Agriculture

Key Issue Two: Where are agricultural regions in less developed countries?
Key Issue 2: Agriculture in Less Developed Countries

- Shifting cultivation
  - Characteristics of shifting cultivation
  - Future of shifting cultivation

- Pastoral nomadism
  - Characteristics of pastoral nomadism
  - Future of pastoral nomadism

- Intensive subsistence agriculture
  - Intensive subsistence with wet rice dominant
  - Intensive subsistence with wet rice not dominant
Locations of the major types of subsistence and commercial agriculture.
Shifting Cultivation

- Shifting cultivation is practiced in much of the world’s Humid Low-Latitude, or A, climate regions, which have relatively high temperatures and abundant rainfall.
- It is called shifting cultivation rather than shifting agriculture because “agriculture” implies greater use of tools and animals and more sophisticated modification of the landscape.
- Shifting cultivation has two distinguishing hallmarks: farmers clear land for planting by slashing vegetation and burning the debris; and farmers grow crops on a cleared field for only a few years.
- People who practice shifting cultivation generally live in small villages and grow food on the surrounding land, which the village controls.
The Process of Shifting Cultivation

- Each year villagers designate (an area) for planting.
- They must remove the dense vegetation that typically covers tropical land.
- Using axes, they cut most of the trees, sparing only those that are economically useful.
- The debris is burned under carefully controlled conditions.
- Rains wash the fresh ashes into the soil, providing needed nutrients.
- The cleared area is known by a variety of names in different regions, including swidden, ladang, milpa, chena, and kaingin.
- The cleared land can support crops only briefly, usually three years or less.
- Villagers... leave the old site uncropped for many years.
- The villagers will return to the site, . . . perhaps as few as 6 years or as many as 20 years later, to begin the process of clearing the land again.
- In the meantime, they may still care for fruit-bearing trees on the site.
Shifting Cultivation in Guatemala

Dense vegetation has been cut and is being burned to open land for farming.
Bulldozers are used to plow a road through the rain forest in Colombia.
Crops of Shifting Cultivation

- The precise crops grown by each village vary by local custom and taste.
- The predominant crops include upland rice in Southeast Asia, maize (corn) and manioc (cassava) in South America, and millet and sorghum in Africa.
- Yams, sugarcane, plantain, and vegetables also are grown in some regions.
- The Kayapo people of Brazil’s Amazon tropical rain forest... plant in concentric rings.
- Plants that require more nutrients are located in the outer ring.
- It is here that the leafy crowns of cut trees fall when the field is cleared.
- Most families grow only for their own needs, so one swidden may contain a large variety of intermingled crops.
- Families may specialize in a few crops and trade with villagers who have a surplus of others.
Ownership and Use of Land in Shifting Cultivation

- Traditionally, land is owned by the village as a whole rather than separately by each resident.
- Private individuals now own the land in some communities, especially in Latin America.
- Shifting cultivation occupies approximately one fourth of the world’s land area, a higher percentage than any other type of agriculture.
- However, only 5 percent of the world’s population engages in shifting cultivation.
Future of Shifting Cultivation

- The percentage of land devoted to shifting cultivation is declining in the tropics at the rate of about 100,000 square kilometers (40,000 square miles), or 1 percent per year.
- The amount of Earth’s surface allocated to tropical rain forests has already been reduced to less than half of its original area.
- Practices used in other forms of agriculture may damage the soil, cause severe erosion, and upset balanced ecosystems.
- Large-scale destruction of the rain forests also may contribute to global warming.
- When large numbers of trees are cut, their burning and decay release large volumes of carbon dioxide.
- Elimination of shifting cultivation could also upset the traditional local diversity of cultures in the tropics.
- The activities of shifting cultivation are intertwined with other social, religious, political, and various folk customs.
World Climate Regions

Simplified map of the main world climate regions

- A Humid Low-Latitude
- B Dry
- C Warm Mid-Latitude
- D Cold Mid-Latitude
- E Polar
- H Undifferentiated Highlands

Copyright © 2005 Pearson Prentice Hall, Inc.
Pastoral Nomadism

- Pastoral nomadism is a form of subsistence agriculture based on the herding of domesticated animals.
- The word pastoral refers to sheep herding.
- It is adapted to dry climates, where planting crops is impossible.
- Only about 15 million people are pastoral nomads, but they sparsely occupy about 20 percent of Earth’s land area.
Characteristics of Pastoral Nomadism

- Pastoral nomads depend primarily on animals rather than crops for survival.
- The animals provide milk, and their skins and hair are used for clothing and tents.
- Like other subsistence farmers, though, pastoral nomads consume mostly grain rather than meat.
- Some pastoral nomads obtain grain from sedentary subsistence farmers in exchange for animal products.
- More often, part of a nomadic group—perhaps the women and children may plant crops at a fixed location while the rest of the group wanders with the herd.
- Other nomads might sow grain in recently flooded areas and return later in the year to harvest the crop.
Qashqai nomads using paved roads to move their animals near Shiraz, Iran.
Choice of Animals

- Nomads select the type and number of animals for the herd according to local cultural and physical characteristics.
- The choice depends on the relative prestige of animals and the ability of species to adapt to a particular climate and vegetation.
Movements of Pastoral Nomads

- Pastoral nomads do not wander randomly across the landscape but have a strong sense of territoriality.
- Every group controls a piece of territory and will invade another group’s territory only in an emergency or if war is declared.
- The precise migration patterns evolve from intimate knowledge of the area’s physical and cultural characteristics.
- The selection of routes varies in unusually wet or dry years and is influenced by the condition of their animals and the area’s political stability.
- Some pastoral nomads practice transhumance, which is seasonal migration of livestock between mountains and lowland pasture areas.
The Future of Pastoral Nomadism

- Nomads used to be the most powerful inhabitants of the drylands, but now, with modern weapons, national governments can control the nomadic population more effectively.
- Government efforts to resettle nomads have been particularly vigorous in China, Kazakhstan, and several Middle Eastern countries, including Egypt, Israel, Saudi Arabia, and Syria.
- Governments force groups to give up pastoral nomadism because they want the land for other uses.
- In the future, pastoral nomadism will be increasingly confined to areas that cannot be irrigated or that lack valuable raw materials.
Intensive Subsistence Agriculture

- In densely populated East, South and Southeast Asia, most farmers practice intensive subsistence agriculture.
- The typical farm is much smaller than elsewhere in the world.
- Because the agricultural density—the ratio of farmers to arable land—is so high in parts of East and South Asia, families must produce enough food for their survival from a very small area of land.
- They do this through careful agricultural practices, refined over thousands of years in response to local environmental and cultural patterns.
- Intensive subsistence farmers waste virtually no land.
- Paths and roads are kept as narrow as possible to minimize the loss of arable land.
- Little grain is grown to feed the animals.
Asian farmers grow over 90% of the world’s rice. India and China alone account for over half of world rice production.
Growing rice involves several steps: First, a farmer prepares the field for planting, using a plow drawn by water buffalo or oxen.

The use of a plow and animal power is one characteristic that distinguishes subsistence agriculture from shifting cultivation.

Then the plowed land is flooded with water... from rainfall, river overflow, or irrigation.

The flooded field is called a sawah in the Austronesian language widely spoken in Indonesia, including Java.

Europeans and North Americans frequently, but incorrectly, call it a paddy, the Malay word for wet rice.

Wet rice is most easily grown on flat land, because the plants are submerged in water much of the time.
Wet Rice Terraces in Indonesia

Terraces create flat land for wet (irrigated) rice on hilly land in Indonesia.
Rice Harvesting, Indonesia

Wet rice is often harvested by hand in Asia.
One method of developing additional land suitable for growing rice is to terrace the hillsides of river valleys. Land is used even more intensively in parts of Asia by obtaining two harvests per year from one field, a process known as double cropping. Double cropping is common in places having warm winters but is relatively rare in India, where most areas have dry winters. Normally, double cropping involves alternating between wet rice and wheat, barley, or another dry crop, grown in the drier winter season.
In milder parts of the region, more than one harvest can be obtained some years through skilled use of crop rotation.

Since the (Chinese) Communist Revolution in 1949, the government organized agricultural producer communes.

By combining several small fields into a single large unit, the government hoped to promote agricultural efficiency.

China has dismantled the agricultural communes.

The communes still hold legal title to agricultural land, but villagers sign contracts entitling them to farm portions of the land as private individuals.

Reorganization has been difficult because infrastructure was developed to serve large communal farms rather than small, individually managed ones.