % per year, while oil production and prices fluctuate at the whim of the OPEC oil "cartel" (an alliance of business companies formed to control production, competition, and prices of any type of product).

The United States produced 70% of its petroleum consumed in the 1970s, but today, the U.S. produces less than 50% of its needs, relying on imports for the rest. OPEC countries now supply about 20% of U.S. oil requirements, with Saudi Arabia providing 10% of those imports.



Lately, Western Europe and Japan have been urging the Saudis to increase their production, which will reduce prices and help benefit the world economy. But demand for oil around the world is higher than ever! Consumption has been on the rise, especially in developing countries, such as China, who are becoming more industrialized. Political events, such as wars, can also impact the price of oil. For example, unrest in the oil-producing country of Nigeria threatens their shipment.



The Organization of Petroleum Exporting Countries (OPEC) helps determine world oil prices and production. OPEC is made up of 13 oil-producing countries and has been in existence since the 1960s. Though the organization's first priority is to safeguard its own interests, it also strives to stabilize world oil markets, so a steady income is guaranteed.

Obstacles to Arab-Israeli Peace: Palestinian Refugees

In the course of Israel's creation in 1948 and its occupation of the West Bank and Gaza in 1967, more than half the Arabs of Palestine are thought to have been displaced. Palestinian refugees are the people and their descendants, predominantly Muslim and Arabic-speakers, who fled or were expelled from their homes that became the territory of the State of Israel. Some displaced Palestinians resettled in other refugees camps in neighboring countries where their situation is often precarious. (See chart below.)

Today these Palestinians live in exile from homes and lands their families had inhabited for generations. Many still suffer the legacy of their dispossession: destitution, penury, insecurity. Four million Palestinian refugees registered by the United Nations' humanitarian workers trace their origins to the 1948 exodus. That makes one of the biggest displaced populations in the world.



Palestinian refugee populations:

Jordan:	1,835,704
Syria:	434,896
West Bank/Gaza:	1,699,025
Lebanon:	405,425

Whatever the rights and wrongs of their cause, the practicality of return, or questions of justice, in Mid-East diplomacy the refugees' fate continues to be an issue. Israel argues that it is the only Jewish state- the refuge of Jews from around the world- while there are 22 Arab

countries where Palestinian refugees could emigrate. An Israeli historian claims, "...the Arabs in Palestine were asked to stay and live as citizens in the Jewish state. Instead, they chose to leave, either because they were unwilling to live with the Jews, or because they expected an eventual Arab military victory." Many Israeli leaders argue that the refugees should relinquish any aspirations to return to what is now its territory, and instead be absorbed by Arab host countries or by a future Palestinian state.

Palestinian refugees claim a right of return. Their claim is based on Article 13 of the United Nations' *Universal Declaration of Human Rights*, which declares that "Everyone has the right to leave any country including his own, and to return to his country." Arab nations have also accused Israel of deliberately keeping Palestinian refugees and their descendants out of negotiations on any settlement to the Palestinian-Israeli conflict.

Upon signing the Oslo Accords in 1993, Israel, the European Union and the United States recognized the right of the Palestinian refugees to be governed by themselves. And the parties agreed to negotiate a permanent status of the refugees- possibly an independent nation, known as Palestine. However, the process has been slow and it is unlikely that a future sovereign Palestinian state will become a reality. For many experts, the fate of the Palestinian refugees remains an open wound, unless there is a Middle East peace deal that acknowledges and makes reparation for what happened to the refugees.

BBC News, September 10, 2010

SAUDI ARABIA: ABSOLUTE MONARCHY?

There are not many monarchs (king or queens) in the modern world who have the power over their nation's citizens as kings and queens of the past centuries exercised. In fact, "absolute" monarchs are very rare in today's world. But do some royal families still wield such power that their governments can rightfully be called "monarchies?"



You decide? Is Saudi Arabia an absolute monarchy?

Saudia Arabia is ruled by a king, head of the Saud family. King Abdullah has agreed to abide by the laws of Islam (Sharia) according to a royal decree he issued himself. The Quran has been declared to be the country's constitution; there is no written constitution for Saudi Arabia. No elections have taken place since Saudi Arabia declared itself an independent nation in 1932. There are no political parties whose candidates run for public offices. There is no legislature (congress of parliament) to make laws for the country. All laws come from the king.

The Saud family consists of thousands of members. It is composed of the descendants of Muhammad ibn Saud and his brothers. The family is estimated to be composed of 15,000 members who hold the top government posts (ministries) in the nation.

All of the resources, land, and buildings in Saudi Arabia are considered property of the king. He shares the wealth of the nation with all citizens, as he see fit. Due to its authoritarian rule, the House of Saud has attracted much criticism. Its opponents generally refer to the Saudi monarchy as dictators. There have been numerous incidents of demonstrations and other forms of resistance against the House of Saud.



In a recent speech, the aging King Abdullah announced plans to share the wealth even more among Saudi citizens, including \$66.7b on half a million new housing units and \$4.3b on medical facilities. The plan also included an additional two months' wages for all government workers. King Abdullah raised the monthly minimum wage to \$800, as well. The monarch promised millions more for housing loans.

Because of its importance as home to Islamic religious sites and its large reserves of petroleum, Saudi Arabia plays major roles worldwide. This makes the vast Saudi Kingdom and its stability of major concern to the international community, especially the United States, one of Saudi Arabia's close ally. Is Saudi Arabia immune to recent democratic changes in the middle east? Many feel that future turmoil could be avoided if the Saudi monarchy listens to the demands of its people, especially its youth.

NY Times, March, 2011

Africa Trying for a "Second Independence"

After gaining independence from European colonial powers, many African nations stagnated under brutal rulers and government-run economies. Today, many of these nations are striving to establish democratic rule and free-market economies. The United States and other developed nations are being challenged to create new policies to address this "second independence." As African nations try to progress, what should be our role in that continent ?

Africa is a vast continent containing more countries than any other continent in the world. It's the homeland of hundreds of ethnic groups with different cultural traditions, languages, and religions. European nations such as Great Britain, France, Germany, and Italy colonized much of Africa. In the 1880s, as economic and political rivalry increased in Europe, these nations raced each other to lay claim to huge African territories rich in minerals, petroleum, coffee, and other resources. Many African rulers and peoples yielded to the military power of the Europeans. Others fought wars of resistance, but by the beginning of the twentieth century, Europeans ruled more than 90 percent of Africa's territories and more than 80 percent of its people.

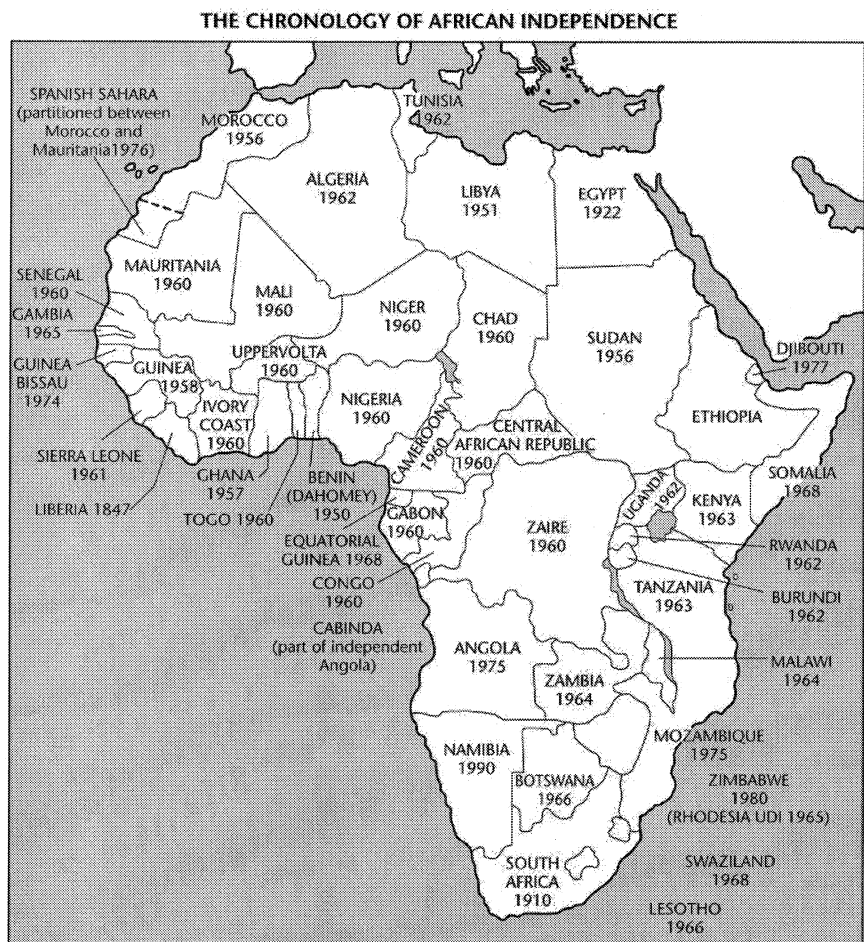
The Europeans drew arbitrary boundary lines separating their colonial territories to suit their own purposes while ignoring the cultural differences among Africa's many ethnic groups. As a result, some groups found themselves split up into two or more colonies while others were forced to live in the same colony with cultures foreign to them. These boundary lines would create a great deal of trouble in the future for the people of new African nations like Rwanda, Nigeria, and Sudan.

After World War II, the demand for independence became a mass African movement. By the 1980s, most of Africa was independent. Drawing heavily on foreign aid, many of the new African nations tried to educate their people and to establish self-sufficient economies. However, many failed. Instead, they often turned to a government-run economic system that permitted an elite few to get rich while the majority of people sank deeper into poverty. Many new African governments fell into the hands of military dictators who wanted power and wealth only for themselves.

During the last few years, some African countries have moved toward market economies. At the same time, many nations have held democratic elections. Africans call these attempts to establish democracy and economic reforms their "second independence." In order to achieve this second independence, they must erase the legacy of European colonialism and the more recent misrule by Africans themselves.

Despite their problems, the nations of Africa hold great promise for the future. Resources such as oil, water power, and minerals have never been fully developed for the benefit of the people. With irrigation, millions of acres of land could be cultivated for both food and export crops.

Under better leadership, the economic growth rate in Africa has doubled. While Africa is struggling with its second independence, developed industrial nations like the United States are seeking ideas to help reverse the trends caused by exploitation of Africa during the previous centuries.



Geography in the News™

Neal G.
Lineback



THE SAHEL'S DROUGHTS

Africa's Sahel is a semi-arid region whose devastating droughts keep international disaster relief organizations busy. The Sahel's water problems have been the subject of years of scientific research into causes and effects, but recent studies provide some new insights.

The Sahel is a broad and ill-defined belt of semi-arid grassland and shrubland, called tropical steppe, just south of the Sahara. Crossing Africa from east to west, this region is sandwiched between desert to the north and tropical savanna to the south. It varies in width from 200 to 500 miles (322 to 806 km) or more.

Average annual precipitation in the Sahel is less than 20 inches (51 cm), most of which falls in northern summer season. A truism in geography says, "As precipitation decreases, so too does its dependability." It is not unusual for the Sahel's annual precipitation to vary by more than 50 percent from year to year.

Evaporation rates also are very high in tropical steppes. Potential evaporation rates regularly exceed annual precipitation amounts, meaning that there almost is never a surplus of

moisture for plants. Consequently, unirrigated agriculture is difficult in the Sahel even during wet years.

The harsh climate and undependable weather of the Sahel result in extended droughts, followed by a few wet years. Generally, the drought cycle occurs every three to five years, often lasting two or more years. Since the early 1900s, however, the droughts have been more severe and longer lasting and annual precipitation totals have been in decline.

When droughts arrive, humans and their animals increase pressure on the environment. Wells dry and crops and animals can no longer be watered by hand. Goats and cattle overgraze the meager vegetation and firewood becomes scarce. Humans and animals become stressed from thirst and hunger, many fleeing to refugee camps searching for water and food.

Pictures of pitiful, starving children and adults covered in flies and dressed in rags periodically permeate

world newscasts. The immediate starvation problem, as difficult as it appears, may be the easiest to solve with relief food, water and shelter. The difficult problem is to develop ways to lessen the impacts of the droughts on the existing population. This requires scientists to understand the causes of droughts, predict their occurrences and develop ways to lessen impacts.

Scientists have long known that increased pressures on the Sahel's vegetation during droughts tend to result in *dissertification*. This simply means that when all vegetation is denuded for an extended period of time, desert conditions tend to prevail long-term. The fundamental causes of the Sahel's droughts, however, have escaped researchers until recently.

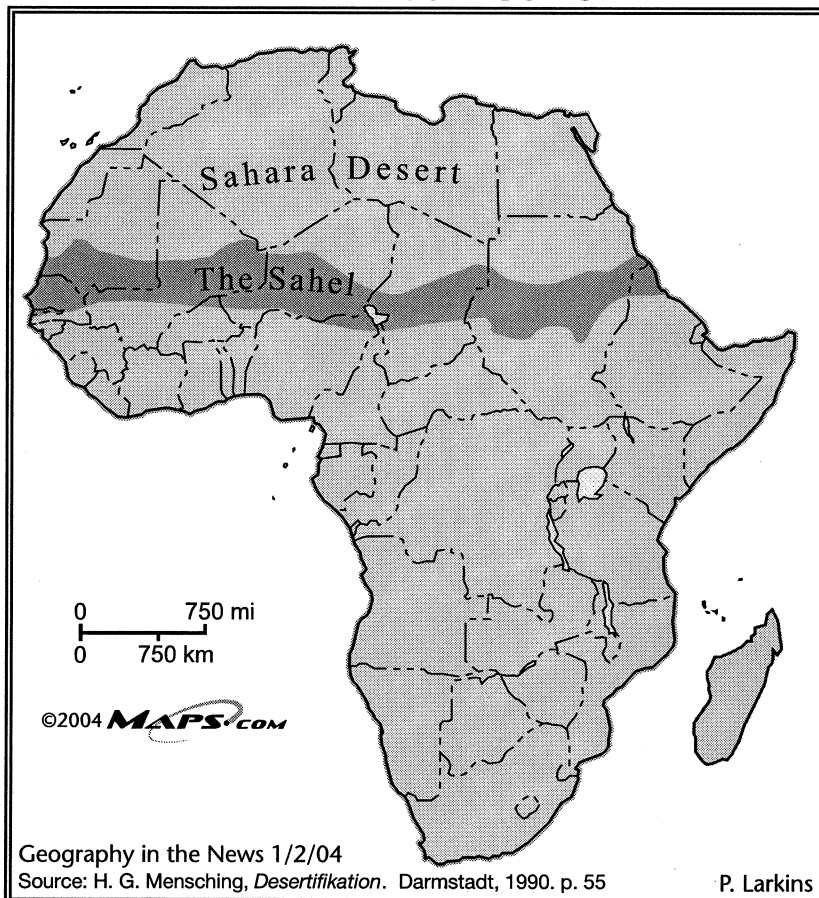
A recent study by Richard A. Kerr in *Science Now* (Oct. 10, 2003) described the use of a model to determine that warming of the Indian Ocean has been the dominant driver in the drying of the Sahel. Other models support this conclusion.

Apparently, the temperature of the Indian Ocean holds the key, not only to the drying of the Sahel in Africa, but to variations in monsoons in South Asian and to El Nino and La Nina effects in South and Central America. These discoveries have focused worldwide research on the Indian Ocean's role as a thermostat in world climatology. Closer monitoring of its temperatures and circulation may provide the key to predicting the cycles and severity of the Sahel's droughts.

And that is Geography in the News™. January 2, 2004. #709.

(The author is a Geography Professor at Appalachian State University, Boone, NC.)

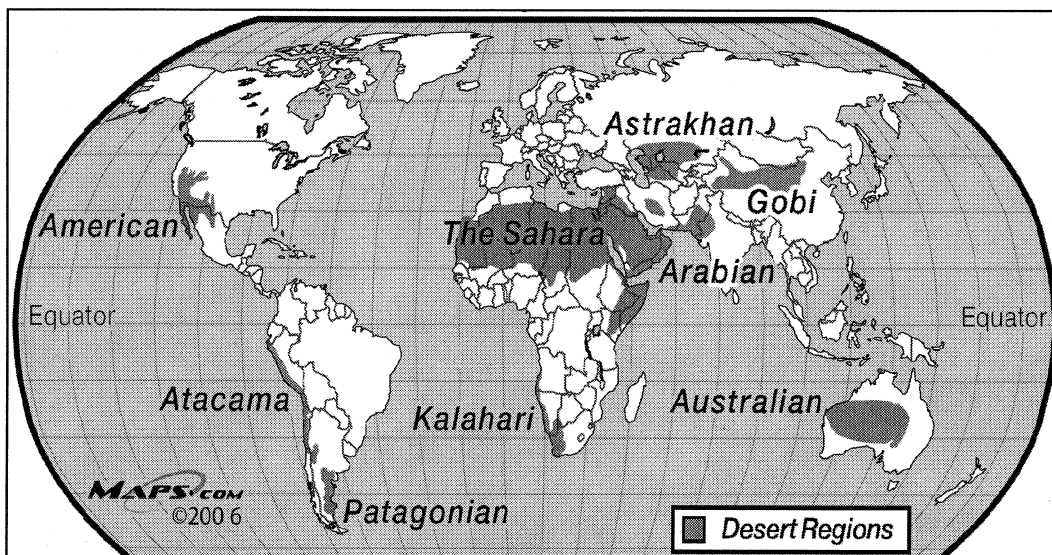
The African Sahel



EXPANDING DESERTS

All across semi-arid Africa, an ongoing change in the physical landscape threatens the livelihood of millions. This process is called desertification. Semi-arid margins of the world's deserts (called steppes) have long sustained sparse human populations. Scattered small villages whose sedentary agriculture is dependent on seasonal rain occupy these lands. Likewise, small groups of nomadic herdsman move with their herds to find fresh, though often meager, pastures.

Since the last half of the twentieth century, the world's population curve has turned upward ever more sharply. To a large degree, the benefits of modern medicine and increased sanitation were responsible for this population explosion. Consequently, the populations of many marginal regions have surpassed the carrying capacity of the physical environment. The resulting inability of the land to support its human and animal populations causes even greater pressures to be placed on it.



Semi-arid steppes have occasional precipitation, in most cases coming during a wet season. Such regions may experience intense, short thunderstorms. On an annual basis, potential evaporation is great, leaving no annual surplus of water. When the human populations of these regions reach the carrying capacity of

the land, it means that any further increase in population or any natural environmental stress can spell disaster. Once the carrying capacity threshold is exceeded, the consequences are well documented.

One of the responses to overgrazing that occurs is the loss of beneficial native grasses. Once semi-arid regions reach this level of environmental degradation, the process of desertification is deeply embedded. Meager precipitation runs off the soil. Thus, erosion of the topsoil begins. According to experts, it takes 200 to 1,000 years for one inch of soil to form, but only a few seasons for it to be swept away under these conditions.

Most of the land where desertification is occurring includes these margins of the world's deserts. They include the Sahel of Africa (south of the Sahara), much of southern Africa, large parts of western India and Pakistan, much of the land south of the Aral Sea, the region north of the Caspian Sea, and the land around the Tigris and Euphrates rivers in Iraq. Such lands and related livelihoods may be lost forever.

Geography in the News

Glory and Hope,

Nelson Mandela, upon election as President of South Africa, 1994

Today, all of us do, by our presence here, and by our celebrations...confer glory and hope to newborn liberty.

Out of the experience of an extraordinary human disaster that lasted too long must be born a society of which all humanity will be proud.

Our daily deeds as ordinary South Africans must produce an actual South African reality that will reinforce humanity's belief in justice, strengthen its confidence in the nobility of the human soul and sustain all our hopes for a glorious life for all...

The time for the healing of the wounds has come...

The time to build is upon us.

We have, at last, achieved our political emancipation.

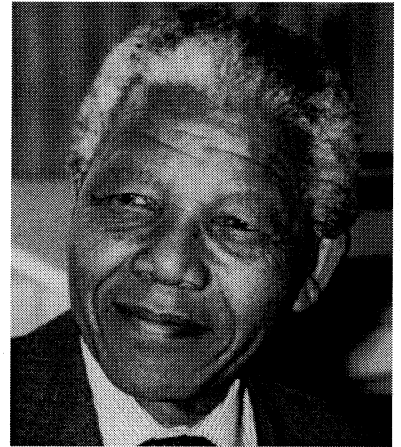
We have triumphed in the effort to implant hope in the breasts of the millions of our people. We enter into a covenant that we shall build the society in which all South Africans, both black and white, will be able to walk tall, without any fear in their hearts, assured of their inalienable right to human dignity – a rainbow nation at peace with itself and the world...

We understand it still that there is no easy road to freedom.

We know it well that none of us acting alone can achieve success.

We must therefore act together as a united people, for national reconciliation, for nation building, for the birth of a new world.

Let there be justice for all. Let there be peace for all. Let there be work, bread, water, and salt for all....The sun shall never set on so glorious a human achievement!



Charter of the United Nations
June 26, 1945, entered into force Oct. 24, 1945.

Preamble



WE THE PEOPLES OF THE UNITED NATIONS DETERMINED to save succeeding generations from the scourge of war...and to reaffirm faith in fundamental human rights, in the worth of the human person, in the equal rights of men and women, and of nations large and small, and to establish conditions under which respect for ... law can be maintained, and to promote social progress and better standards of life...

FOR THESE ENDS... to practice tolerance and live together in peace with one another as good neighbors, and to unite our strength to maintain international peace... and to ensure that armed force shall not be used, save in the common interest...and for the promotion of advancement of all peoples...

HAVE RESOLVED TO COMBINE OUR EFFORTS TO ACCOMPLISH THESE AIMS...Do hereby establish an international organization to be known as the United Nations.

Article 1

The Purposes of the United Nations are:

1. To maintain international peace and security, and to that end to take effective collective measures for the prevention and removal of threats to the peace...
2. To develop friendly relations among nations based on respect for the principle of equal rights of peoples...
3. To achieve international cooperation in solving international problems...

Article 2

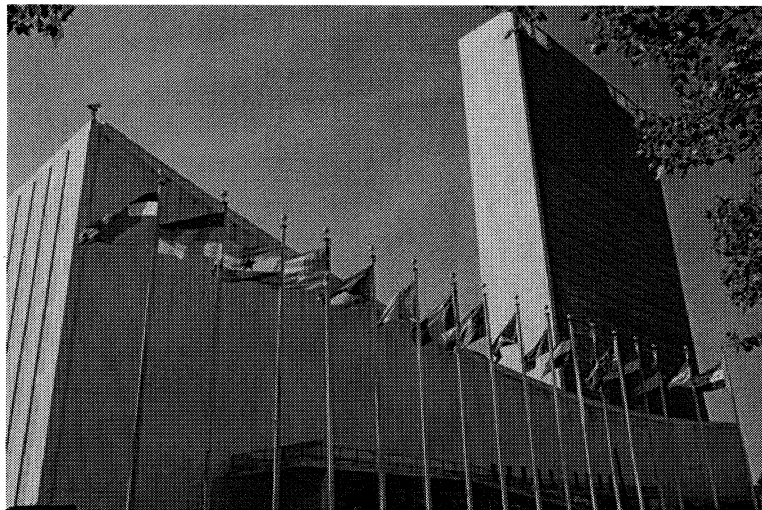
1. The organization is based on the principle of equality of all its Members.
3. All Members shall settle their international disputes by peaceful means.
4. All Members shall refrain from the threat or use of force against any state...

Article 13

1. The United Nations shall initiate studies and make recommendations for promoting international cooperation in the educational and health fields, and assisting in the realization of human rights and freedoms for all...

Article 42

The United Nations...may take such action by air, sea, or land forces as necessary to restore international peace and security.





KASHMIR: Territorial Wars

CONFLICT:

It is beyond any doubt one of the most beautiful places on earth. But the mountains of Kashmir are also home to one of the world's most dangerous conflicts. For over five decades, India and Pakistan have squared off over this terrain.

The region is divided among three countries in a territorial dispute: Pakistan controls the northwest portion, India controls the central and southern portion (Jammu and Kashmir) and China controls the northeastern portion.

Though these regions are in practice administered by their claimants, neither India nor Pakistan has formally recognized the claims by each other.

The two countries have fought several wars over the territory. Several resulted in stalemates following a United Nations- negotiated ceasefire.

Many human rights organizations such as Amnesty International and the Human Rights Watch have condemned human rights abuses in Kashmir such as torture and executions. On the other hand, India alleges that Pakistan has been engaging in a "proxy" war by supporting Islamist terrorists who have crossed the border, engaging in ethnic cleansing of Kashmir's Hindu minorities. The issue of whether Kashmiri militants battling India are terrorists or freedom fighters goes to the very heart of the problem here. And your viewpoint depends largely on where you live.

BACKGROUND:

1947 was the year the British pulled out of India, leaving only their influence behind. They divided the country into mostly Hindu India and mostly Muslim Pakistan. Although the region of Kashmir has a mostly Muslim population, the local ruler decided to ally the state with India. War immediately erupted between India and Pakistan. After a U.N.-arranged ceasefire in July 1949, Pakistan gained one third of Kashmir territory. The remaining territory was to be under India's control but to have a status of near independence. Despite this arrangement, India formally annexed Kashmir as a state which provoked rioting among the Muslim population. The Jammu and Kashmir Liberation Front strengthened their struggle to liberate of Kashmir from India to form a separate nation.

Recent Events:

With shelling taking place on almost a daily basis, the world fears that their next battle could go nuclear. India has more than 700,000 troops deployed in Kashmir; the Pakistanis have around 300,000.

The stakes have been raised because both countries are not parties to the nuclear non-proliferation agreement and have developed nuclear arsenals. In addition, much of Al-Queda's terrorist activity has occurred in Kashmir. Because Pakistan claims all of Kashmir territory, it has covertly supported this activity. Moreover, the U.S. war against the Taliban has exacerbated this already tense border dispute.

Now under the pressure of the USA, Pakistan has relinquished the path of war and accepted to pursue the path of peace with India in order to settle all issues including Kashmir. In this stage, ice has been broken between India and Pakistan following the model of the boundary talks between India and China. If Pakistan deals with India, the dispute over Kashmir can very well be bilaterally settled. But so far, no agreements after the Indo-Pak Wars in 1949, 1965, 1971 and 1999 are followed. Neither has the UN resolution to conduct an election to solve the Kashmir issue been followed.



Globalization and Worker Rights

Capitalism has triumphed in a globalized economy. International organizations are helping to eliminate trade barriers. But no international organization is enforcing labor standards worldwide. Do we need international labor standards in the new world economy? Economic globalization has created millions of jobs and produced more affordable goods for consumers. But some say that the global economy needs international labor standards. These would provide minimum standards for worker safety and pay.

Over fifty years ago, the International Monetary Fund (IMF) and the World Bank were established. These financial institutions lent money to countries for them to develop their economies and participate fully in international trade. Later, the World Trade Organization (WTO), set the rules for trade agreements among nations. Even the

Table 1. Average Hourly Apparel Worker Wages

	Hourly Wage in U.S. \$
Bangladesh	\$0.13
China	0.44
Costa Rica	2.38
Dominican Republic	1.62
El Salvador	1.38
Haiti	0.49
Honduras	1.31
Indonesia	0.34
Nicaragua	0.76
Vietnam	0.26

poorest countries benefited by putting their people to work in new export industries.

But those supporting international trade voice concern over recent trends. As competition among businesses has increased, a so-called "race to the bottom" seems to have begun. Many companies have moved to countries with the lowest wages and tax rates. This has increased employment in poor countries, but 1.3 billion workers today still earn less

than \$1 a day with little or no "safety net" to help them. In these countries, sweatshops, child labor, industrial pollution, and poor worker health and safety conditions are commonplace.

In 1994, the North American Free Trade Agreement (NAFTA) went into effect. This agreement among the United States, Canada, and Mexico dropped trade barriers and furthered the goal of free trade. So far, NAFTA has probably been a net plus for the U.S. economy. For example, the South lost tens of thousands of textile and furniture manufacturing jobs to low-wage workers in Mexico. But most unemployed Southerners soon found work in new high-tech factories, making such things as fiber-optic cable and computer chips.

Those favoring international labor standards stress the need to eradicate sweatshops. Many companies in the global economy search for countries with the cheapest possible labor. Recent investigations by Business Week magazine confirm that sweatshop workers are frequently cheated on their wages, forced to work overtime, exposed to dangerous chemicals and machinery, locked inside during working hours, and even beaten for being tardy.

Table 2. People Living on Less than

	\$1 a Day	\$2 a Day
Bangladesh	36.0%	82.8%
Cambodia	34.1%	77.7%
China	16.6%	46.7%
Costa Rica	20.1%	94.5%
Dominican Republic	20.0%	20.0%
El Salvador	31.1%	58.0%
Honduras	23.8%	44.4%
Indonesia	7.5%	52.4%
Nicaragua	45.1%	79.9%
Vietnam	17.7%	63.7%

Source: World Bank, *World Development Indicators*

Yet, poor developing nations often defend sweatshops. They say that the low-cost factories provide needed income for families who are struggling to survive. In many of these countries, working for 60 cents an hour 12 hours a day is a step up from poverty. They argue that sweatshops, for all the pain they cause, also produce change. They contrast India, which "resisted foreign exploitation," with Taiwan and South Korea, which "accepted sweatshops as the price of development." Today, they say, "Taiwan and South Korea are modern countries with low rates of infant mortality and high levels of education." Should the United States insist on strong and enforceable worker rights in its trade agreements?

Bill of Rights in Action

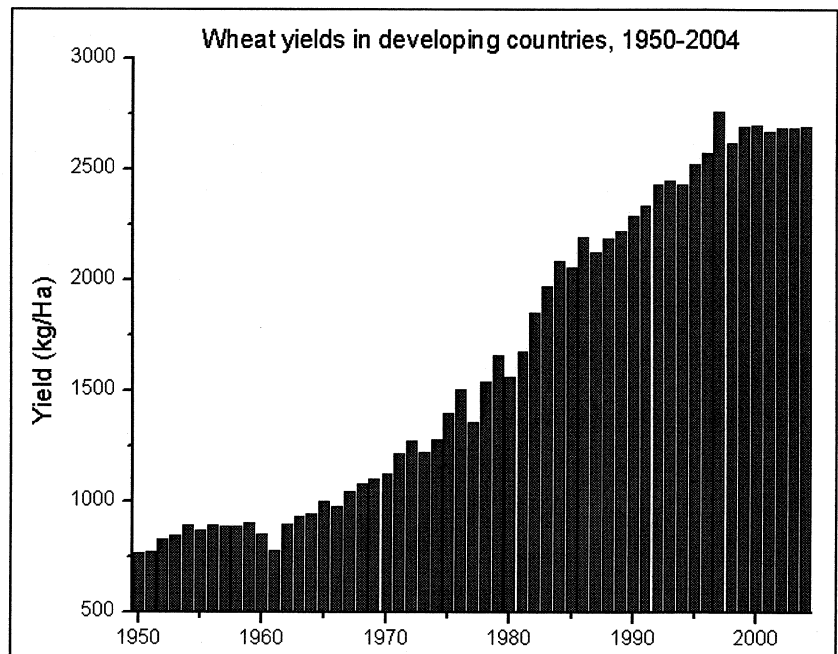
GREEN REVOLUTION

The "Green" Revolution refers to a series of research, development, and technology transfers occurring between the 1940s and the 1970s, that increased agriculture production around the world. The Green Revolution has been credited with saving over a billion people from starvation! This has been the result of high-yielding cereal grains, expansion of irrigation, modernization of farming method, fertilizers, and pesticides.

This modern agricultural development began in Mexico was been judged as a success and soon spread to other nations. In 1961 India was on the brink of mass famine. Many groups of people worked together to make India a success story, too. The Rockefeller and Ford Foundations and Indian government imported new wheat seeds into the country. India began its own Green Revolution program of irrigation development and agrochemicals.

By the 1960s, India's "Green" farms were yielding 10 times the tonnage of traditional rice farms. New forms of rice were dubbed the "Miracle Rice". India became one of the world's most successful rice producers and is now a major rice exporter, shipping nearly 4.5 million tons each year.

There have been numerous attempts to introduce the successful concepts from the Mexican and Indian projects into Africa. These programs have generally been less successful. Reasons cited include widespread corruption, lack of infrastructure, and a general lack of will on the part of the governments.



After famine and years of chronic hunger and poverty, the small African country of Malawi launched a Green Revolution for small farmers to buy fertilizer and maize seeds. Within its first year, the program was reported an extreme success, producing the largest maize harvest of the country's history; enough to feed the country with tons of maize left over.

The Green Revolution spread technologies that had already existed, but had not been widely used outside industrialized nations. These technologies included modern irrigation projects, pesticides, nitrogen fertilizer and improved crop varieties developed through science-based methods. Agronomists bred maize, wheat, and rice that were high-yielding varieties.

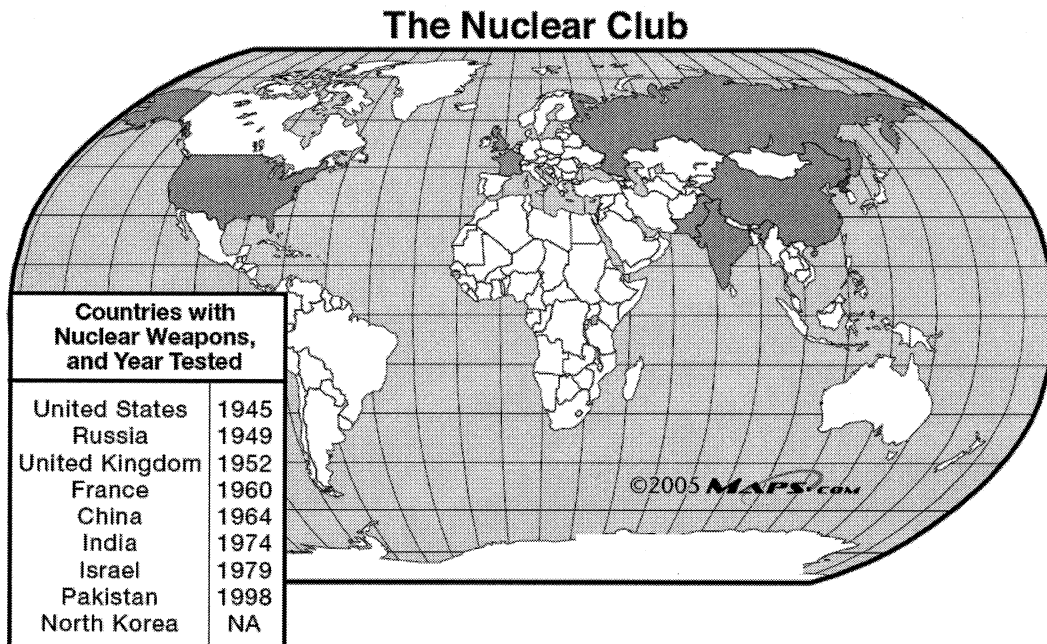
The world population has grown by about four billion since the beginning of the Green Revolution and many believe that, without the Revolution, there would have been greater famine and malnutrition. India saw annual wheat production rise from 10 million tons in the 1960s to 73 million in 2006. The average person in the developing world now consumes roughly 25% more calories per day now than before the Green Revolution.

THE NUCLEAR CLUB

Humanity's greatest threat of all time is a nuclear holocaust, which could leave large portions of the earth uninhabitable for centuries. The "Nuclear Club" is growing as not only terrorists but developing countries seek nuclear technology. Who has or may have nuclear weapon technology and what are the implications?

The United States built and test the first atomic bombs as a way to win World War II. Two atomic bombs were dropped on the Japanese cities of Hiroshima and Nagasaki ending the war. But as the Soviet Union exploded its first atomic bomb in 1949, the "Cold" War in the 1950s raised the level of nuclear threat, as the United States and Soviet Union developed intercontinental ballistic missiles. These events set the stage for discussions about developing worldwide Nuclear Non- Proliferation treaties. Many nations agreed to give up their stockpiles of nuclear weapons.

By the first decade of the 21st century, a radical change in nuclear focus began, as U.S. concerns about worldwide terrorism were added to worries about countries with nuclear capabilities. Concerns not only included the spread of weapons to new countries, but the diffusion of nuclear materials to terrorist groups.



In 2005, the world's Nuclear Club consisted of seven countries with known stockpiles of nuclear weapons: United States, Russia, United Kingdom, China, France, India and Pakistan. North Korea recently claimed to have nuclear weapons and Iran is being accused of secretly working on a nuclear weapons program. Although Israel still has not admitted it, it is well known that the country also has achieved nuclear status. And so the Nuclear Club grows in membership—and in danger.

Geography in the News

BANGLADESH DISASTERS

Bangladesh is a small nation that experiences frequent disaster related to the natural processes of the earth- namely cyclones! Cyclones are known in the western hemisphere as "hurricanes" but while Hurricane Katrina was a category 3 storm, many cyclones that strike Bangladesh reach the category 4 stage. (Bangladesh has a tropical monsoon climate, which means that the rainy season comes during the summer months.)

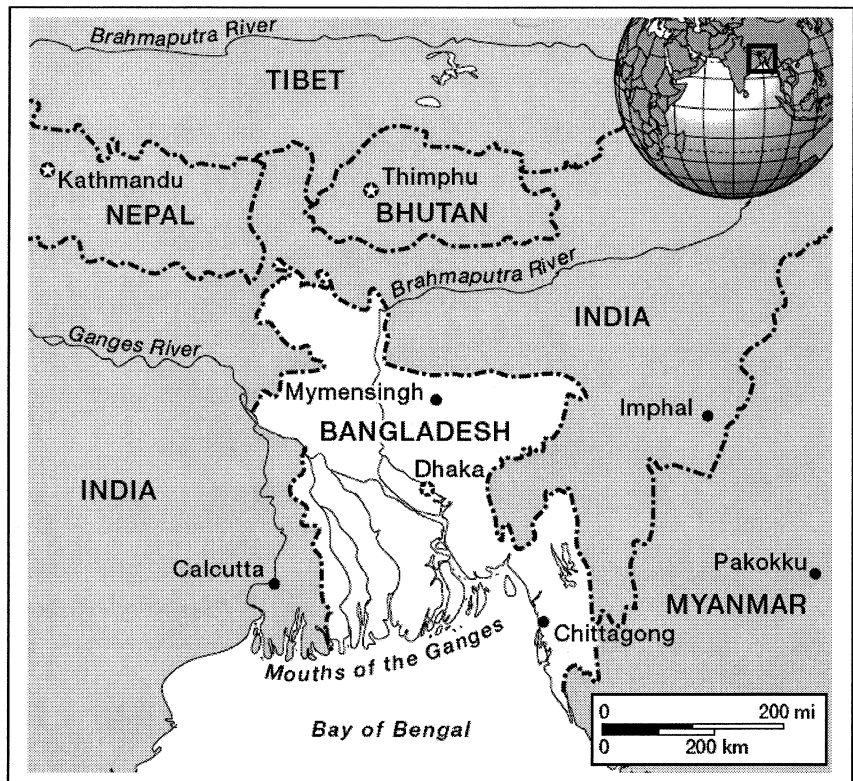
Bangladesh is one of the poorest countries in the world. In addition, its physical geography makes it vulnerable to natural disasters. Situated around the mouths of the Ganges and Brahmaputra rivers, most of the country is lower than 600 feet above sea level. Over thousands of years, the Ganges and Brahmaputra rivers have drained the region. Tributaries of both rivers descend from the mountains and their erosive power is enormous.

Once onto the flatter plains near their mouths, both rivers lose their velocities and their heavy loads of sediment. The deltas of these rivers merge to form one huge delta at the north end of the Bay of Bengal.

Millions of Indians and Bengalis struggle to produce enough food to survive in the small, irrigated rice paddies found in the loamy delta soil. The rice cultivation depends heavily on the annual monsoon rains, but too much rainfall means floods that destroy crops in the fields. An equally great consequence is the contamination of drinking water, which spells disease and possible death.

Cyclones in this region of the world arrive with winds of over 150 mph, bringing ashore huge surges from the Bay of Bengal, causing flooding considerable distances inland.

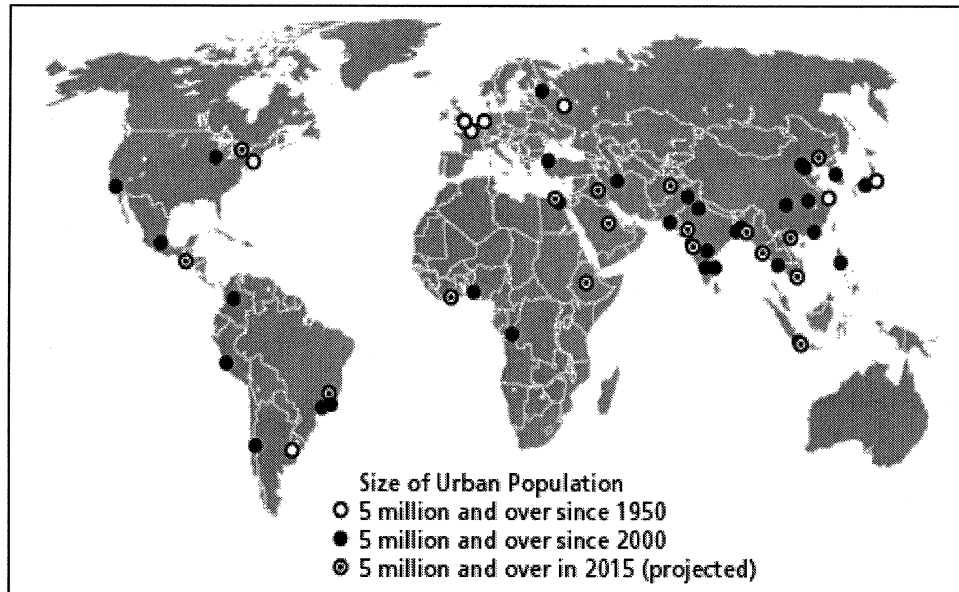
The devastation of this densely populated and impoverished nation is incredible! For example, 10,000 people died during a 1985 cyclone; 300,000 perished in a 1970 cyclone; and 3,000 drowned or were swept out to sea in the recent 2007 cyclone. Living in the delta regions of South Asia can be a blessing and a constant threat.



Growing migrant populations continue to put huge pressures on the largest cities of India, including Delhi and Mumbai. Such "mega-cities" of the developing world hold an irresistible attraction for migrants from the rural countryside. But as the cities swell, their need for food, water and energy multiplies. Is such urbanization sustainable?

Ujjwal is a young laborer sitting outside a makeshift tent in a wealthy part of New Delhi. By day he works on repaving the road. By night he sleeps on the pavement. Like millions of Indians, he has migrated to the big city to find work and earn money. It is the only way he can gain any benefit from the urban economic boom which has swept through this country. "You have to work hard and the hours are long. But I don't want to go back to my village in Bengal. I want to stay here in

Delhi." Ujjwal earns about 5,000 rupees (\$102) per month and manages to send at least 1,000 rupees home to his family.



India's capital is creaking at the seams. But, it's the same story across the developing world. Mega-cities have been growing at an incredible rate, and are struggling to cope with the demands of millions of new inhabitants. Take the example of Mumbai. Its population has roughly doubled in the past 25 years, and millions of people live in the slums.

Internal migration is now recognized as an important factor in influencing social and economic development, especially in developing countries. According to census 2001, the total population of India was over one billion, of which 300 million were migrants who had moved to urban areas within the last ten years. That means about 30% of the total population of the country has moved from rural to urban centers since the beginning of the twenty-first century!

Ensuring access to clean water is a particular dilemma, and for many a daily grind. Early in the morning, in north Mumbai, dozens of people are lining up in the rain with buckets and plastic cans, hoping to buy water from a pipe snaking out into the narrow street. The municipal supply is only switched on for a couple of hours a day. So this is the one chance for people to get enough water to meet their basic needs.

But despite all the strains on the system there is an argument that migration from rural to urban areas in countries like India should increase still further. A World Bank report says the process of migration should be welcomed and encouraged as a way of lifting people out of poverty. "Instead of worrying about the size of metropolises, the government should worry about making sure that these places work well," said the director of the World Development Report.

That's a huge challenge. Because if a significant percent of the country's migrant workers succeed and settle down, they too will be seeking even more water, more food and more energy supplies. India's cities are developing fast. But the demands of the people are developing faster.

Experts foresee each problem combining to create a "perfect storm" in which the whole is more serious than the sum of its parts. "Can we cope with the demands in the future on water? Can we provide enough energy? Can we do it, all that, while adapting to climate change?" asks experts at a recent conference in London. "All these things are coming together. Population growth is going up and food supply is going down. The developing world is growing and its people are getting richer. There will be more demand for foods...We are not going to be able to buy everything we need."

The Long River Dam

Nine months ahead of schedule, China completed construction of the Three Gorges Dam on the Yangtze (Chang Jiang; "long") River. Despite being labeled by critics as one of the most environmentally and socially destructive projects in the world, China is proud of the accomplishment! Have the Chinese finally succeeded in taming the mighty Yangtze?

Work began on the Three Gorges Dam in 1993. Freighters can now navigate through a two-way lock system and a one-step elevator, allowing them to travel the country's interior.

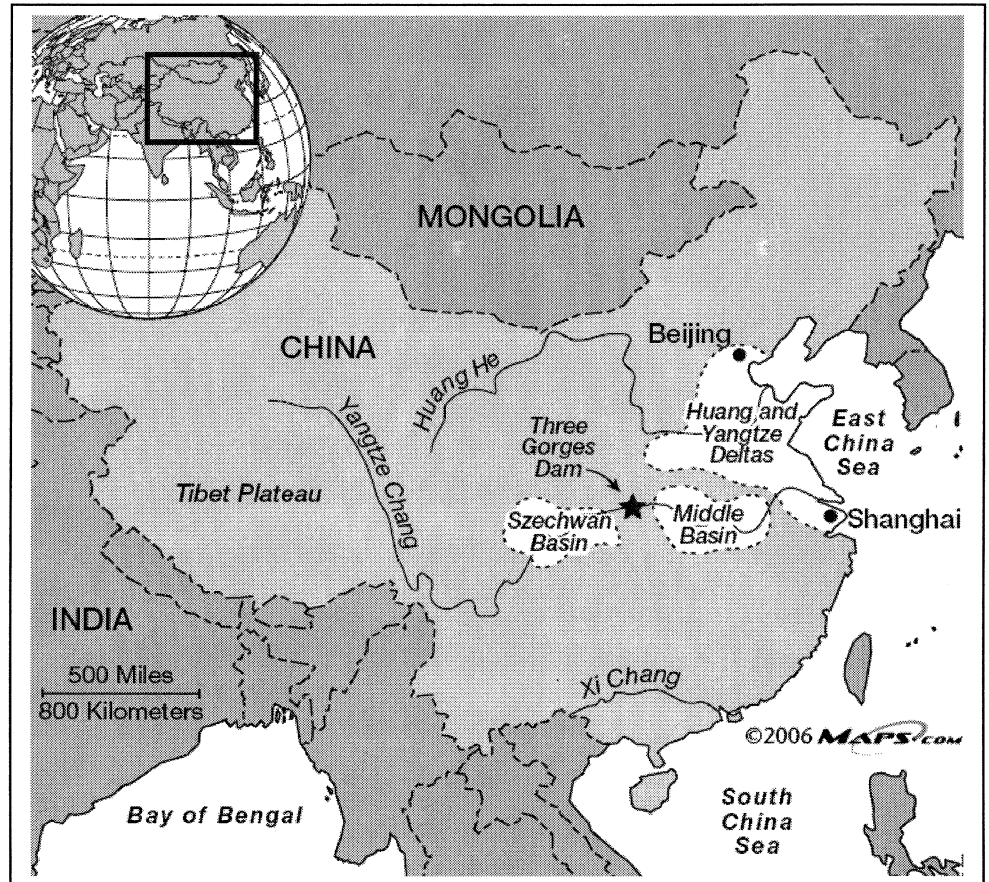
China plans to have 26 turbines operational and producing billions of kilowatts of electricity each year to support its industries. As the second-largest consumer of oil in the world, China hopes the dam can be part of a larger alternative energy plan to support its thriving economy.

The Chinese government also says the dam will alleviate the devastating flooding, which has killed thousands in the past. Where the dam is located, the river resides in a series of narrow gorges. But below the dam, the river opens to a wide agricultural delta where most of the flooding consistently took place.

Over a million people have already been moved from their homes to make way for the project. At least 1200 towns and villages have been submerged under the rising waters of the dam's reservoir. The government claims these people have been relocated into new homes and compensated for their losses, but critics claim much of the money has gone into the pockets of corrupt government officials.

Environmentalists also find fault with the Three Gorges Dam, saying it has destroyed the natural beauty of the surrounding area. In addition, important archaeological sites have been lost. Activists also claim that the water behind the dam is becoming severely polluted by human and industrial waste from large upstream cities like Chongqing.

In many ways, the Three Gorges Dam is a symbol of China's superpower capabilities. But, critics say it also shows China's desire for economic growth despite the costs to human life or the environment. Regardless, the Three Gorges Dam is the largest and most costly hydroelectric dam in the world, more than 5 times larger than the Hoover Dam!



CHINA'S EXPLODING ECONOMY

China's economy and its world exports are increasing! At present rates of growth, China could replace the United States as the world's economic leader within the next decade. In fact, the U.S. national debt is now heavily influenced by China and Japan.



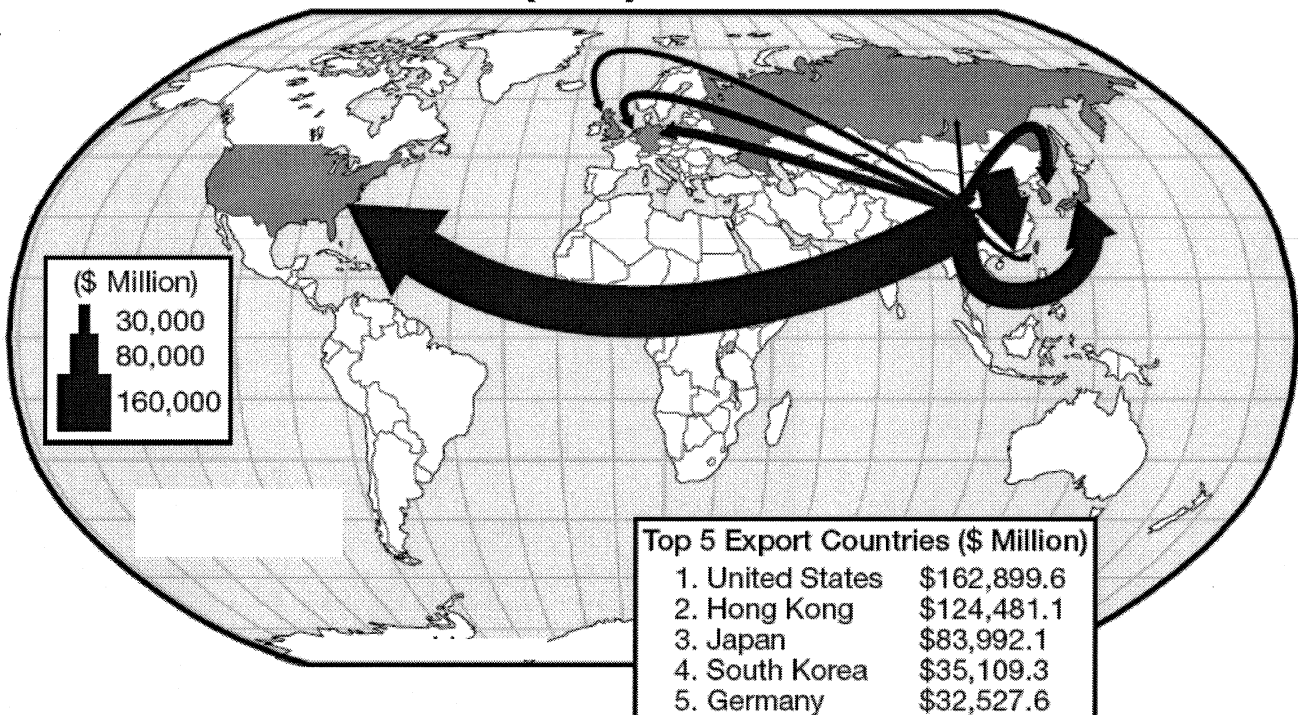
This transformation is occurring not only because one in every five people on earth is Chinese, but because China's economy is growing at a phenomenal 9 % annually. Meanwhile, most other developed countries' economic growth, including the U.S., is hardly above 3%.

China has surpassed the U.S. in consumption of grain, meat, coal, steel, cell phones, and televisions. And China is gaining fast in consumption of personal computers, and automobiles. In fact, China is now second only to the United States in consumption of petroleum, having surpassed Japan. Both are now the world's largest carbon emitters.

By the 1980s, China's government had enacted a host of economic reforms including market-oriented incentives. Although China's government is still controlled solely by the Communist Party, the new market economy has become the leading "economic tiger" of Asia. Today, China ranks third in the world for volume of exports.

Significantly, China had recently overtaken the U.S. in the export of information and communication technology. China has a \$100 billion per year trade surplus with the rest of the world and a \$200 billion surplus with the United States. Abundant underemployment and inexpensive labor has fueled China's increasing exports. It is possible that economic growth may lead toward a more open political system in China's future.

China's Top Export Destinations



China in the Balance

China is home to more than 1.2 billion people, one-fifth of the global population. China can be proud of its rapid economic growth. At the same time, however, the nation grapples with serious environmental degradation and depletion of its natural resources. The environmental degradation has become serious: There is severe pollution of urban air, acid rain in many areas, water pollution, a shortage of drinking water, and solid waste pollution. In addition, soil erosion and deforestation are accelerating.

Factors that have contributed to this state of affairs include rapid industrialization, inadequate public awareness of environmental issues, and ineffective management by the government. These problems endanger public health and quality of life. Soon, they will restrict the nation's economic development.

The problem of air pollution in China is significant. In large cities, people increasingly complain about the quality of air they breathe. A recent study by the World Health Organization reports that 7 of the world's 10 most polluted cities are in China. Beijing is the most contaminated capital in the world. In urban areas, severe air pollution is caused by the burning of coal, which fuels 75 percent of the nation's energy production.

To curb air pollution, China has recently taken aggressive measures. All new coal-fired power plants are required to install pollution control devices, can remove more than 99 percent of emissions. There is also a ban on the digging of new mines that contain high-sulfur coal. New industrial plants have been moved out of densely populated urban areas. In Beijing, vehicles are required to pass an emissions test before getting on the road. And many large cities have begun to switch from gasoline to cleaner fuels, such as liquefied natural gas for urban mass-transportation.

China possesses two of the world's longest rivers: the Yangtze (Long River) and the Yellow River. Yet the country's water resources per capita are only one fourth of the world's average. Over half the cities in China are facing water shortages, with many suffering severe scarcities. Besides water scarcity, there is the problem of pollution of rivers, lakes, and underground water. Factors contributing to this pollution include the country's rapid industrialization and urbanization and poor environmental management. As a result, the people of China must either boil their water before drinking or buy bottled water.

Although China is the world's fourth-largest country, it has less than 10 percent of the world's arable land. It has been estimated that one-fifth of China's agricultural land has been lost through soil erosion, deforestation, and desertification. Deforestation has caused excessive damage to ecosystems and contributed to increased soil erosion. The loss of habitable land for wild animals and plants also threatens the country's biodiversity, which is one of the richest in the world.

Most every year, parts of China are hit with severe floods. Such disasters can be attributed not only to unusual weather patterns but to human damage of ecosystems as well. Severe deforestation by illegal logging in the upstream section of rivers has rapidly broadened soil-erosion areas. Recently, the Chinese government launched a nationwide campaign to protect and regenerate forested land. It included an immediate ban on logging in natural forests. However, the government estimates that it will take over 50 years to restore areas that have suffered serious ecological harm and to significantly improve the environment in most areas in China.

In addition to domestic challenges, China faces worldwide issues such as global climate change. Primarily due to its high dependence on coal, China accounts for 20 percent of the world's carbon dioxide emissions today. At this level, it is the world's second-largest emitter of carbon-containing compounds, after the United States. As a member of the international community, China has signed environmental-cooperation agreements with 23 other countries to improve and protect the global environment.

Washington Post, December, 2009

The Geography of Chinese Power

By ROBERT D. KAPLAN

China's blessed geography is so obvious a point that it tends to get overlooked in discussions of the country's economic dynamism and national assertiveness. Yet it is essential: It means that China will stand at the hub of geopolitics. Today China's ambitions are as aggressive as those of the United States a century ago, but for completely different reasons. China does not take the same approach to world affairs, seeking to spread a system of government. Instead, its actions are propelled by its need to secure energy, metals and strategic minerals in order to support the rising living standards of its immense population.

The mountainous Tibetan Plateau is rich in copper and iron ore and accounts for much of China's territory. This is why Beijing views with horror the prospect of Tibetan autonomy and why it is frantically building roads and railroads across the area. China's northern border wraps around Mongolia, a giant territory that looks like it was once bitten out of China's back. Having once conquered Mongolia to gain access to more cultivable land, Beijing is poised to conquer Mongolia again indirectly through the acquisition of its natural resources.

North of Mongolia and of China's three northeastern provinces lies Russia's Far East region, a vastness twice the size of Europe and large reserves of natural gas, oil, timber, diamonds and gold. As with Mongolia, the fear is not that the Chinese army will one day invade or formally annex the Russian Far East. It is that Beijing's economic control over the region is steadily increasing.

China's influence is also spreading southeast. There are relatively few geographic barriers separating China from Vietnam, Laos, Thailand and Myanmar, and China continues to develop profitable relationships with its southern neighbors. It sells

high-value Chinese manufactured goods while buying low-value agricultural produce.

	1978	1990	2006	Units (millions)
Chemical fiber	.3	1.7	20.7	tons
Cloth	11,030.0	18,880.0	59,855.0	meters
Paper	4.4	13.7	68.6	tons
Plastics	.7	2.3	26.0	tons
Electricity	256.6	621.2	2,865.7	1,000 kw/h
Coal	618.0	1,080.0	2,373.0	tons
Pig iron	34.8	62.4	412.5	tons
Steel	31.8	66.4	419.1	tons
Steel products	22.1	51.5	468.9	tons
Cement	65.2	209.7	1,236.8	tons
Plate glass	17.8	80.7	465.7	weight cases
Refrigerators	0	4.6	35.3	units
Room ACs	0	.2	68.5	units
Washing machines	0	6.6	35.6	units
Color TVs	0	10.3	83.8	units
Motor vehicles	.1	.5	7.3	units
Microcomputers	0	.1	93.4	units
Integrated circuits	30.4	108.4	33,575.0	units
Mobile phones	0	0	480.1	units

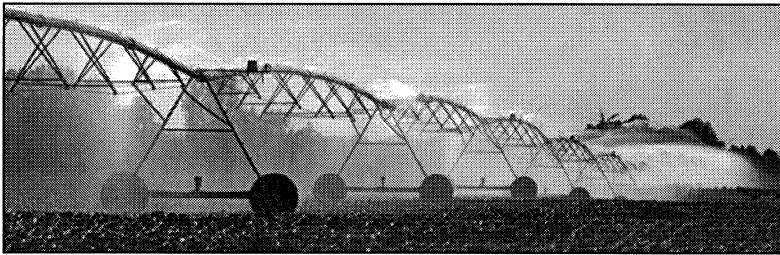
Beijing is also preparing to envelop Taiwan economically and socially. How this comes about will be pivotal for the future of politics in the region. If the United States simply abandons Taiwan to Beijing, then Japan, South Korea, the Philippines, Australia and other U.S. allies in the Pacific will begin to doubt the strength of our commitments. That could encourage those nations to move closer to China and thus allow the emergence of a Greater China of truly global proportions. So can the United States work to preserve stability in Asia, protect its allies there, and limit the emergence of a Greater China while avoiding a conflict with Beijing?

ASIA'S EFFICIENT FARMING

*You may have heard about the Green Revolution?
So what changes did it bring about in developing nations, such as India?*

In agriculture, multiple cropping is the practice of growing two or more crops in the same space during a single growing season. It can take the form of double-cropping, in which a second crop is planted after the first has been harvested, or relay cropping, in which the second crop is started amidst the first crop before it has been harvested. Multiple cropping is found in many agricultural traditions. In India, a practice involves sowing ten or more crops on the same plot, including various types of beans and grains and harvesting them at different times during the year.

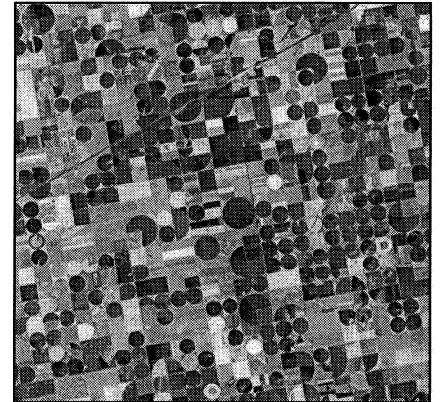
Crop rotation is the practice of growing a series of dissimilar types of crops in the same space in sequential seasons for various benefits. Crop rotation seeks to balance the fertility of the soil by avoiding excessive depletion of soil nutrients. While some crops take nutrients, such as nitrogen from the soil, other crops replenish the nitrogen.



The Green Revolution in Asia led to the development of high-yield varieties of rice, which required a substantially shorter growing season of 100 days, as opposed to traditional varieties. Due to this, multiple cropping became more prevalent in Asian countries and now many

nations grow enough for export.

More changes were brought about during the Green Revolution, such as new irrigation methods. Crop irrigation accounts for 70% of the world's fresh water use. Water efficiency means minimizing losses due to evaporation or runoff. Flood irrigation, the oldest and most common type, is often very uneven in distribution as parts of a field may receive excess water in order to deliver enough water to other parts. Overhead irrigation, using American-engineered center-pivot sprinklers, gives a much more equal distribution. As more nations adopt ideas from the Green Revolution, their countryside begins to reflect such agricultural inventions and ideas.



The Green Revolution did not throw out everything already successful in agriculture. For example, terraced farming, as practiced throughout Asia and South America was kept as a valuable practice to preserve soil. A terrace is a leveled section of a hilly cultivated area. The building of terraces was begun centuries ago as a method of soil conservation to prevent rapid surface runoff of irrigation or rainwater. Often such land is formed into multiple terraces, giving a stepped appearance.



INDONESIA'S ENVIRONMENTAL RECORD

The government of Indonesia recently attempted to plant nearly 80 million trees in one day! Not only was the government trying to break a world record, but it was hoping to change the global community's criticism of its environmental record.

Indonesia is one of the few countries that still contain large regions of tropical rainforests, but conservationists doubt this will last for long. Indonesia's rainforests- especially on the island of Borneo- are rapidly being stripped by illegal logging and pal oil plantations. Some scientists predict that at the present rate, all of Indonesia's rainforests will be destroyed in the next decade.

Indonesia is the world's largest archipelagic state, with a population of over 250 million- the 4th most populous in the world. Indonesia is blessed with natural resources and biodiversity, found in its 225 million acres of rainforests- 10% of the world's tropical forests. Unfortunately, Indonesia also holds the record for the world's highest deforestation rate, about 7 million acres a year!

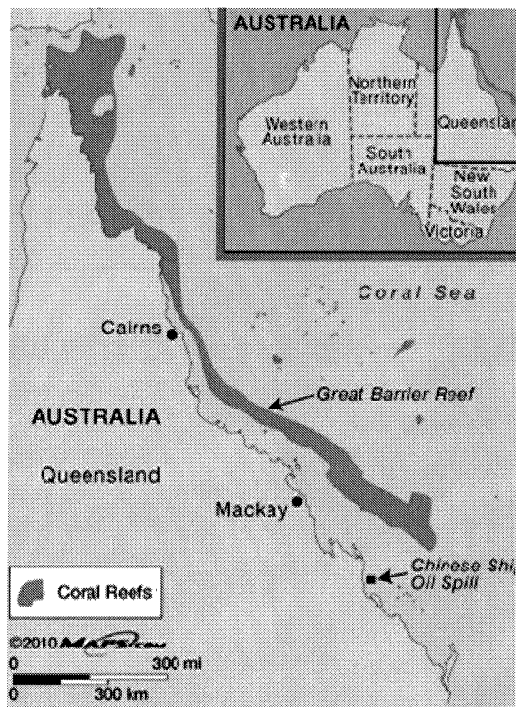
According to reports, shipping companies from Singapore are transporting much of Indonesia's illegally harvested timber overseas to China. The logs are then processed into wood flooring and furniture for export to the United States and Europe.

Some of the forest is also cleared and burned to make way for palm oil plantations. Palm oil is found in many everyday products, including candy bars, detergents, and lipstick. According to environmentalists, forests are burned and peat wetlands drained for plantations, causing huge releases of carbon dioxide into the atmosphere. Today, Indonesia is the 3rd largest greenhouse gas emitter (after the U.S. and China) due to deforestation, land clearing, and forest fires.

Plant and animal biodiversity is also being lost. As examples, the orangutan and the Sumatran tiger may pay the highest price for deforestation-extinction. According to satellite images, the orangutan habitat is quickly being lost in the jungles of Borneo and Sumatra. Planting 80 million trees in one day may not reserve Indonesia's dismal environmental record!



Geography in the News



GREAT BARRIER REEF ATTACK

A Chinese coal ship ran aground in early 2010 off Queensland, Australia, plowing full speed into the Great Barrier Reef. The ship leaked three tons of oil into the surrounding waters creating a slick up to two miles long. This could spell disaster for the world's largest coral reef.

Coral reefs are underwater colonies of tiny living animals with a hard exoskeleton that forms the reefs. According to most estimates, shallow water coral reefs comprise about 110,000 square miles of the ocean floor. If all of the world's shallow water coral reefs were placed side-by-side, they would fill an area slightly larger than the state of Texas. As one of the Seven Wonders of the World, the Great Barrier Reef is an international treasure.

Coral reefs contain more than 25 percent of the ocean's biodiversity- more than a quarter of the world's marine species, including fish, mollusks, sea urchins and sponges that reside on reefs. No other ecosystem on the planet contains more life forms in such a limited area than coral reefs. Besides their worth as centers of biodiversity, coral reefs are important to the tourism and fisheries industries, as well as for shoreline protection. In fact, the annual global economic value of coral reefs is estimated at \$30 billion.

Unfortunately, coral reefs are very fragile ecosystems. Because they are sensitive to water temperature, they are particularly threatened by climate changes. In some areas, increases in ocean temperature have caused coral bleaching, a whitening that can damage the corals. They are also susceptible to over-fishing and pollutants, notably those found in runoff from agricultural areas.

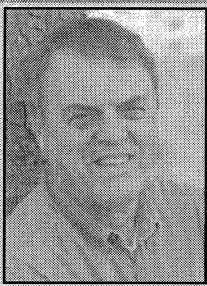
The Great Barrier Reef, located in the Western Pacific Ocean, lies in the Coral Sea and comprises 20 percent of the total global reef area; it sees an estimated two million visitors each year. Compared with other reefs of the world, the Great Barrier Reef does not suffer as many human threats. Australia's low population density and dry climate, which prevents freshwater runoff, contribute to the reef's protection. Furthermore, strong national support for reef conservation and management exists in Australia.

According to scientists, it could take marine life on the Great Barrier Reef 20 years to recover from the damage caused by the Chinese coal ship. The ship ran aground in an area where commercial shipping is restricted to protect the reef. The ship's crewmembers undoubtedly face charges and will be required to pay fines for entering the zone without permission. Furthermore, the ship's owners will be required to pay the estimated tens of millions of dollars for the cleanup effort.

Neal Lineback, *Geography in the News*, April, 2010

Geography In The News™

Neal G.
Lineback



AUSTRALIA'S ABORIGINES

Even as numbers of Australia's Aborigines dwindle, the government continues to search for ways to incorporate them into the greater Australian society.

Australia's Aborigines have resided on the continent for perhaps 40,000 or more years. They arrived from Southeast Asia during the depths of the Pleistocene ice age when sea levels were 350 feet (107 m.) or more lower than today's sea levels because much of the world's water was sealed in glaciers. During this period, many land bridges were exposed by the lower sea levels.

The Sunda land bridge extended from Southeast Asia to Australia, but there were narrow areas of open water here and there. The original migrants crossed from island to island by wading, swimming and boating. Eventually, they reached Australia. About 15,000 to 10,000 years ago, the glaciers began melting and sea levels rose once more, isolating the Australian Aborigine population.

Once the Aborigine population became isolated from outside cultural and genetic influences, their unique culture developed. They remained a mobile hunting and gathering society, with their own languages and dialects, religious practices and family social structure. Their physical characteristics included dark to tan skin, prominent brow ridges and thin legs and arms.

The Aborigines found a treasure of large animals in Australia, largely preserved as species because they too were isolated by the rising sea level. The result was abundant large game such as kangaroos and large birds. With primitive weapon technology, Aborigine men became very pro-

ficient at searching for and stalking game. Women were able to gather wild seeds and grind them into flour. Land was held in common with no private ownership.

The largest problem confronting the Aborigines was finding water on the dry continent of Australia. They learned the locations of springs and seeps, found they could live by harvesting water in the form of dew, and occasionally survived on the fluids obtained from small creatures such as frogs. Theirs was a life of hardship and uncertainty.

When the first Europeans arrived in Australia in 1788, there were perhaps 300,000 Aborigines in about 50 tribes spread across the continent. The Europeans believed the Aborigines were a primitive people and treated them badly, taking away their land, killing them and spreading disease among them.

Today, out of more than 20 million Australians, there are fewer than 50,000 pure

hands on sheep ranches, farms and plantations, while others live on government programs. Some live on reservations, not unlike American Indian reservations.

One case study involves tiny Palm Island, located off Australia's northeast coast. According to a *Christian Science Monitor* article (April 10, 2006), Palm Island is much "like a number of Aboriginal communities that are geographically and socially on the fringes. Palm Island owes some of its isolation to communal land ownership." Most Palm Island residents are economic wards of the state, although there are many natural resources available to residents. The Great Barrier Reef is just 14 miles (23 km) offshore.

Investors have avoided Palm Island because they cannot purchase land and because the Aboriginal culture seems uninterested in developing businesses. The communal property issue was an honorable attempt by the government to preserve some Aboriginal culture, but it apparently has helped trap residents in poverty.

The issue of Aboriginal culture being poorly suited to business development, however, is much more complicated. It often takes generations of isolated cultures before social mores may change. Major issues include work ethics, timeliness, workplace cooperation, truthfulness and honesty and a host of other sociological characteristics. The problem is that people in minority cultures or those trapped in poverty sometimes don't welcome the opportunity to change, preferring to maintain the status quo.

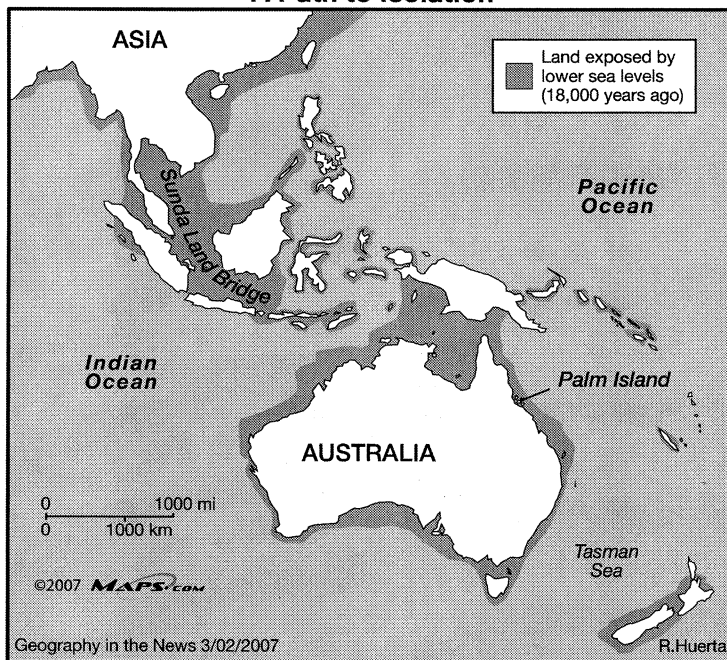
The Australian government has found it difficult to incorporate its Aborigine population into mainstream culture. But, then, for the Aborigine people to adopt another culture would mean losing their native culture. There are no equitable answers to the problems with

assimilating native cultures, as evidenced by past histories of the Kurds, Roma (gypsies), Basques, Kashmiris, Tamils, Hmong, and the American Indians.

And that is *Geography in the News*™. March 2, 2007. #874.

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A Path to Isolation



Sources: Arnoldy, Ben, "Bid to boost Aboriginal futures," *The Christian Science Monitor*, April 10, 2006; <http://www.infoplease.com/ce6/society/A0805377.html>; and <http://www.factmonster.com/spot/aboriginal1.html>.

Aborigines and another 144,000 of mixed Aborigine/European heritage. Although there are examples of Aborigines who have achieved considerable equality in Australian society, most still face discrimination and unofficial prejudice and remain socially, economically and politically underprivileged.

Most Aborigines today still are scattered across Australia, some working as hired