Chapter 1 Patterns of population and economic development

1.1 With 1,200 people per square kilometre, Bangladesh has the highest population density of any country in the world with a population of more than 10 million people. This view shows Lalbagh Fort park in Dhaka, Bangladesh's capital city.

Population distribution

Geography is the study of place. Geography is unique among areas of study because it integrates the **physical** and **human** elements of our **environment**, helping us understand their interrelationships. As our understanding of the environment and its importance to humans grows, aspects of geography become increasingly complex, at least in some specialist areas studied at university. However, at its most basic level, geography focuses on three key questions:

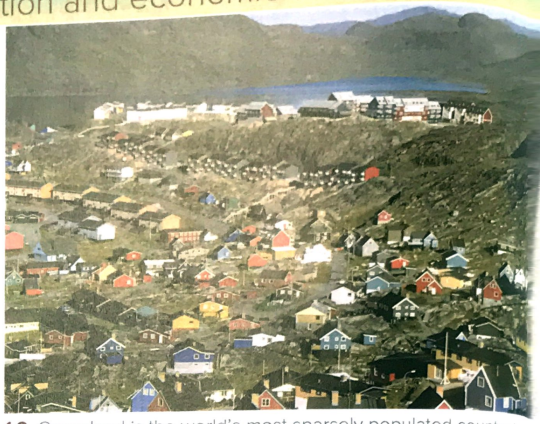
- **where is it?**
- **why is it there?**
- **what are the consequences?**

Physical and human factors affecting population distribution at the global scale

These three questions can be applied to most facets of geography, and certainly to the study of **population geography**. The term **population distribution** describes the way people are spread across the surface of the earth. It is usually measured in persons per square kilometre.

The world's population distribution is **uneven**, and it is **changing over time**. The most densely populated country or territory in the world is **Macau**, a tiny 30 square kilometre Special Economic

1.2 With very little open space, highly urbanised Macau is the most densely populated country or territory in the world.

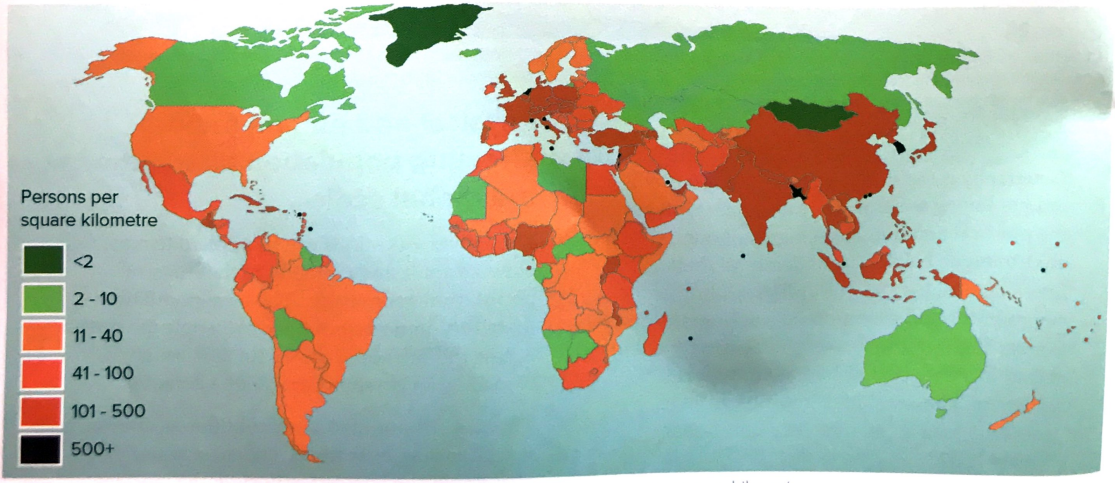


1.3 Greenland is the world's most sparsely populated country in the world. This view of the settlement of Qaqortoq (population 3,200 people) is one of Greenland's most densely settled areas.

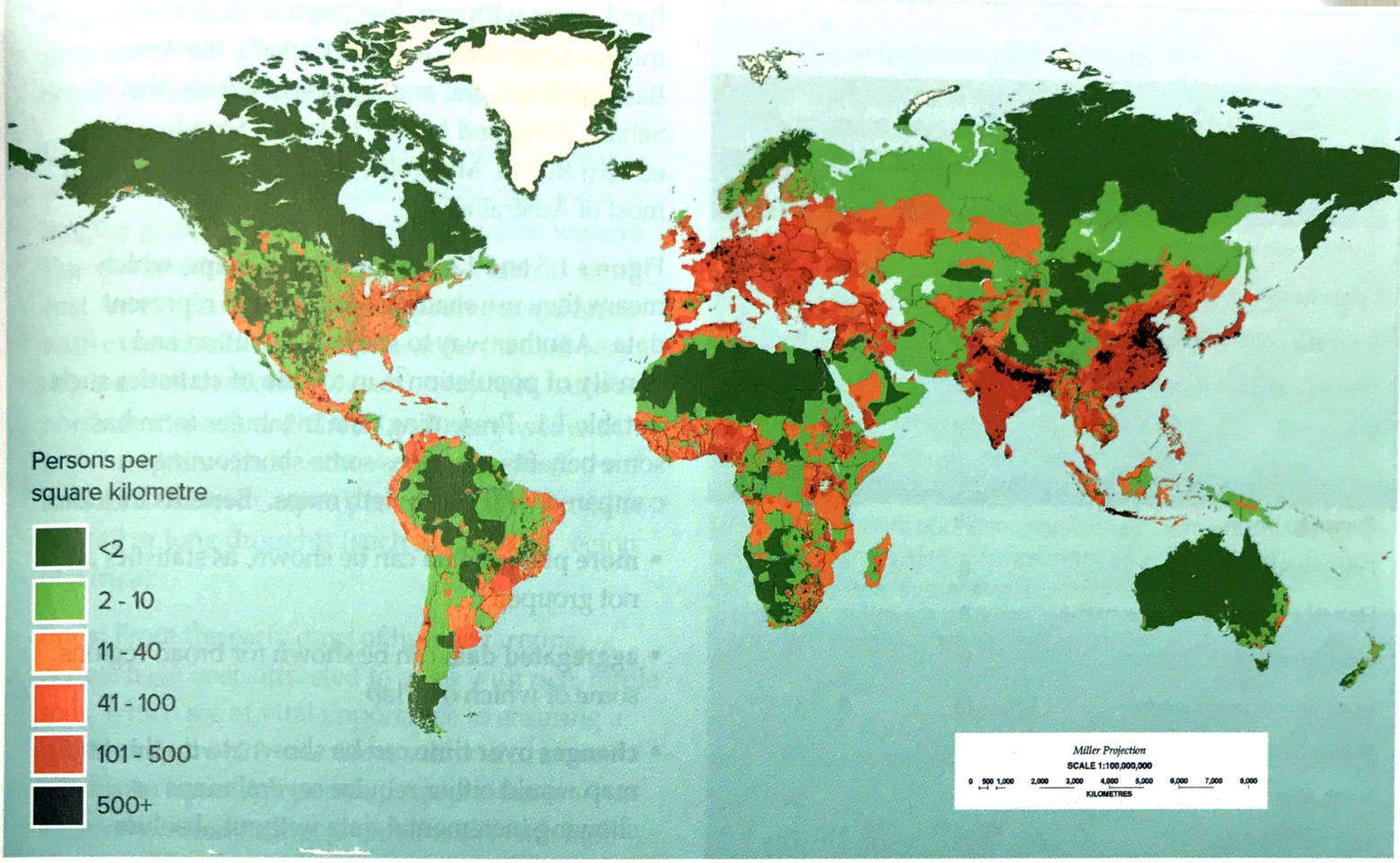
Region of China that was a Portuguese colony from 1557 to 1999. It population density is 19,350 per square kilometre. At the other extreme, the world's most sparsely populated country is **Greenland**. Its population density is just 0.026 people per square kilometre, or to express this in another way, Greenland has 38.5 square kilometres of land per person. Unfortunately for Greenland's residents, most of that land is inaccessible because it lies under a sheet of ice that is generally about two kilometres in thickness.

There are approximately 7.5 billion people in the world today. The land area of the world is almost 130 million square kilometres. Knowing these two facts enables us to calculate that the **average density** of the world's population would be about 58 people per square kilometre if they were evenly

1.4 Most of Greenland is unpopulated because it is completely inhospitable, being covered in a thick ice sheet that makes settlement and food cultivation impossible.



1.5 World distribution of population, shown as national averages in persons per square kilometre.



1.6 World distribution of population. Population density is shown as persons per square kilometre.

distributed. This means that every man, woman and child on earth has an average of almost two hectares of land, or more precisely, an area 130 metres by 130 metres.

Of course, **average figures** such as these are not very useful, because the world's population is not distributed evenly. About 50% of the world's population live on just 5% of the land. Furthermore, 75% of the world's people live in just two continents (Asia and Europe), while other continents such as Australia and Antarctica and almost empty by comparison.

Population is also unevenly distributed by **latitude**. Less than 10% of the world's population live in the southern hemisphere, while 78% live in the northern hemisphere in a band between 20°N and 60°N. **Altitude** is also a significant factor, with 85% of the world's population living between sea level and 500 metres, and 56% living at altitudes lower than 200 metres.

Figure 1.5 shows the distribution of the world's population, expressed as **average population densities per country**. When we study this map, and indeed any map showing national averages, it is important to remember its limitations. In the case of figure 1.5, the shadings shown are national averages, but population is seldom distributed evenly throughout an entire country.

In order to understand the true distribution of the world's population, it is necessary to know something about the nature of individual countries. For example, many countries have **topographic** and **climatic barriers** to settlement over much of their land areas, resulting in uneven distributions of people. In the case of Greenland, population is restricted to a few isolated settlements around the coastline that are not covered by the ice sheet, where some fertile soil can be found to grow crops or where there is a harbour to accommodate fishing vessels.

Most countries of the world have an uneven distribution of population within their borders reflecting the availability of **water** and good **soils**. China has high mountainous areas in the south-west, deserts in the north-west and very cold areas in the north-east, all of which combine to concentrate population in the east and south-east. Egypt has a narrow strip of well-watered land along the Nile River, and most of the country's population is concentrated along that strip. Most of

Table 1.1
Average population density, selected regions.

Region	Population density (persons per square kilometre)	
	1961	2015
Arab countries	7	29
Caribbean small states	11	17
Central Europe and Baltics	83	94
East Asia and the Pacific	43	93
Euro zone	101	127
Europe and Central Asia	25	33
European Union	98	120
Fragile and conflict zones	8	33
Heavily indebted poor countries	8	37
Latin America and Caribbean	11	32
Least developed countries	12	47
Middle East & North Africa	10	38
North America	11	20
OECD members	23	37
Other small states	5	14
Pacific island small states	14	37
Small states	6	15
South Asia	122	366
Sub-Saharan Africa	10	42
High income countries	22	34
Low and middle income countries	24	65
Low income countries	12	48
Lower middle income countries	44	135
Middle income countries	26	68
Upper middle income countries	20	44
WORLD	**24**	**57**

Sources: World Bank, IBRD, IDA data.

Australia is water-deficient, so its population is concentrated in coastal areas, mainly in the south-east of the continent. On the other hand, some countries such as the Netherlands, Bangladesh and Macau have almost nowhere that is unsettled.

Figure 1.6 shows a **more precise distribution** of the world's population using the same categories as figure 1.5. This map shows that there are concentrations of high population density in eastern China, Japan, India, western Europe and the eastern part of the United States. On the other hand, areas with very low population density include Greenland, Iceland, Canada, the Amazon Basin of Brazil, the arid regions of Africa (the Sahara, Sahel and Namib Deserts), Scandinavia, eastern Russia, Mongolia, the Tibetan Plateau, and most of Australia.

Figures 1.5 and 1.6 are **choropleth maps**, which means they use shadings or colour to represent data. Another way to show distribution and density of population is in a **table of statistics** such as table 1.1. Presenting data in tabular form has some benefits as well as some shortcomings compared with choropleth maps. **Benefits** include:

- **more precise data** can be shown, as statistics are not grouped
- **aggregated data** can be shown for broad regions, some of which overlap
- **changes over time** can be shown; to do this on a map would either require several maps or showing incremental data without absolute values.

Shortcomings of tables compared with choropleth maps include:

- **patterns** and geographical **distributions** are obscured
- showing **detail** within countries (as in figure 1.6) would require a huge, complex table
- it is necessary to know **place names** and the **definitions** of categories (such as 'lower middle income countries') to make the most of information presented.

The **global distribution** of population is not a random spread. It can be explained by a combination of **physical** and **human** factors.

Physical factors

Landforms: Areas with high population densities tend to be broad, flat plains in lowland areas (such as the North China Plain, Bangladesh and the Netherlands), fertile river valleys (such as the Ganges River in India, the Chao Phraya in Thailand, the Mekong River in Vietnam, or the Nile River in Egypt), or volcanic areas with rich soils (such as the island of Java in Indonesia). Areas with low population densities tend to be steep,

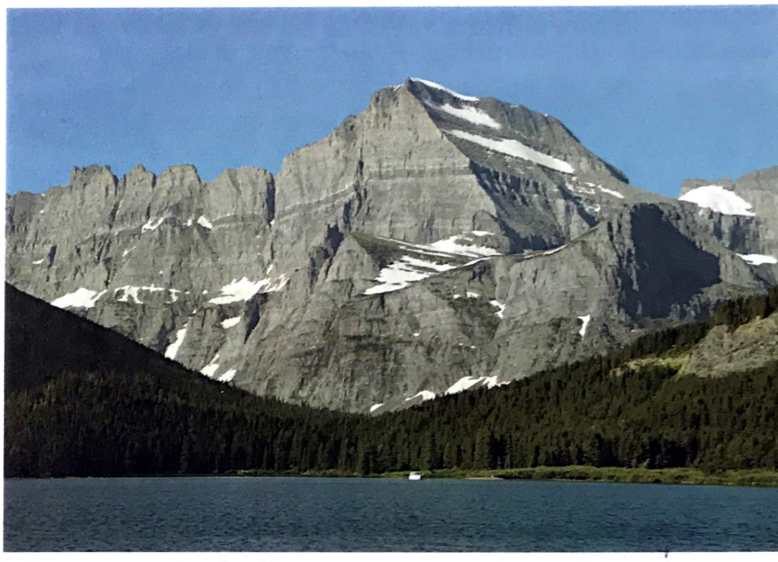
rugged mountains where soils are thin and air pressure is low (such as the Andes Mountains of South America) or high plateaux (such as Tibet).

Climate: People are attracted to temperate areas with adequate, evenly distributed rainfall and a lengthy growing season for crops (such as western Europe) and to monsoonal climates (such as south-east Asia). On the other hand, people avoid areas with extreme climates, such as areas that are very dry (such as the Sahara Desert), very cold (such as northern Canada and Greenland), very wet with high humidity (such as the Amazon Basin or the lowlands of New Guinea), or which have irregular rainfall or long droughts (such as the Sahel region of Africa).

Soils: From the early days of human farming, people have been attracted to areas with rich, fertile soils, which are of vital importance to ensuring a reliable supply of food. Areas with rich, humus-filled soils have high population densities (such as areas of western Europe). Other areas with high population densities include places with silt deposited by rivers in flood, with in valleys (such as Yangtze River in China, the Ganges River in India or the Nile River in Egypt), or the deltas of large rivers (such as the Ganges in Bangladesh or the Nile in Egypt). Areas with soils that make cultivation difficult usually have sparse populations. Soils may be unsuitable for cultivation because they are frozen (the permafrost soils of Siberia), they are leached and therefore low in minerals and nutrients (rainforest soils in the Amazon Basin of Brazil or the Congo River in central Africa), they are thin and poorly developed (mountainous areas of the Himalayas in Asia and the Rocky Mountains of North America), or they are heavily degraded or eroded as a result of over-grazing or deforestation (such as the Sahel region of Africa).

Vegetation: Higher population densities are found in areas with extensive grasslands, such as East Africa and south-western Russia, than in areas where the vegetation makes cultivation and settlement difficult. Areas with sparse populations include dense rainforests (such as the Congo Basin in Africa and the Amazon Basin in Brazil), coniferous forests (such as eastern Russia), and

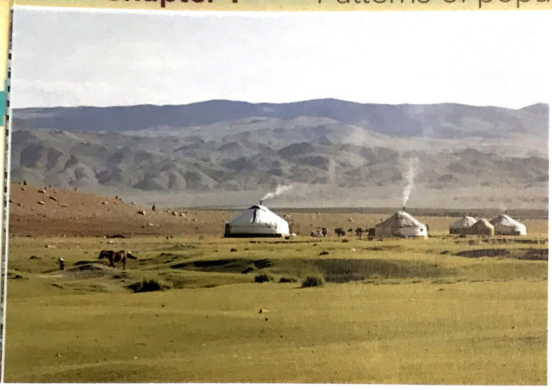
1.7 Fertile soils and abundant, reliable rainfall has led to a high population density in this rice-growing area, west of Jakarta on the island of Java, Indonesia.



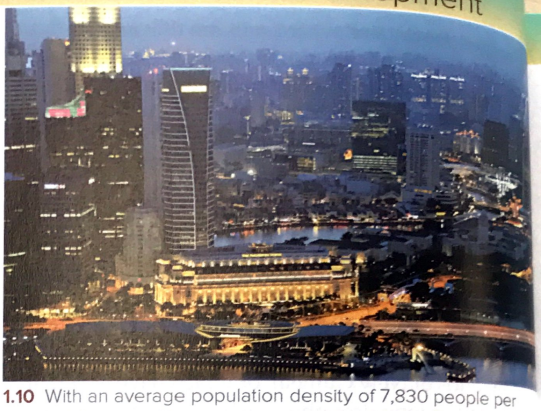
1.8 Steep, mountainous areas usually have very little soil, making settlement difficult and cultivation impossible. Therefore, areas such as the Rocky Mountains of the north-western USA, shown here, have a low population density.

areas with sparse vegetation due to aridity (such as the Arabian peninsula, central Asia and Mongolia).

Water: A reliable water supply is essential for human survival, and people are attracted to areas where the availability of water is sufficient without being excessive. Areas with high population include places with reliable, evenly distributed rainfall (such as western Europe and north-eastern United States) and areas with reliable, seasonal monsoonal rainfall (such as India and south-east Asia). Areas with low or erratic rainfall have sparse population densities, some examples being the Sahara Desert and Sahel region of Africa, the interior of Australia and the deserts of southern and south-western Africa.



1.9 With an average population density of 2 people per square kilometre, Mongolia is one of the world's most sparsely populated countries. One reason for this is the sparse vegetation across most of the country, caused by aridity. In this view between Uujim and Ulgii, in the far west of Mongolia, nomadic horse herders have established an encampment of gers (or yurts) in a rare area of green grass beside a small river, surrounded by arid hills and plains.



1.10 With an average population density of 7,830 people per square kilometre, Singapore is one of the world's most densely populated countries. A significant reason for this is the country's communication links, especially its large port which has served as a trading hub for several hundred years.

Pests and diseases: People avoid areas where there are dangerous pests and diseases. Therefore, places such as the lowlands of Papua New Guinea and parts of central Africa have sparse population densities because of malaria.

Natural resources: People are attracted to areas with major concentrations of minerals or energy resources, such as the Pittsburgh region of the USA, South Wales in the UK, and the Ruhr basin of Germany. On the other hand, places with few natural resources may have quite high population densities as they manage to obtain resources from elsewhere, some examples being the Netherlands, Japan and Taiwan. Furthermore, some places with abundant natural resources may have sparse population densities, either because the resources can be obtained with very few people (such as oil in Algeria, Iran or Saudi Arabia), or because the resources have not been developed (such as minerals in Eritrea or the Russian Far East).

Human factors

Agriculture: Areas which are productive for cropping or livestock raising tend to have high population densities, some examples being eastern China, northern India and eastern Europe. Conversely, areas where farming is difficult, perhaps because of climate, landforms or soils, have sparse populations, with some examples being the Sahara Desert, northern Canada and the Tibetan Plateau.

Manufacturing: Areas where manufacturing industry has been established for many decades, or even centuries, usually have high population densities. Some examples of densely populated manufacturing regions include the Ruhr Basin of Germany, the Kanto Plain of Japan, north-east China (also known as Manchuria), and the north-east of the United States.

Communications: Areas where it is physically easy and financially viable to construct communications infrastructure, such as ports, canals, roads, railways and airports, attract people and therefore tend to have high population densities. Examples of such areas include the United Kingdom, Singapore, Hong Kong, south-eastern Japan and the Netherlands. On the other hand, population density is sparse in areas where transport and communications are difficult, such as in mountainous areas (the Altiplano of Bolivia and the Tibetan Plateau of China), deserts (the Sahara Desert of Africa and central Australia), and densely forested areas (such as Siberia in Russia or northern Canada).

Political factors: Government policies and decisions can cause areas to become either more densely population or less densely populated. Areas can become more densely settled when governments decide to develop new areas (such as mining settlements in the Russian Far East,

transmigration settlements in West Papua, Indonesia, or pioneer lands in Israel), or create new cities such as Shenzhen in China, Brasilia in Brazil, Yamoussoukro in Côte d'Ivoire (Ivory Coast) and Naypyidaw in Myanmar (Burma). Conversely, areas that do not receive adequate investment are often sparsely populated or become depopulated, examples being parts of the Russian Far East and declining manufacturing areas in Eastern Europe. Population densities can also become sparser over time due to depopulation arising from political conflict, and some examples of this include Syria, Afghanistan, Somalia, Sudan and South Sudan.

When we analyse the factors affecting **global population distribution**, we can conclude that **physical factors are more significant than human factors**. However, if we focus on a smaller, more **local or regional scale, human factors** are likely to become far **more significant**.