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**Chapter 18**  
**Physical Geography of Africa: The Plateau Continent**

A continent of plateaus, basins, and rift valleys, Africa features dense rain forests, vast grasslands, and the world's largest desert.

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

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**Section 1: Landforms and Resources**

- A large plateau covers most of Africa.
- Africa's natural resources made it appealing to European colonizers.

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**Section 1: Landforms and Resources**

**A Vast Plateau**

**After Pangaea**

- Pangaea supercontinent broke up 200 million years ago
  - Africa moved very little, unlike Americas, Antarctica, Australia, India
  - Africa is second largest continent

**Africa's Plateau**

- Huge plateau covers most of Africa, rising inland from coasts
  - most of Africa is at least 1,000 feet above sea level
  - known as the "plateau continent"

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*Continued* **A Vast Plateau**

**Basins and Rivers**

- **Basins**—huge depressions on plateau
  - each is more than 625 miles across, up to 5,000 feet deep
- **Nile River**—world's longest: 4,000 miles through Uganda, Sudan, Egypt
  - waters used for irrigation; 95% of Egyptians get water from Nile

- Egypt's population density near Nile is 3,320 people per square mile  
- only 177 per square mile overall

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## **Distinctive African Landforms**

### **Basins and Rivers**

- Waterfalls, rapids, gorges make rivers less useful for transportation
  - 2,900-mile Congo is largest river network
  - 32 cataracts (waterfalls) make much of Congo impassable
- Rivers' meandering courses also make them less useful

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### *Continued* **Distinctive African Landforms**

#### **Rift Valleys and Lakes**

- East Africa: continental shift created huge cracks in East Africa
  - land sank, formed long, thin **rift valleys**
  - stretch 4,000 miles from Jordan to Mozambique
  - eastern part is still slowly pulling away from Africa
- Long, deep lakes form at bottoms of rift valleys
  - Lake Tanganyika is longest freshwater lake in world
- Lake Victoria is Africa's largest; sits in basin between rift valleys

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### *Continued* **Distinctive African Landforms**

#### **Mountains**

- Africa mainly has volcanic mountains: Mount Kenya, Mount Kilimanjaro
  - **Mount Kilimanjaro** is Africa's highest mountain
  - volcanoes created Ethiopian Highlands
  - also Tibesti Mountains (Sahara), Mount Cameroon (West Africa)
- Volcanic rock covers Great Escarpment in Southern Africa
  - **escarpment**—steep slope with flat plateau on top

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## **Africa's Wealth of Resources**

### **A Wealth of Minerals**

- Africa's minerals make it one of world's richest continents
  - copper, phosphates, diamonds; 42% of world's cobalt
- South Africa is largest producer of chromium, for stainless steel

- produces 80% of world's platinum, 30% of gold
- Mineral wealth has not created general African prosperity
  - colonial rulers sent natural resources to Europe
  - nations are slow to develop infrastructure, industries

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*Continued* **Africa's Wealth of Resources**

**Oil Resources**

- Libya, Nigeria, Algeria among world's leading petroleum producers
  - Angola, Gabon have untapped oil reserves
- Angola is example of resources not benefiting Africans
  - oil deposits will make it Africa's most oil-rich country
  - American companies will pay Angola to drill oil
  - money will be spent on ongoing ethnic civil war
  - little will be invested in schools, hospitals, other infrastructure

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**Diversity of Resources**

**Major Commodities**

- Coffee is Africa's second most profitable commodity
  - few Africans drink coffee, but 20% of world's supply is grown there
- Nigeria leads in lumber exports, but logging is depleting forests
  - each year an area twice the size of New Jersey is cleared
- Other commodities include sugar, palm oil, cocoa
- Agriculture is Africa's single most important economic activity
  - 66% of Africans earn a living farming; accounts for 1/3 of exports

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**Section 2: Climate and Vegetation**

- Africa contains dry and hot deserts, warm tropics, and permanently snow-capped mountains.
- Africa's vegetation includes thick rain forests, tall grasslands, and desert areas.

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**Section 2: Climate and Vegetation**

**A Warm Continent**

## **The Deserts**

- **Sahara** is largest desert in world; name means “desert” in Arabic
  - 3,000 miles from Atlantic to Red Sea; 1,200 miles north to south
  - temperatures as high as 136 degrees in summer, freezing at night
  - fewer than 2 million of Africa’s 800 million people live in Sahara
- Only 20% is sand; rest is mountains, rocks, gravelly plains
  - Tibesti Mountains in northwestern Chad rise 11,000 feet

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*Continued* **A Warm Continent**

## **The Deserts**

- Saharan travelers rely on camels that can go 17 days without water
- 6,000 feet under Sahara are **aquifers**—stores of underground water
  - when this water comes to the surface it creates an **oasis**
- Other African deserts include Kalahari, Namib

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*Continued* **A Warm Continent**

## **The Tropics**

- Africa has largest tropical area of any continent
  - 90% of Africa lies between tropics of Cancer, Capricorn
  - high temperatures year around, especially in Somalian Sahara
  - Africans say nighttime is the “winter” of the tropics

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## **Sunshine and Rainfall**

### **Rainfall Patterns**

- Rains all year in rain forests; most of Africa has rainy seasons
- Tropical savanna covers half of Africa; six-month rainy season
- Longer rainy seasons near equator; longer dry seasons near desert
- West coast gets heavy rain; Monrovia, Liberia, has 120 inches yearly
- Sahara, other deserts may go years without rain

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*Continued* **Sunshine and Rainfall**

### **Africa’s Moderate Areas**

- Mediterranean climate on northern, southern tips of Africa

- clear blue skies, moderate summers, rain in winter

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## **A Grassy Continent**

### **Tropical Grassland**

- Tropical grassland covers most of Africa
- **Serengeti Plain**—northern Tanzania grassland
  - dry climate, hard soil prevent growth of trees, crops
- Serengeti National Park has best grasslands in the world
  - some grasses grow taller than a person
  - ideal for grazing animals like wildebeests, gazelles, zebras
  - site of largest numbers of migrating land mammals

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## **Africa's Extremes**

### **Rain Forest**

- Major tropical rain forests are on equator in Congo Basin
- A square acre can have hundreds of different types of trees, birds
  - plants, trees, leaves block out most sunlight; air is hot, moist
  - plants, vegetation decay 8 times faster than in Europe
- Most animals live in **canopy**—uppermost branches, 150 feet off ground
  - birds, monkeys, flying foxes, snakes

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### *Continued* **Africa's Extremes**

### **Rain Forest**

- Farmers' slash-and-burn methods endanger rain forest
  - Madagascar's rain forest is almost completely gone
  - some estimate over half of Africa's original rain forests are gone

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### *Continued* **Africa's Extremes**

### **Varieties of Plantlife**

- Oak, pine forests in Atlas Mountains of North Africa
- Mangrove trees grow along West African river banks
  - roots are breeding grounds for fish
  - roots help build dry land by holding silt

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### Section 3: Human-Environment Interaction

- The Sahara's expansion is causing problems of Africa's farmers.
- The Nigerian oil industry has caused serious environmental damage in the Niger delta.

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### Section 3: Human-Environment Interaction

#### Desertification of the Sahel

##### The Spreading Sahara

- **Sahel** means "shore of the desert"
  - narrow band of grassland runs east-west along southern Sahara edge
  - used for farming, herding
- Since 1960s, desert has spread into Sahel
  - **desertification**—expansion of dry conditions into nearby moist areas
  - natural, long-term desertification cycles sped up by human activity

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#### *Continued* Desertification of the Sahel

##### Human Causes of Desertification

- Livestock overgrazing exposes and tramples soil, increases erosion
- Clearing land for farming increases erosion
- Water drilling, irrigation increase soil's salt levels
  - vegetation growth is stunted
- Population levels require more crop land, more fuel (wood) to burn

##### Results of Desertification

- Forests around Khartoum (Sudan), Lake Chad are vanishing
  - some countries are planting trees to slow desertification

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### Harming the Environment in Nigeria

#### A Major Oil Producer

- Oil discovered in Nigeria in 1956 in **Niger delta**
- Nigeria is world's 6<sup>th</sup> leading oil exporter
  - 2 million barrels extracted each day, most shipped to U.S.
  - oil provides up to 90% of national income

- In 1970s, high oil prices made Nigeria one of African's richest nations
  - when prices fell, Nigeria owed millions to other nations, U.S.
  - poor planning, corruption helped leave Nigeria poorer than ever

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*Continued* **Harming the Environment in Nigeria**

### **Destroying the Land and People**

- Over 4,000 oil spills in four decades with slow or no cleanup
  - acid rain and soot from oil fires lead to respiratory diseases
- Pipeline explosions kill 2,000 between 1998 and 2000
  - bandits work with corrupt officials, drain pipeline fuel, sell it

### **A New Start**

- Olusegun Obasanjo becomes new Nigerian president in 1999
  - fires corrupt officials, begins economic reform

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### **Controlling the Nile**

#### **The Aswan High Dam**

- Egyptians have always tried to control the Nile's flood, droughts
  - built first Aswan Dam in 1902; quickly obsolete
- **Aswan High Dam** completed in 1970, creates 300-mile Lake Nasser
- Dam provides regular supply of water for farmers
  - holds back Nile floodwaters for irrigation
  - farmers now have two, three harvests a year
  - Egypt's farmable land increased by 50%

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*Continued* **Controlling the Nile**

#### **Problems with the Dam**

- Construction meant relocating people, changing Nubian's way of life
- Abu Simbel temples moved, but other treasures lost at bottom of lake
- River no longer deposits rich **silt**—sediment—on farmland
- Irrigation raises water table
  - river doesn't flush out salts that decrease soil fertility
- Mosquitoes thrive in Lake Nasser, spread malaria, other diseases
- Millions of gallons of fresh water lost yearly to lake evaporation

