

Distribution and density

Distribution describes the way in which people are spread out across the Earth's surface. This distribution is uneven and changes over periods of time. It is usual to show

population distribution by means of a dot map (Figure 1.1). Notice how people are concentrated into certain parts of the world making those places very crowded. At the same time, other areas have relatively few people living there. These are said to be sparsely populated.

Figure 1.1
Dot map showing world population distribution

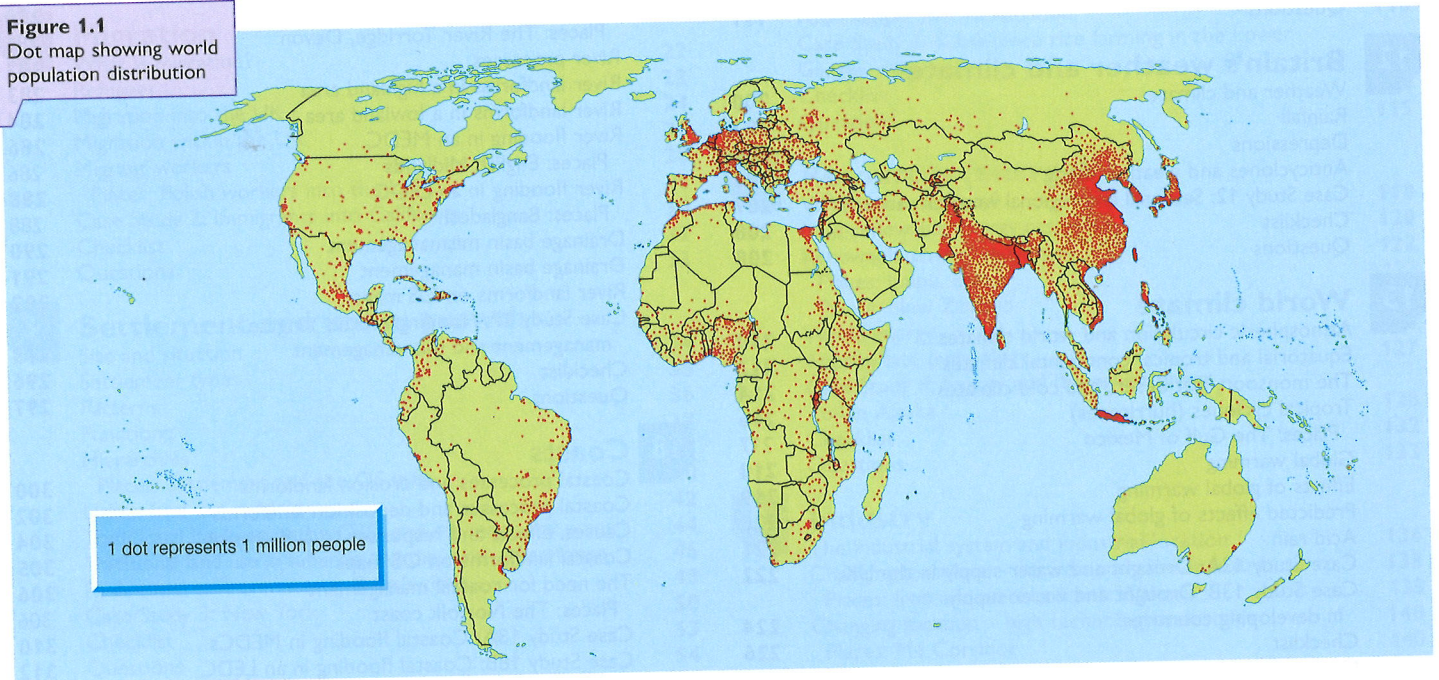


Figure 1.3
Factors affecting distribution and density of population

		PHYSICAL		
	Densely populated	Examples	Sparsely populated	Examples
Relief	Flat plains and low-lying undulating areas	Bangladesh	High, rugged mountains	Andes
	Broad river valleys	Ganges Valley	Worn-down shield lands	Canadian Shield
	Foothills of active volcanoes	Etna, Pinatubo		
Climate	Evenly distributed rainfall with no temperature extremes	North-west Europe	Limited annual rainfall	Sahara Desert
	Areas with (i) high sunshine totals (ii) heavy snowfall for tourism	(i) Spanish costas	Low annual temperatures	Greenland
		(ii) Swiss alpine valleys	High annual humidity	Amazon rainforest
	Seasonal monsoon rainfall	Bangladesh	Unreliable seasonal rainfall	Sahel
Vegetation	Grasslands – easy to clear/farm	Paris Basin	Forest	Amazonia, Canadian Shield
Soil	Deep fertile silt left by rivers	Nile Valley and Delta	Thin soils in mountainous or glaciated areas	Northern Scandinavia
	Volcanic soils	Etna	(i) Lacking humus or (ii) Affected by leaching	(i) Sahel (ii) Rainforests
Natural resources	Minerals, e.g. coal, iron ore	Pennsylvania, Johannesburg	Lacking minerals	Ethiopia
	Energy supplies, e.g. HEP	Rhône Valley	Lacking energy supplies	North-east Brazil
Water supply	Reliable supplies	North-west Europe	Unreliable supplies	Afghanistan
Natural routes	Gaps through mountains, confluence of valleys	Rhine Valley, Paris	Mountain barrier	Himalayas

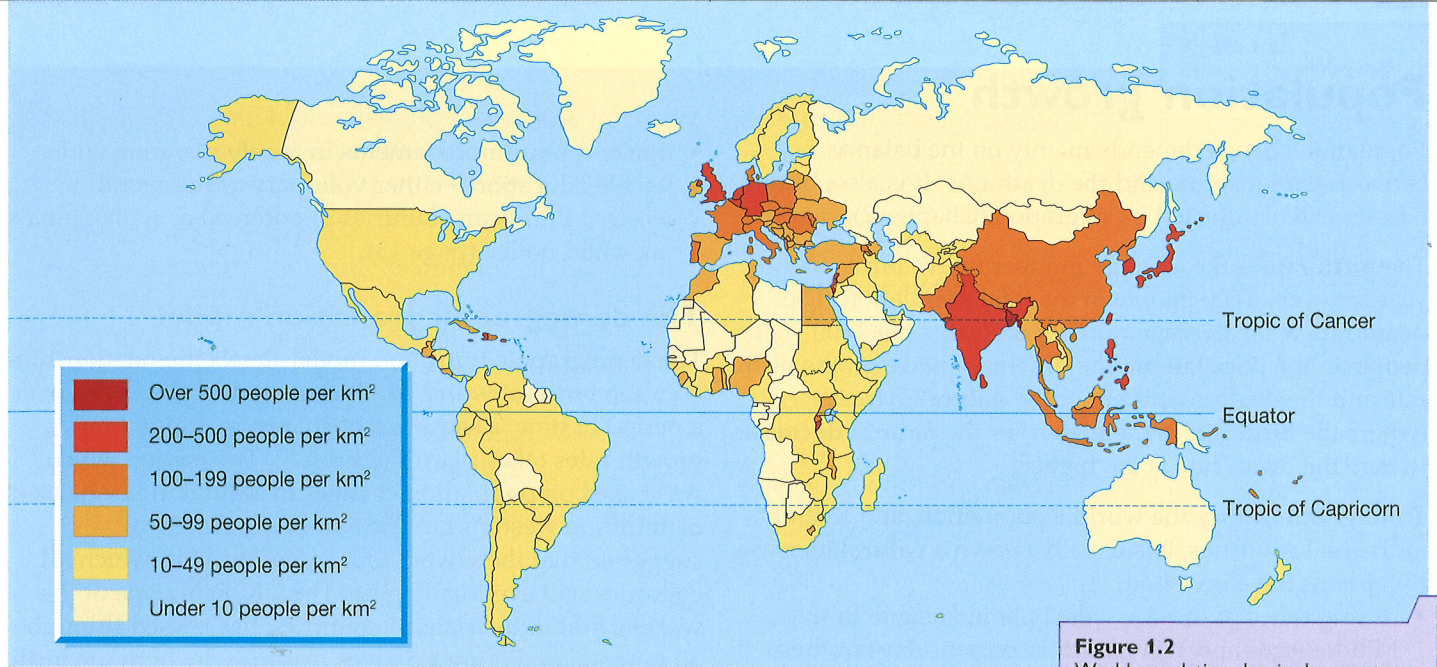


Figure 1.2
World population density by country

Density describes the number of people living in a given area, usually a square kilometre (km²). Density is found by dividing the total population of a place by its area. Population density is usually shown by a choropleth map (Figure 1.2). A choropleth map is easy to read as it shows generalisations, but it does tend to hide concentrations.

For example:

- Brazil appears on the world map in Figure 1.2 to have a low population density. However, on a larger-scale map (see Figure 1.24), several parts of the country are shown to have very high densities.
- Figure 1.2 suggests that the population of Egypt is evenly spread whereas in reality it is concentrated along the Nile Valley (Figure 1.1).

On global and continental scales, patterns of distribution and density are mainly affected by **physical** factors such as relief, climate, vegetation, soils, natural resources and water supply. At regional and more local scales, patterns are more likely to be influenced by **human** factors which may be economic, political or social. Figure 1.3 gives reasons, with specific examples, why some parts of the world are densely populated while others are sparsely populated. You should be aware, however, that:

- for a given place there are usually several reasons for its dense or sparse population, e.g. Nile Valley and Sahara Desert
- even within areas there are variations in density, e.g. parts of Japan have some of the highest densities in the world, yet less than one-fifth of the country is inhabited.

HUMAN				
	Densely populated	Examples	Sparsely populated	Examples
Economic	Ports	New York, Sydney	Limited facilities for ports	Bangladesh
	Good roads, railways, airports	Germany, California	Poor transport links	Himalayas
	Industrial areas (traditional)	Pittsburgh, Ruhr	Lack of industrial development	Sudan
	Development of tourism	Banff (Canada), Jamaica	Lack of tourist developments	Iraq
	Money available for new high-tech industries	California, south of France	Lack of money for new investments	Nepal, Gaza
Political	Government investment	Tokyo region, north Italy	Lack of government investment	Dem. Rep. of Congo
	New towns	Satellite towns around Cairo, Brasilia	Depopulation of rural and old industrial areas	North-east Brazil, Belgian coalfield
	Reclamation of land	Hong Kong Island, Dutch polders	Loss of land, e.g. deforestation, and soil erosion	Amazonia, Apennines, Sahel
Social	Better housing opportunities	Arizona	Poor housing opportunities	Afghanistan, Soweto
	Education, health facilities, entertainment	Sydney, Milan	Limited education, health facilities, entertainment	Rwanda
	Retirement areas	Spanish costas, Canary Islands	Poor facilities for retirement	Eritrea

Figure 11.3
Indicators (measures) of
development, 2008

Country	Economic wealth GDP per capita (US\$)	Social							Others			
		Population			Health				Literacy	Employment	Urbanisation	Energy consumption
		Birth rate	Death rate	Total fertility rate	Infant mortality rate	Life expectancy	% below poverty line	% adult	% in agriculture	% in urban areas	Tonnes oil equiv./ person/yr	
High income (MEDCs)	USA	45 800	14	8	2.1	6	78	12	99	2	82	8.1
	UK	35 100	11	10	1.7	5	79	11	99	1	90	3.9
	Japan	33 600	8	9	1.2	3	82	6	99	2	66	4.1
	Italy	30 400	8	11	1.3	6	80	13	98	2	68	3.1
Middle income (NICs)	Malaysia	13 300	22	5	2.9	16	73	15	89	13	58	2.8
	Brazil	9 700	19	6	2.2	23	72	31	88	20	86	1.1
Emerging countries	China	5 300	14	7	1.8	20	74	8	91	42	43	1.3
	India	2 700	22	7	2.7	30	70	25	61	18	29	0.6
Low income (LEDCs)	Kenya	1 700	38	10	4.6	55	58	51	85	75	34	0.5
	Bangladesh	1 300	29	8	2.8	59	60	45	43	63	27	0.3
	Ethiopia	800	45	12	6.2	81	54	39	43	80	17	0.1

2 Social indicators

Although, as we have seen, economic development to people living in a Western society often means a growth in wealth, other indicators have also been suggested. Figures 11.3 and 11.4 show possible links between development and a range of social measures.

a Population

In general, the MEDCs have lower birth rates and a slower natural increase than do LEDCs. Population structures (pages 8 and 9) show that the MEDCs have a smaller proportion of children aged under 15 (page 12) and a higher proportion of people aged over 65 (page 14) than do developing countries.

b Health

Similarly, MEDCs have a lower infant mortality rate, a longer life expectancy and fewer people per doctor than the LEDCs.

3 Other indicators

These include measures related to adult literacy, diet, employment structures and energy consumption (Figure 11.3). Notice, however, that many of these criteria are themselves related to the wealth of a country. For example, the more wealthy and, therefore, economically developed a country is, the more it can spend on health care, education, energy provision and providing other services. This suggests that a country has to increase its GDP if it is to improve the standard of living and quality of life of its inhabitants.

Indicators/measures		MEDCs	LEDCs
Economic (GDP)		Majority over US\$5000 per capita. 80% of the world's income.	Majority under US\$2000 per capita. 20% of the world's total income.
Social	Population	Low, steady birth rate partly due to family planning. Slow natural increase – takes 100 years to double. 18% of world's population.	High birth rate, partly due to limited family planning, but falling. Relatively high death rate but falling except in sub-Saharan Africa. Rapid natural increase – doubling population in 30 years. 82% of world's population.
	Health	Low infant mortality rate, long and increasing life expectancy. Mainly due to vaccines, large number of doctors and hospitals, and high standard of health care.	High, though falling, infant mortality rate. Shorter life expectancy, especially in poorest countries. Relatively few doctors and hospitals. Little money available.
Others	Education	Majority have full-time education, many have 16+ education. Most adults, including women, are literate.	Limited numbers get full-time education, and few go on after 16. Low adult literacy rate, and women are disadvantaged.
	Diet	Balanced. Several meals per day. High protein intake.	Unbalanced. 35% of children under 5 are underfed. Low protein intake.
	Employment	Few jobs in primary sector, more in secondary, most in tertiary sector. Mechanisation and technology.	Most in primary sector, few in secondary and tertiary sectors. Limited mechanisation and technology.
	Energy	High levels of consumption – mainly coal, oil, natural gas and nuclear power. Use 70% of world's energy.	Low levels of consumption – often only fuelwood. Only use 30% of world's energy.
	Trade	Large volume and value – mainly manufactured goods.	Small volume and value – mainly unprocessed raw materials.

Figure 11.4
Differences between
MEDCs and LEDCs