Where Is the World’s Population Distributed?

- Population Concentrations
- Population Density

Human beings are not distributed uniformly across Earth. We can understand how population is distributed by examining two basic properties—concentration and density. Geographers identify regions of Earth’s surface where population is clustered and regions where it is sparse. Several density measures help geographers explain the relationship between the number of people and available resources. The number of people is usually determined by a census of population, discussed in Contemporary Geographic Tools.

The concentration of the world’s population can be displayed on a cartogram, which depicts the sizes of countries according to population rather than land area, as is the case with most maps (Figure 2-2).

When compared to a more typical equal-area map, such as the one shown in Figure 2-3, the population cartogram displays major population clusters as much larger. As you look at maps of population growth and other topics in this and subsequent chapters, pay special attention to Asia and Europe because global patterns are heavily influenced by conditions in these regions, where two-thirds of the world’s people live.

**Figure 2-2 POPULATION CARTOGRAM** In a cartogram, countries are displayed by size of population rather than land area.

**CONTEMPORARY GEOGRAPHIC TOOLS**

Spatial Analysis and the Census

Geography relies on statistical data to conduct spatial analysis. The single most important data source for human geographers is the census. Many of the maps in this book rely on census data.

In the United States, a census of population and a census of housing take place once a decade, in years ending in zero, including 2010. Censuses of various types of businesses are undertaken once every five years.

Despite its importance, the census is controversial in many countries, for two reasons:

- **Nonparticipation.** Homeless people, ethnic minorities, and citizens of other countries who do not have proper immigration documents may be less likely to complete the census form. These individuals may fear that the census could turn over the forms to another government agency, such as the FBI or the Department of Homeland Security in the United States.
- **Sampling.** Statistical sampling techniques can be utilized to get a more accurate count, as well as to identify detailed characteristics of people, housing, and businesses. The district boundaries of the U.S. House of Representatives, as well as of the 50 state legislatures, must be redrawn every decade so that each has the same number of people. The U.S. Supreme Court has ruled that Article 1, Section 2 of the U.S. Constitution prevents using sampling to redraw district boundaries. Politicians sympathetic to the needs of the homeless and immigrants have been especially vocal in support of sampling, whereas those from small towns and rural areas, where the census count is more accurate, are more inclined to oppose it.
Population Concentrations

Learning Outcome 2.1.1
Describe regions where population is clustered and where it is sparse.

Two-thirds of the world's inhabitants are clustered in four regions (Figure 2-3). The four population clusters occupy generally low-lying areas, with fertile soil and temperate climate. Most live near the ocean or near a river with easy access to an ocean, rather than in the interior of major landmasses.

CLUSTERS

The four major population clusters—East Asia, South Asia, Europe, and Southeast Asia—display differences in the pattern of occupancy of the land.

EAST ASIA. Nearly one-fourth of the world's people live in East Asia. The region, bordering the Pacific Ocean, includes eastern China, the islands of Japan, the Korean peninsula, and the island of Taiwan. The People’s Republic of China is the world’s most populous country and the fourth-largest country in land area. The Chinese population is clustered near the Pacific Coast and in several fertile river valleys that extend inland, though much of China’s interior is sparsely inhabited mountains and deserts. More than one-half of the people live in rural areas where they work as farmers. In sharp contrast to China, more than three-fourths of all Japanese and Koreans are clustered in urban areas and work at industrial or service jobs.

SOUTH ASIA. Nearly one-fourth of the world’s people live in South Asia, which includes India, Pakistan, Bangladesh and the island of Sri Lanka. The largest concentration of people within South Asia lives along a 1,500-kilometer (900-mile) corridor from Lahore, Pakistan, through India and Bangladesh to the Bay of Bengal. Much of this area population is concentrated along the plains of the Indus and Ganges rivers. Population is also heavily concentrated near India’s two long coastlines—the Arabian Sea to the west and the Bay of Bengal to the east. Like the Chinese, most people in South Asia are farmers living in rural areas.

EUROPE. Europe includes four dozen countries, ranging from Monaco, with 1 square kilometer (0.7 square mile) and a population of 33,000, to Russia, the world’s largest country in land area when its Asian part is included. Contrast to the three Asian concentrations, three-fourths of Europe’s inhabitants live in cities, and fewer than 20 percent are farmers. The highest population concentration in Europe are near the major rivers and coalfields of Germany and Belgium, as well as historic capital cities such as London and Paris.

SOUTHEAST ASIA. Around 600 million people live in Southeast Asia, mostly on a series of islands that lie between the Indian and Pacific oceans. Indonesia, which consists of 13,677 islands, is the world’s fourth-most-populous country. The largest population concentration is on the island of Java, inhabited by more than 100 million people.
Several islands that belong to the Philippines contain high population concentrations, and population is also clustered along several river valleys and deltas at the southeastern tip of the Asian mainland, known as Indochina. Like China and South Asia, the Southeast Asia concentration is characterized by a high percentage of people working as farmers in rural areas.

OTHER CLUSTERS. The largest population concentration in the Western Hemisphere is in the northeastern United States and southeastern Canada. This cluster extends along the Atlantic Coast from Boston to Newport News, Virginia, and westward along the Great Lakes to Chicago. The largest cluster in Africa is along the Atlantic coast, especially the portion facing south. Nigeria is the most populous country in Africa. As in the three Asian concentrations, most West Africans work in agriculture.

Pause and Reflect 2.1.1
Why isn’t North America one of the four major population clusters?

SPARSELY POPULATED REGIONS

Human beings avoid clustering in certain physical environments. Relatively few people live in regions that are too dry, too wet, too cold, or too mountainous for activities such as agriculture. The areas of Earth that humans consider too harsh for occupancy have diminished over time, whereas the portion of Earth’s surface occupied by permanent human settlement—called the ecumene—has increased (Figure 2-4).

DRY LANDS. Areas too dry for farming cover approximately 20 percent of Earth’s land surface. Deserts generally lack sufficient water to grow crops that could feed a large population, although some people survive there by raising animals, such as camels, that are adapted to the climate. Dry lands contain natural resources useful to people—notably, much of the world’s oil reserves.

WET LANDS. Lands that receive very high levels of precipitation, located primarily near the equator, may also be inhospitable for human occupation. The combination of rain and heat rapidly depletes nutrients from the soil and thus hinders agriculture.

COLD LANDS. Much of the land near the North and South poles is perpetually covered with ice or the ground is permanently frozen (permafrost). The polar regions are unsuitable for planting crops, few animals can survive the extreme cold, and few humans live there.

HIGH LANDS. The highest mountains in the world are steep, snow covered, and sparsely settled. However, some high-altitude plateaus and mountain regions are more densely populated, especially at low latitudes (near the equator) where agriculture is possible at high elevations.
Density, defined in Chapter 1 as the number of people occupying an area of land, can be computed in several ways, including arithmetic density, physiological density, and agricultural density. These measures of density help geographers describe the distribution of people in comparison to available resources.

**ARITHMETIC DENSITY**

Geographers most frequently use arithmetic density, which is the total number of objects in an area (Figure 2-5). In population geography, arithmetic density refers to the total number of people divided by total land area. To compute the arithmetic density, divide the population by the land area. Table 2-1 shows several examples.

<table>
<thead>
<tr>
<th>Country</th>
<th>Arithmetic Density</th>
<th>Physiological Density</th>
<th>Agricultural Density</th>
<th>Percentage Farmers</th>
<th>Percent Arable Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>3</td>
<td>65</td>
<td>1</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>United States</td>
<td>32</td>
<td>175</td>
<td>2</td>
<td>2</td>
<td>1.7</td>
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<tr>
<td>The Netherlands</td>
<td>400</td>
<td>1,748</td>
<td>23</td>
<td>3</td>
<td>0.01</td>
</tr>
<tr>
<td>Egypt</td>
<td>80</td>
<td>2,296</td>
<td>251</td>
<td>31</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Arithmetic density enables geographers to compare the number of people trying to live on a given piece of land in different regions of the world. Thus, arithmetic density answers the “where” question. However, to explain why people are not uniformly distributed across Earth’s surface, other density measures are more useful.

**PHYSIOLOGICAL DENSITY**

Looking at the number of people per area of a certain type of land in a region provides a more meaningful population measure than arithmetic density. Land suited for agriculture is called arable land. In a region, the number of people supported by a unit area of arable land is called the physiological density (Figure 2-6).

Comparing physiological and arithmetic densities helps geographers understand the capacity of the land to yield enough food for the needs of the people. In Egypt, for example, the large difference between the physiological density and arithmetic density indicates that most of the country’s land is unsuitable for intensive agriculture. In fact, all but 5 percent of Egyptians live in the Nile River valley and delta because it is the only area in the country that receives enough moisture (by irrigation from the river) to allow intensive cultivation of crops.
Chapter 2: Population and Health

To understand relationships between population and resources in a country, geographers examine a country’s physiological and agricultural densities together. For example, the physiological densities of both Egypt and the Netherlands are high, but the Dutch have a much lower agricultural density than the Egyptians. Geographers conclude that both the Dutch and Egyptians put heavy pressure on the land to produce food, but the more efficient Dutch agricultural system requires fewer farmers than does the Egyptian system.

Pause and Reflect 2.1.2

Name a country other than Egypt that has high physiological and agricultural densities.

AGRICULTURAL DENSITY

Two countries can have similar physiological densities but produce significantly different amounts of food because of different economic conditions. Agricultural density is the ratio of the number of farmers to the amount of arable land (Figure 2-7). Table 2-1 shows several examples.

Measuring agricultural density helps account for economic differences. Developed countries have lower agricultural densities because technology and finance allow a few people to farm extensive land areas and feed many people.

CHECK-IN: KEY ISSUE 1

Where Is The World’s Population Distributed?

✓ Most of the world’s population is highly clustered in four regions.

✓ Arithmetic, physiological, and agricultural densities are different approaches to describing the distribution of people.