SLIDE 1

Chapter 21
Physical Geography of Southwest Asia: Harsh and Arid Lands

Southwest Asia's land is mostly arid or desert. The region is defined by the resource it lacks—water, and the one it has in abundance—oil.

SLIDE 2

Section 1: Landforms and Resources
Section 2: Climate and Vegetation
Section 3: Human-Environment Interaction

SLIDE 3

Section 1: Landforms and Resources

- The Southwest Asian landforms have had a major impact on movement in the region.
- The most valuable resources in Southwest Asia are oil and water.

SLIDE 4

Landforms Divide the Region

Shifting Plates
- Southwest Asia forms a land bridge between Asia, Africa, Europe
- Region is at edge of a huge tectonic plate
  - parts of Arabian Peninsula are pulling away from Africa
  - parts of Anatolian Peninsula are sliding past parts of Asia
  - other plates are pushing up mountains in other parts of Asia

SLIDE 5

Continued **Landforms Divide the Region**

Peninsulas and Waterways
- Arabian Peninsula lies between Red Sea and Persian Gulf
- Red Sea covers a rift valley created by Arabian plate movement
- Zagros, Elburz, Taurus mountains at north side cut off part of region
- Anatolian Peninsula (Turkey) is between Black and Mediterranean seas
- Strategic waterways include Suez Canal from Red Sea to Mediterranean
  - Bosporus and Dardenelles straits connect to Russia, Asia

SLIDE 6

Continued **Landforms Divide the Region**

Plains and Highlands
- Arabian Peninsula is covered by dry, sandy, windy plains
  - **wadis**—riverbeds that are dry except in rainy season
- Iran has stony, salty, sandy desert plateau surrounded by mountains
- Anatolian Peninsula is plateau with some agriculture, grazing
- Afghanistan's Northern Plain is farming area surrounded by mountains
- **Golan Heights** (Al Jawlan)—plateau near Jordan River, Sea of Galilee
  - site of conflict due to strategic location

SLIDE 7

Continued **Landforms Divide the Region**

Mountains
- Afghanistan's Hindu Kush Mountains help frame southern Asia
  - country is isolated by its landlocked, mountainous terrain
- Iran's Zagros Mountains isolate it from rest of Southwest Asia
  - Elburz Mountains cut Iran off from the Caspian Sea
- Taurus Mountains separate Turkey from rest of Southwest Asia
- Goods, people, ideas move through region in spite of mountains

SLIDE 8

Continued **Landforms Divide the Region**

Water Bodies
- Region is surrounded by bodies of water; few rivers flow all year
- The **Tigris** and the **Euphrates** rivers flow through Turkey, Syria, Iraq
  - Fertile Crescent supported several ancient civilizations
  - parallel rivers meet at Shatt al Arab, empty into Persian Gulf
- **Jordan River** flows from Lebanon's Mt. Hermon between Israel, Jordan
- Empties into **Dead Sea**—landlocked salt lake that only bacteria live in
  - lowest place on earth's exposed crust: 1,349 feet below sea level

SLIDE 9

Resources for a Modern World

An Oil-Rich Region
- Oil is region's most abundant resource
  - oil fields located in Arabian Peninsula, Iran, Iraq
  - provide major part of those nations' income
- Half of the world's oil reserves are in Southwest Asia

- found along Persian Gulf coast or at offshore sites
- U.S. and many other countries depend on oil reserves

SLIDE 10

Continued **Resources for a Modern World**

Other Resources
- In some parts of region, the most valuable resource is water
- Water is relatively plentiful in Turkey, Iran, Lebanon, Afghanistan
  - harnessed for hydroelectric power
- In other regions, water is scarce; must be guarded, conserved
- Coal, copper, potash, phosphate deposits mostly small, scattered
  - Iran, Turkey have large coal deposits
  - salts like calcium chloride around Dead Sea have not been developed

SLIDE 11

Section 2: Climate and Vegetation

- Most of Southwest Asia has a very arid climate.
- Irrigation is critical to growing crops in this very dry region.

SLIDE 12

Variety in Arid Lands

Mostly Dry and Desert, but Some Green
- Most areas get less than 18 inches of precipitation a year
- Rough, dry terrain includes sand dunes, salt flats
- Rivers don't flow all year; plants, animals live on little water
  - in many areas irrigation turns desert into farmland
- Other areas have Mediterranean climate; green, lush part of each year
- Mountain ranges and plateaus have highland climates

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Deserts Limit Movement

Sandy Deserts
- **Rub al-Khali**—Arabian Peninsula desert, known as the Empty Quarter
  - 250,000 square miles, with dunes as high as 800 feet
  - 10 years can pass without rain
- Nearby An-Nafud Desert contains the occasional **oasis**
  - desert area where underground spring water supports vegetation
- Syrian Desert is between Lebanon, Israel, Syria, and Fertile Crescent

- Israel's Negev Desert produces crops through irrigation

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Continued **Deserts Limit Movement**

Salt Deserts
- In Iran, high mountains block rain; dry winds increase evaporation
  - loss of moisture in soil leaves chemical salts, creates **salt flat**
- Iran's salt flat deserts:
  - Dasht-e Kavir in central Iran
  - Dasht-e Lut in eastern Iran
- Land is salt-crusted, surrounded by salt marshes, very hot
  - almost uninhabited, it's a barrier to easy travel across Iran

SLIDE 15

Semi-Arid Lands

The Edge of the Desert
- Fringes of deserts have semiarid climate
- Warm to hot summers; enough rainfall for grasses, shrubs
  - cotton and wheat can be grown
- Good pasture for animals
  - herds of mohair goats raised in Turkey
  - mohair hair and fabrics from it are among Turkey's exports

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Well-Watered Coast Lands

The Mediterranean Coast
- Areas along Mediterranean coast and in Turkey have adequate rainfall
  - hot summers, rainy winters promote citrus fruits, olives, vegetables
- Mild winters and summer irrigation let farmers grow crops all year
- Areas are heavily populated due to comfortable climate

The Tigris and Euphrates
- River valleys the site of intensive farming for thousands of years
  - Turkey, Iraq built dams on rivers to provide irrigation all year

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Section 3: Human-Environment Interaction

- Water is critical to regional physical survival and economic development.

- Discovery of oil increased the global economic importance of Southwest Asia.

SLIDE 18

Providing Precious Water

Dams and Irrigation Systems
- Large farms and growing populations require dams, irrigation
  - Turkey is building dams and a man-made lake on upper Euphrates
  - controversial project will deprive downstream countries of water
- Israel's National Water Carrier project
  - takes water from northern areas
  - carries it to central, south, Negev Desert
  - water flows through several countries so project creating conflict

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Continued **Providing Precious Water**

Modern Water Technology
- **Drip irrigation**—small pipes slowly drip water just above ground
- **Desalinization** removes salt from ocean water at treatment plants
  - plants are expensive, cannot provide enough water
- Wastewater can be treated and used for agriculture
- **Fossil water** is pumped from underground aquifers
  - water has been in aquifer for long periods of time
  - rainfall won't refill aquifers; only 25–30 years of usage remain

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Oil From the Sand

Forming Petroleum
- Oil, natural gas deposits formed millions of years ago
  - sea covered area; remains of plants, animals mingled in sand, mud
  - pressure and heat slowly transformed material into hydrocarbons
- Oil, gas are not in underground pools, but in the tiny pores of rocks
  - nonporous rock barriers trap gas, oil below surface
  - makes oil difficult to find, remove
  - wasn't found in region until 1920–30s

SLIDE 21

Continued **Oil From the Sand**

Early Exploration

- Industrialization, automobiles increase need for petroleum
- First oil discovery in region was in 1908 in Persia (now Iran)
  - more oil fields found in Arabian Peninsula, Persian Gulf in 1938
- In 1948, *al-Ghawar* field discovered at eastern edge of Rub al-Khali
  - became one of world's largest oil fields
  - contains one-quarter of Saudi Arabia's oil reserves

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Continued **Oil From the Sand**

Transporting Oil

- **Crude oil** is petroleum that has not been processed
  - **refinery** converts crude oil into useful products
- Pipelines move crude oil to refineries, ports
  - ports on Persian Gulf, Red Sea, Mediterranean Sea
  - tankers carry petroleum to world markets
- In some places refineries process crude oil near ports

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Continued **Oil From the Sand**

Risks of Transporting Oil

- Largest oil spill was in January 1991, during Persian Gulf War
  - Kuwaiti tankers, oil storage tanks were blown up
  - 240 million gallons of crude oil spilled into water, land
- Buried pipelines reduce accidents; are monitored for leaks
- Tankers are a high pollution risk; operate in shallow, narrow waters
  - double hulls help prevent some spills