21

Development and globalisation

'One world, one dream.'

Beijing Olympics, 2008

'Development is more than mere economics.'

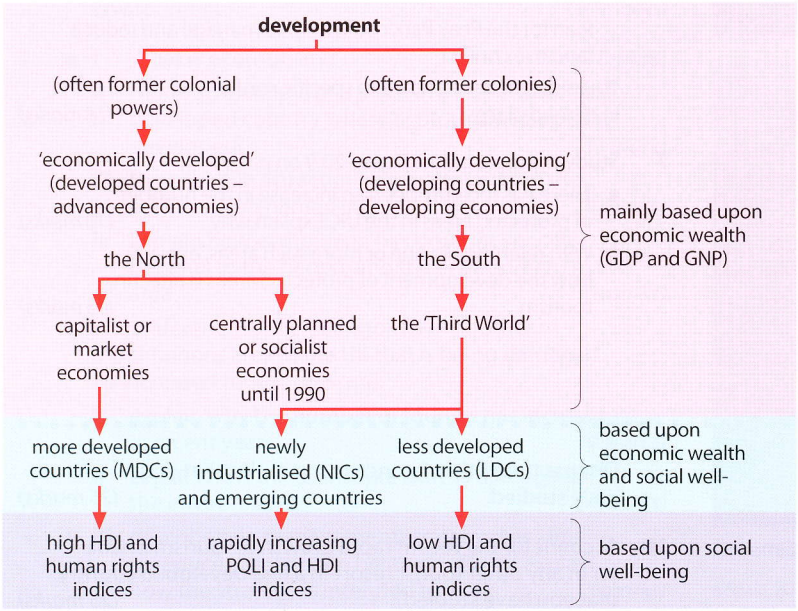
Mark Tully, *No Full Stops in India*, 1991

The concept of economic development

Frequent references have been made in earlier chapters to the inequalities in world development and prosperity. Gilbert, in his book *An Unequal World*, began by stating that:

> 'Few can deny that the world's wealth is highly concentrated. The populations of North America and Western Europe eat well, consume most of the world's fuel, drive most of the cars, live in generally well serviced homes and usually survive their full three score years and ten. By contrast, many people in Africa, Asia and Latin America are less fortunate. In most parts of these continents a majority of the population lack balanced diets, reliable drinking water, decent services and adequate incomes. Many cannot read or write, many are sick and malnourished, and too many children die before the age of five.'

Figure 21.1
Terms used in relation to world development



Note: For consistency, the terms 'economically more developed' or 'developed', and 'economically less developed' or 'developing' are mainly used in this book.

Definition of terms

Terms such as 'developed' and 'developing' have been used for several decades to indicate the economic conditions of a group of people or a country. By the 1980s, the term 'developing' had come to be regarded as a stigma and was replaced by the concept of the 'South' (**Brandt Report**, 1980) and, with increasing popularity, the 'Third World' (Figure 21.1). By the 1990s, with the growing realisation and appreciation that poverty is relative, not absolute, the terms **more economically developed countries (MEDCs)** or 'advanced economies', and **less economically developed countries (LEDCs)** or 'developing economies' became increasingly acceptable. Even more recently the nations that had, a decade or two earlier, been grouped together as belonging to the 'developing economies' had now shown among themselves a widening spread of wealth and living standards, for example the growing gap between the NICs (newly industrialised counties, page 578) and, today, the emerging countries (BRIC – Brazil, Russia, India and China) with those of sub-Saharan Africa.

All these definitions (summarised in Figure 21.1) were based on, and overemphasised, economic growth. To those living in a Western, industrialised society, economic development tends to be synonymous with wealth, i.e. a country's material standard of living. This is measured as the **gross domestic product (GDP)** per capita and is obtained by dividing the monetary value of all the goods and services produced in a country by its total population. When trade figures for 'invisibles' (mostly financial services and deals) are included, the term **gross national product (GNP)** is used. It is possible to use either term – GDP is preferred by the EU, and GNP by the UN (our usual source of data) and the USA – as both aim to measure the wealth of a country and to show the differences in wealth between countries. GDP and GNP figures need to be treated cautiously due to problems with exchange rates, differences between countries in their methods of calculation, and difficulties in evaluating services.

Recently, an increasing number of definitions, often involving cultural development, social well-being and political rights, have been suggested as alternatives to those previously based solely upon economic criteria – i.e. they emphasise 'quality of life' in contrast to 'standard of living'. In the early 1990s, the UN introduced the term **Human Development Index (HDI)** – see page 606.

Development is not just the difference between the developed, rich and powerful countries and those that are less developed, poor and subordinate. Each country has areas of prosperity and poverty; contains people with different standards of living based on variations in job opportunities (Shanghai and Sichuan in China), race or tribe (Hutu and Tutsi in Rwanda), religion (Sunnis and Shi'ites in Iraq), language (Dutch-speaking Flemings and French-speaking Walloons in Belgium), or social class (caste in India). Taken a step further, it is also possible to identify differences in development within cities (Places 52 and 58) and inequality between genders.

The difference in wealth and standard of living between the world's richest and poorest countries is referred to as the **development gap**. Despite some attempts to the contrary (aid – page 632), this gap continues to widen (debt – page 608), particularly as **globalisation** puts increasing power into the hands of the most wealthy countries and organisations.

What is meant by globalisation?

Globalisation is a relatively new term. It has a wide range of meanings but generally refers to processes that extend globally to affect or integrate people across the entire world. From a geographer's point of view, it includes any process of change that occurs at a world scale and which has world-wide effects. These processes may be considered to be physical (e.g. rising sea-level), human and economic (e.g. trade) or a combination of both (e.g. global warming) but they are considered to be essentially geographical in that they affect the Earth's environment and its people.

The links created by globalisation are increasing both in range and scale, and are developing at an ever increasing pace. These links, which may be considered to be environmental, economic, technological, cultural, sociological or political, can have – often depending on your own viewpoint – either beneficial or detrimental effects. Some would argue that globalisation spreads wealth, knowledge and personal contacts across the world; others that it is creating an unfair world in which rich countries and large organisations exploit the world's poorest peoples which increases, rather than reduces, the 'development gap'. Figure 21.2 is one of several possible schematic diagrams showings topics related to globalisation that appear within this text, e.g. trade, transport, tourism, migration, aid, health, finance and technology.

Development v. globalisation

It is not straightforward to try to link development and globalisation. Development has conventionally been understood as something that happens, or fails to happen, to countries. Globalisation is increasingly being regarded as a process that disintegrates national economies and constitutes new spatial patterns, e.g. trading blocs, innovative regions, international banking.

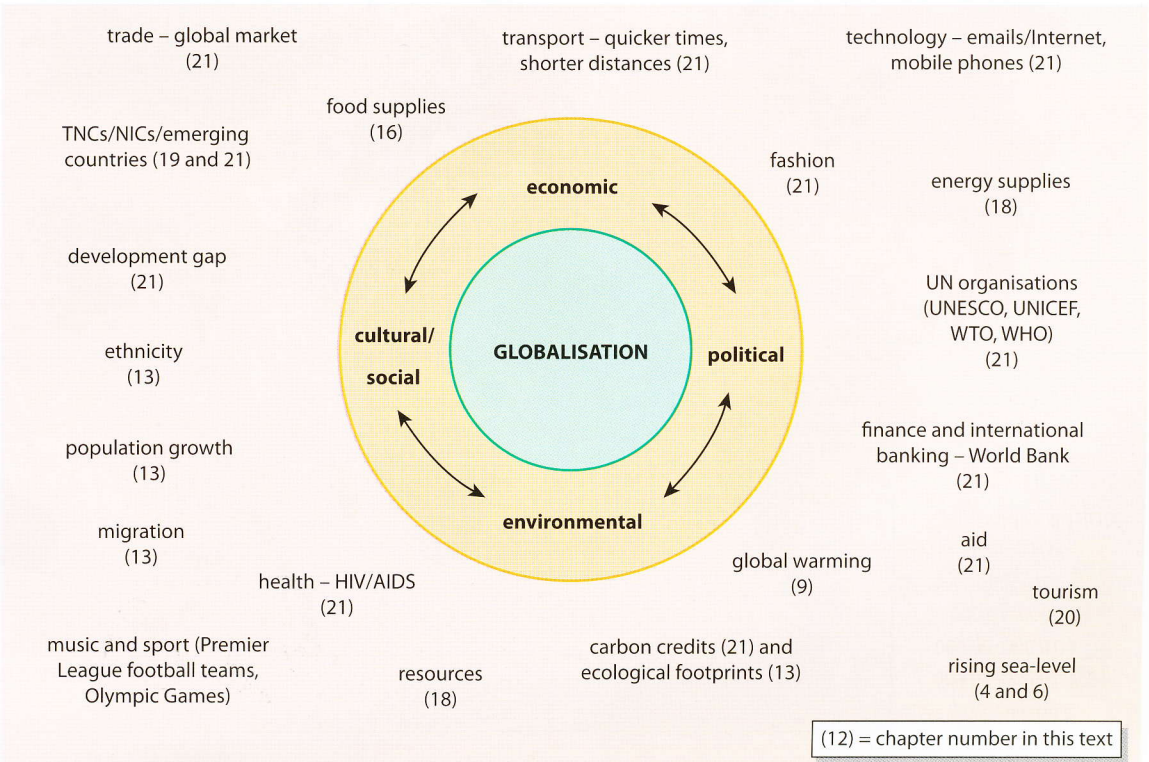


Figure 21.2 References to globalisation

Criteria for measuring the 'development gap'

1 Economic wealth

To many people living in developed countries, economic development has been associated with a growth in wealth based on GDP (or GNP). This implies that the GDP (or GNP) of a country has to increase if its standard of living and quality of life are to improve. An economic growth rate of 8 to 10 per cent, which is the highest, has been achieved in China and Ireland in recent years, and by several South-east Asian countries over the past decade or two (Figure 19.38). A rate of 1 per cent is considered disappointing.

Although GDP/GNP figures are easier to measure and to obtain than other development indicators such as social well-being, there are limitations to their use and validity. They are more accurate in countries that have many economic transactions and where goods, services and labour can be measured as they pass through a market place – hence the term 'market economies'. Where markets are less well developed, and trading is done informally or through bartering, and where much production takes place in the home for personal subsistence, GDP figures are less reliable. In the former centrally planned, socialist economies, with their relatively small role in international trade and with few services, GDP figures were difficult to calculate and interpret.

Comparison of GDP requires the use of a single currency, generally US dollars, but currency exchange rates fluctuate. The size and growth of GDP may prove to be poor long-term economic indicators and fail to take into consideration human and natural resources. GDP per capita is a crude average and hides extremes and uneven distribution of income between regions and across socio-economic groups, especially in less developed countries where there may be very few extremely wealthy people and a large majority living at subsistence level. Despite these limitations, GDP and GNP are still regarded as relatively good indicators of development and good measures for comparing differences between countries (Figure 21.3). Notice that it is the advanced economies and several of the oil-producing states that have the highest GDP per capita and the developing economies that have the lowest, although the fastest-growing are China and several others in South-east Asia. The World Bank now produces figures for income inequality within some countries, e.g. Brazil.

2 Social, cultural and welfare criteria

Human development has changed the purpose of development to that of meeting human needs, and away from the old style of economic development based on changes in a country's economy and wealth. The UN Development Programme's Human Development Index (HDI) gives every

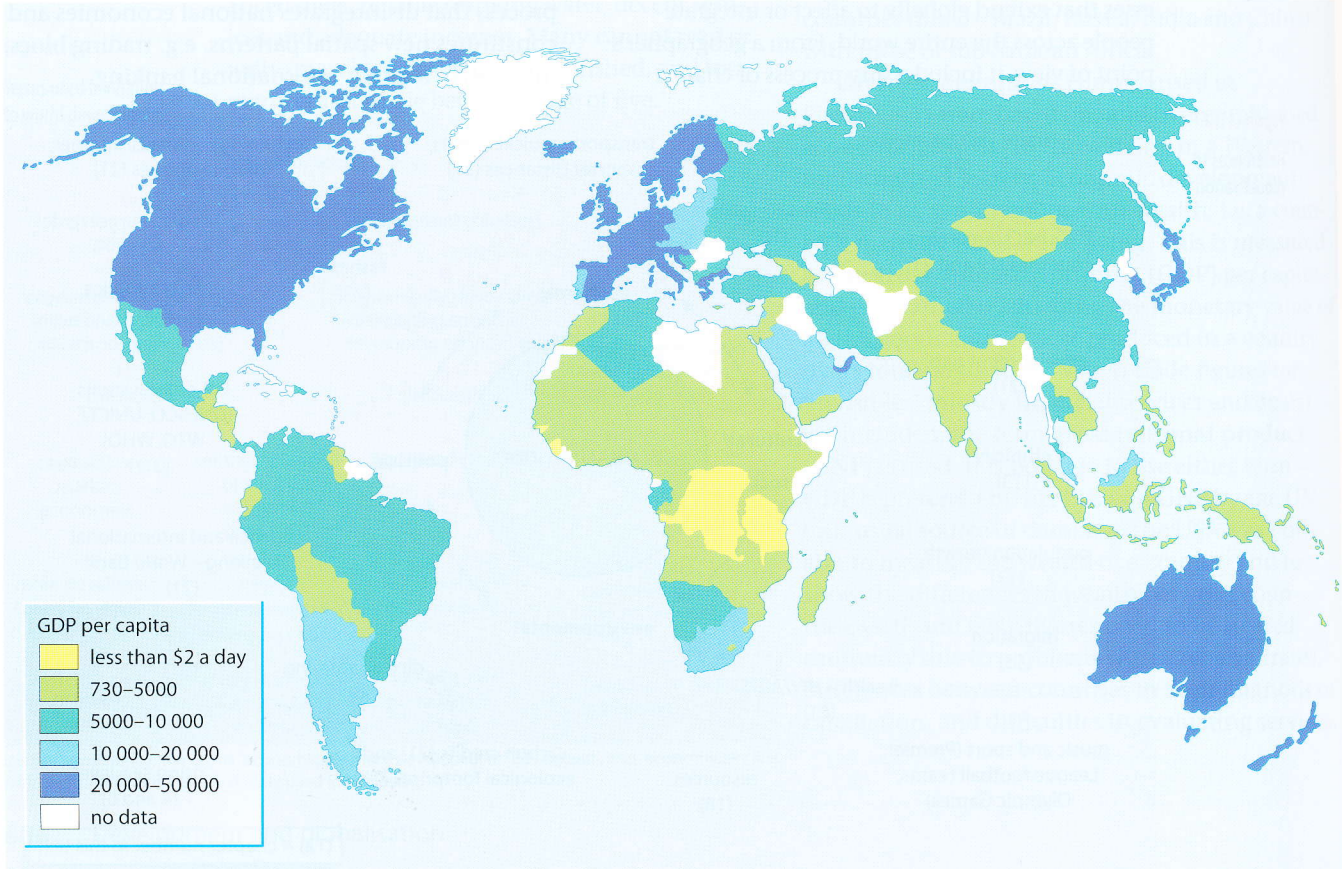


Figure 21.3
World GDP
Source: The UC Atlas of Global Inequality

country a score between 0 and 1, based on its citizens' longevity, education and income. The three factors are given equal weight. Longevity is measured by average life expectancy at birth – the most straightforward measure of health and safety. Education is derived from the adult literacy rate and the average number of years of schooling. Income is based on GDP per capita converted to 'purchasing power parity dollars' (PPP) and is adjusted according to the law of diminishing returns, i.e. what an actual income will buy in a country. The HDI value for a country shows the distance that it has already travelled towards the maximum possible value of 1, and also allows comparisons with other countries (Figure 21.4). The difference between the value achieved by a country and the maximum possible value shows the country's shortfall, i.e. how far the country has to go. Finding ways of reducing this shortfall is a major challenge for each country.

As the table on the right shows, it is countries in Scandinavia that now top the HDI list and countries in the Sahel of sub-Saharan Africa that tend to be at its foot – an interesting latitude effect.

Countries with a score of over 0.9 correspond closely with the economically more developed countries while those with less than 0.5 equate closely with the least economically developed countries (compare Figures 21.3 and 21.4).

Yet should the similarities between GDP and HDI really be that surprising? Longevity, a good education and a high purchasing power all depend fairly directly on a country's wealth.

A major criticism of the HDI is that it contains no measure of human rights or freedom. Although the UNDP did produce a separate **Human Freedom Index (HFI)** in 1991, it has not done so since, arguing that 'freedom is difficult to measure and is too volatile, given military coups and the whims of dictators'. The issue of personal and political rights has become increasingly important since then.

Perhaps the main point about HDI is that it enables you to spot anomalies, e.g. countries that have a better (Canada, Sri Lanka and Tanzania) or worse (Saudi Arabia and other oil-producing countries) level of well-being than might be expected from their GNP. HDI can serve a purpose if it identifies where poverty is greatest (between countries, within a country or between groups of people in a country) or if it stimulates debate and action as to where aid, trade and debt alleviation needs to be focused.

Year	Top two		Bottom two	
1990	Canada	0.93	Niger	0.28
	Japan	0.92	Mali	0.30
1995	Norway	0.94	Niger	0.30
	Canada	0.94	Mali	0.32
2000	Norway	0.96	Sierra Leone	0.31
	Sweden	0.95	Niger	0.32
2005	Iceland	0.97	Sierra Leone	0.34
	Norway	0.97	Burkina Faso	0.37

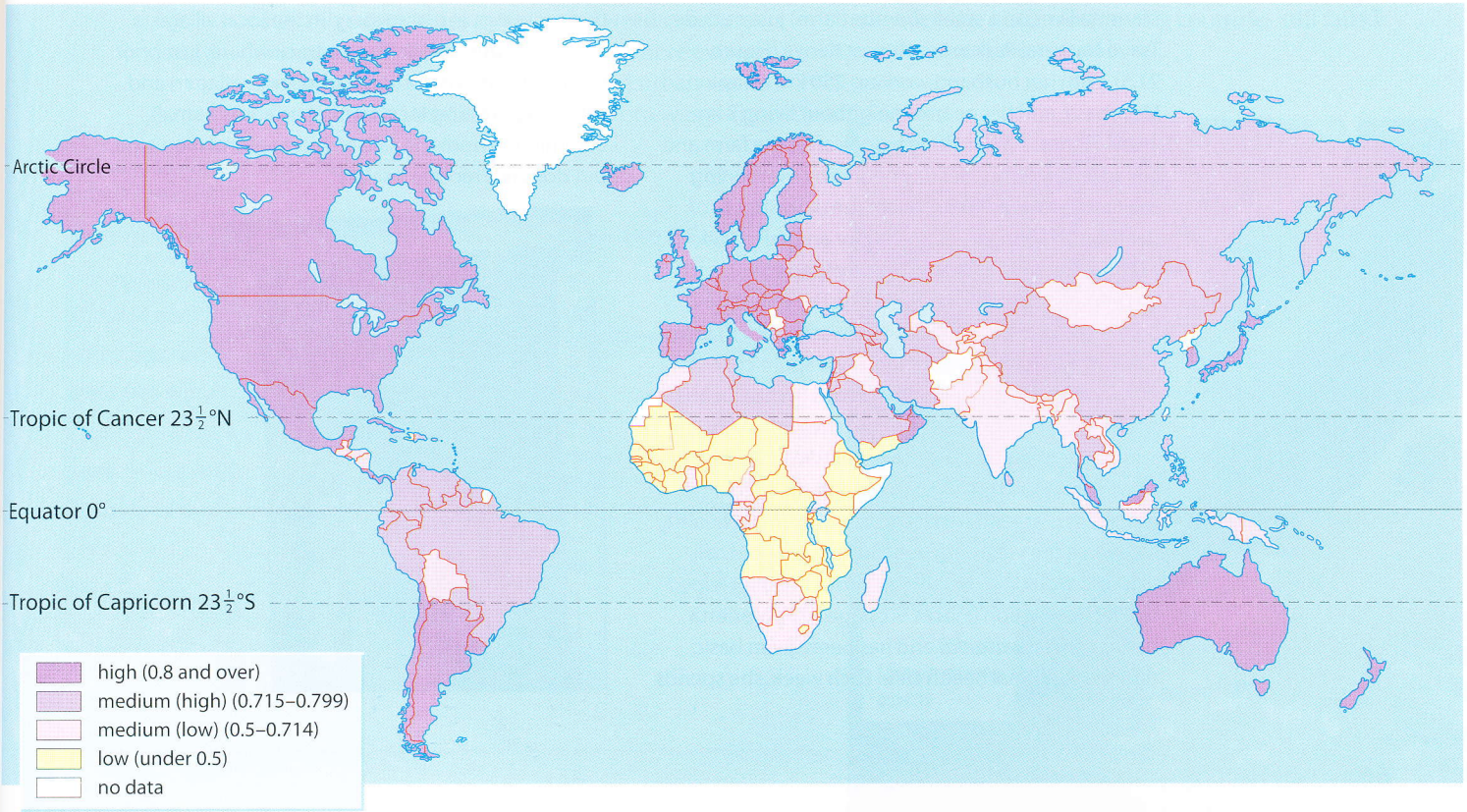


Figure 21.4
The UN Human Development Index (2005) World development

3 Other criteria for measuring the 'development gap'

Further criteria have also been used to measure the quality of life as an indicator of levels of, or stages in, development. Several are linked to population as, in developing countries, birth rates are generally high, the natural increase is rapid, life expectancy is shorter and a high percentage of the population is aged under 15 (Figures 13.15 and 13.21). Higher death and infant mortality rates reflect the inadequacy of nutrition, health and medical care. In many developing countries, the prevalence of disease may result from an unbalanced diet, a lack of clean water and poor sanitation – a situation often aggravated by the limited numbers of doctors and hospital beds per person. The major-ity of people live in rural areas and are dependent upon farming, while in the country as a whole only a small percentage of the population is likely to find employment in manufacturing or service industries. Many jobs are at a subsistence level, in the informal sector (page 574) and the amount of energy consumed within the country is low (Figure 18.25). Economically less developed countries often import manufactured goods, energy supplies and sometimes even foodstuffs, especially grain. In return, they may export raw materials for processing in the developed world (Figure 21.36), accumulate a trade deficit and get increasingly into debt (page 624). High rates of illiteracy reflect a shortage of schools and trained teachers. The density of communication networks, circulation of newspapers and numbers of cars, telephones and television sets per household or per capita have also been used as indicators of development.

Social and economic development

An often neglected factor in social and economic development is gender, and in particular the role of women. Places 96 describes the lifestyle of a Kenyan woman who, like many other women across the world, is the principal support of her family and local community. It is women like these who form the mainstay of the family, of women's groups, the community and, indeed, of a nation's development. Yet their role as providers and generators of wealth is not matched in most societies by their status or influence. Women (and not just in developing countries) are often:

- denied ownership of property (including land), access to wealth, education and family planning (page 357) and equality in justice and employment
- kept subordinate by being granted lowly positions or given menial tasks which are often poorly paid or even unpaid (farming) or are heavy, tedious and time-consuming (collecting firewood and water)
- subject to violence, both physical and mental
- denied political influence.

Places 96 Kenya: women and development

Marietta lives on a small *shamba* (farm) just outside Tsavo National Park in south-east Kenya (Figure 21.5). With her husband working 250 km away in Mombasa, and her nearest neighbour living 3 km away, Marietta is left alone to look after the farm and her seven children. Her day begins by sharpening the machete needed to collect the daily supply of dead wood (living trees are left for animal grazing), as this is her only source of energy (page 543), and by preparing a meal for the family. The eldest girls, before walking to school, collect water from the river 1 km away. Much of Marietta's day is spent collecting firewood and looking after her crops (maize, beans and sorghum). Although owning a few chickens and goats, Marietta's 'wealth' is her two cows which provide milk and are used to plough the hard ground. It is essential that these cows remain healthy for even if the vet, living over 50 km away, did call, Marietta would not be able to afford the bill. Helped by Practical Action (Places 90, page 577), Marietta has become a *wasaidizi* and has been given basic training in animal health care. Each week, she spends two mornings in her 'surgery' in the local village (a four-hour round walk along a track where, just prior to the author's visit, a lion had killed a villager) and other days visiting local farms. She earns a small commission from the sale of vaccines and medicine, but does not receive a salary.

Figure 21.5 Marietta at her 'surgery'

Living in extreme poverty

At the beginning of the 21st century, the UN claimed that nearly 1 billion people lived in **extreme (or absolute) poverty**, which meant that 1 person in every 6 of the world's population was struggling for survival. Poor countries were finding themselves falling further and further behind the richer countries and the 'development gap' was continuing to grow. As this gap widened, people in the poorest countries became caught up in the so-called **'cycle of poverty'** (Figure 21.6), which leaves successive generations in a 'poverty trap' from which there appears little hope of escape.

At the Millennium Summit of 2000, world leaders committed their nations to a new global partnership aimed at reducing extreme poverty. They set out a series of targets which have become known as the **Millennium Development Goals** (MDGs) and which they hoped would be achieved by 2015 (Figure 21.7). Within five years significant progress had been made in many parts of the world. The number in extreme poverty had declined by an estimated 130 million, average overall incomes had increased by 21 per cent, infant mortality had fallen from 103 per 1000 live births to 88, life expectancy had risen from 63 years to 65, and an extra 8 per cent of the developing world's people had access to clean water and 15 per cent to improved sanitation.

A report by the UN Millennium Project secretariat team in 2006 concluded, however, that this progress had not been uniform and that there were still huge disparities not only between countries but especially between rural areas, where extreme poverty is often still increasing, and urban areas. The team said that sub-Saharan Africa was at the centre of the crisis, with continuing food insecurity (page 503), extremely high child and maternal mortality, large numbers living in sub-standard accommodation and a widespread shortfall for most of the MDGs. According to the Human Poverty Index (HPI), the world's six poorest countries were, in descending order, Sierra Leone, Niger, Ethiopia, Burkina Faso, Mali and, at the foot, Chad. Asia was the region with the fastest progress, but even there thousands of people remained in extreme poverty and even the fastest improving countries still failed to meet non-income goals.

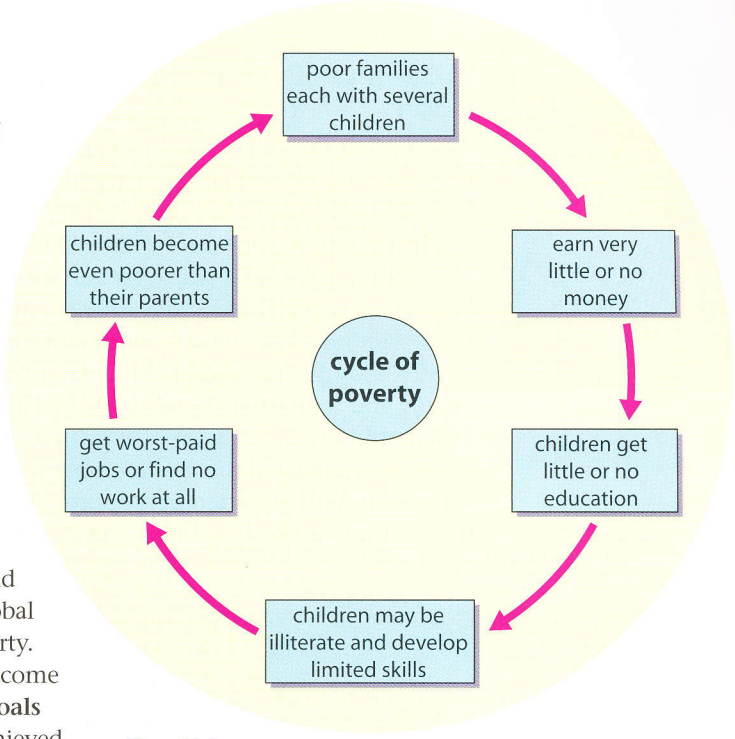


Figure 21.6
The cycle of poverty

Figure 21.7
Millennium Development Goals (MDGs) and basic human rights

MDGs need to address:	
• income poverty	• hunger
• lack of adequate shelter	• disease
• lack of clean water	• exclusion
MDGs need to promote:	
• gender equality	• education
• environmental sustainability	
MDGs should ensure the basic rights of:	
• health	• shelter
• education	• education

MDGs should between 1990 and 2015:

- reduce by two-thirds the under-5s mortality rate
- have halted and begun to reverse the spread of HIV and AIDS
- reduce by three-quarters the maternal mortality rate
- aim to halve the number of people suffering from hunger, living on under $1 per day, without access to safe drinking water and without access to basic sanitation
- eliminate gender disparity in education

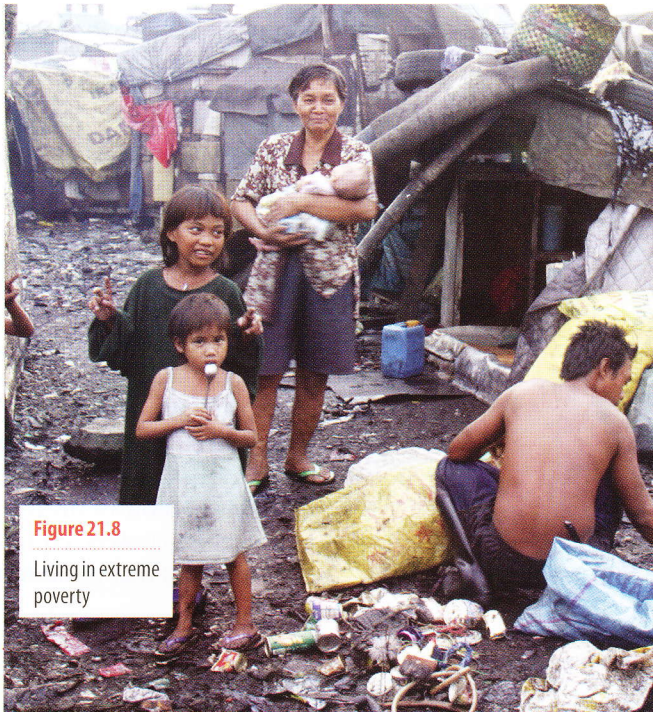


Figure 21.8
Living in extreme poverty

Millennium Development Goals on water

As shown in Figure 21.7, a lack of clean water is one of six features that characterises living in extreme poverty, and two of the MDGs were to reduce by half by 2015 the number who in 1990 lived without access to safe water and without access to basic sanitation. An earlier attempt by the UN to provide water and sanitation for all by 1990 was the International Drinking Water Supply and Sanitation Decade launched in 1980. This ambitious target was never reached. The year 2008 was designated the International Year of Sanitation. Will this attempt be more successful? It was also in 2008 that the UN claimed a

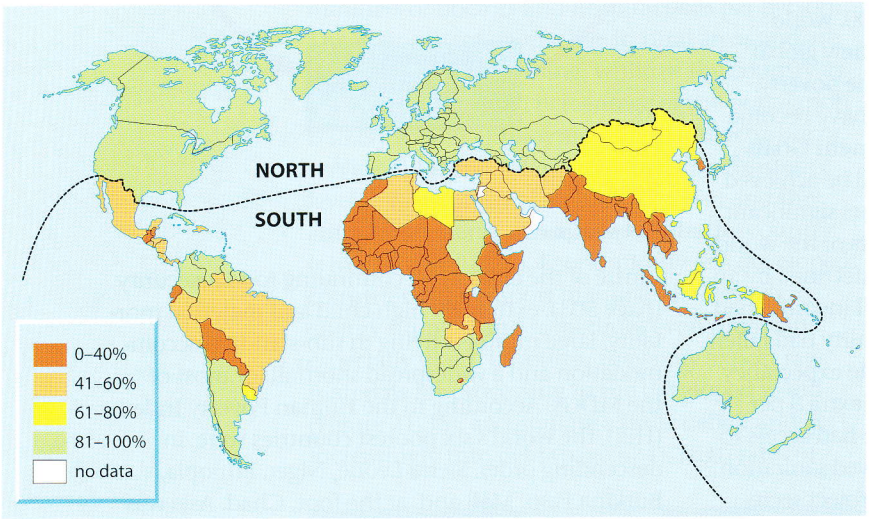


Figure 21.9

Percentage of the population with access to safe water

number of facts:

- It would take an extra US$10 billion per annum to achieve the MDGs by 2015.
- 1.1 billion people – 1 in 6 of the world's population – did not have access to safe water (Figure 21.9).
- 2.6 billion people – more than 2 in 6 of the world's population – did not have adequate sanitation.
- If all the Earth's water was poured into a bucket then, as 97.5 per cent of it is saltwater, the fresh water available for drinking (the remaining 2.5 per cent) would be the equivalent of one teaspoonful (and that assumes it is not polluted).
- At any given time, almost half the total population of the developing countries is suffering from one or more of the main diseases such as diarrhoea, cholera, typhoid and bilharzia (Figure 21.27) that result from the inadequate provision of safe water and sanitation, and half of the hospital beds in the developing world are occupied by people with water-related illnesses.
- Water-related disease is the second major cause of death for children, with a total of almost 2 million dying across the world each year and 5000 a day in developing countries.
- In semi-arid areas, obtaining water is time consuming at the best – Figure 21.11 shows women carrying water, which could weigh 20 kg, on their heads and taking several hours to collect from a source several kilometres away. Such unreliable sources become life threatening during times of drought (Figure 16.5).
- Whereas an average person living in Europe uses 200 litres of water a day – half that of someone living in the USA – a person living in a developing country may only have 10 litres for washing, cooking and drinking.
- The demand for water in the 20th century increased by more than twice the rate of population growth and this demand is expected to rise by another 40 per cent by 2030.
- Although safe water and adequate sanitation may be difficult to find in shanty settlements of cities in developing countries (pages 443 and 445), urban areas are usually much better off than more remote rural areas (Figure 21.10).
- Increasing attention needs to be paid to **virtual water**. This is water that appears in food products or is needed to manufacture goods. Agriculture accounts for over 70 per cent of water consumption as it can take 1000 litres to produce 1 kg of potatoes, 1450 litres for 1 kg of wheat and 3450 litres for 1 kg of rice. A country consumes even more water if it imports fresh fruit and vegetables.

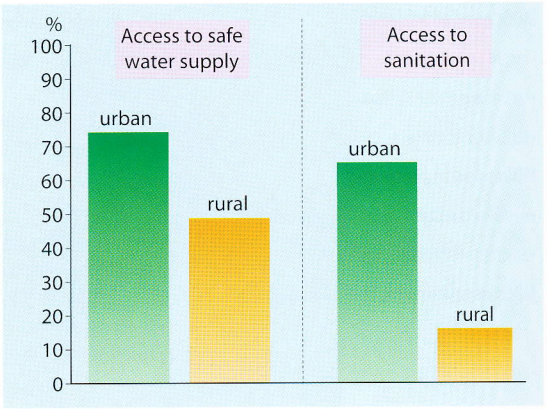


Figure 21.10

Safe water and sanitation: world total

Figure 21.11

Women carrying water

In early 2008, the Secretary-General of the UN expressed concern over the increasing number of global conflicts resulting from water shortages. As consumption increases and resources dwindle, conflicts over water are becoming more heated as people downriver find themselves at the mercy of those upriver, with irrigation and dam construction the major flashpoints. While water disputes may not be a single cause for warfare, they can inflame existing tensions.

Places 97 Malawi and Ethiopia: WaterAid

In 2006, WaterAid celebrated its twenty-fifth year and was credited to be Britain's most admired charity. To date, WaterAid has helped over 12 million people in developing countries to gain access to safe, clean water and to improved sanitation. Its aims are to help people in some of the poorest countries:

- to set up, operate and maintain their own safe domestic water and sanitation facilities
- to learn about safe hygiene practices so that they gain maximum health benefits.

It achieves these aims by helping local organisations to set up low-cost, sustainable projects that use appropriate technology and which can be managed by the community itself. WaterAid, which relies on donations, can provide safe water, sanitation and hygiene education for just £15 per person – basic services that are essential if vulnerable communities are to have any hope of escaping from the stranglehold of disease and poverty. It also lobbies governments and decision-makers to prioritise water and sanitation in their poverty reduction plans.

Figure 21.12

WaterAid pumps bring clean water to African villages

Malawi

Malawi is one of the world's poorest countries with 65 per cent living below the poverty line and a life expectancy of less than 40 years. Only 73 per cent of the 11.2 million inhabitants have access to safe water and only 61 per cent to sanitation. WaterAid began to work here in 1999 and now has four ongoing projects in rural areas and one in the capital of Lilongwe. Two schemes in rural areas include digging over 200 wells in the Salima District to reach clean supplies of underground water and then using modern pumps to raise this water to the surface where it is providing safe water for 26 000 people (Figure 21.12), and rehabilitating existing piped water systems in Machinga District to provide 15 000 people with safe water. One innovative approach encourages villagers to construct composting latrines in which human waste is mixed with soil and ash to form a rich compost. This could be significant in a country where most people depend on farming for their livelihood and where the soil is often infertile and fertiliser is both scarce and expensive. In low-income areas of Lilongwe, sustainable systems for managing water kiosks are being developed.

Ethiopia

The villages of Deyata Dodota and Dewaro in central Ethiopia are just 8 km from each other in distance but seem poles apart in their ways of life. Thanks to WaterAid, Deyata Dodota now has water piped to it, allowing villagers to grow vegetables in their front gardens. In Dewaro, villagers rely on crude, earth-banked dams that hold water for just six months a year, water which they not only use for drinking, washing and disposing of sewage, but which they share with their animals. For half the year they have a long trek for water. Deyata Dodota is essentially self-sufficient; Dewaro needs food aid and lives in the hope that £3000 will be found to extend the pipeline to them.

Framework 19 Correlation and development: scattergraphs, Spearman's rank correlation, and chi-squared

Scattergraphs

It was suggested on pages 606–608 that there was a correlation between certain criteria and the level of development. 'Correlation' in this sense is used to describe the degree of association between two sets of data. This relationship may be shown graphically by means of a **scattergraph**. This involves the drawing of two axes: the horizontal or *x* axis and the vertical or *y* axis. Usually one variable to be plotted is dependent upon the second variable. It is conventional to plot the **independent variable** on the *x* axis and the **dependent variable** on the *y* axis.

Figure 21.13 shows two relationships, one from physical geography and one from human geography. In the physical example, rainfall is the independent variable, with runoff being dependent upon it. The human example shows GDP as the independent variable and energy consumption per capita to be dependent upon this measure of a country's wealth.

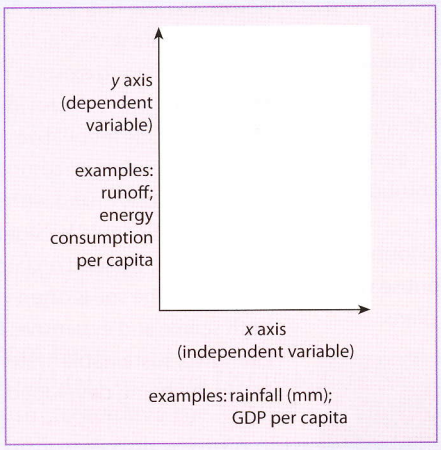


Figure 21.13 Plotting the dependent and independent variables

The data are plotted against the scales of both axes. The degree of correlation is estimated by the closeness of these points to a **best-fit line**. This line is usually drawn by eye and shows any trend in the pattern indicated by the location of the various points. One or two points, or **residuals**, may lie well beyond the best-fit line and, being anomalous, may be ignored at this stage. (Later it may be relevant to try to account for these **anomalies** or exceptions.)

The best-fit line may be drawn as a straight line (on an arithmetic scale) or as a smooth curve (on log or semi-log scales). If all the points fit the best-fit line exactly, there is a **perfect correlation** between the two variables. However, most points at best will lie close to and on either side of the drawn line. A positive correlation is where both variables increase – i.e. the best-fit line rises from the bottom left towards the top right (Figure 21.14a and b). A **negative correlation** occurs where the independent variable increases as the dependent variable decreases – i.e. the best-fit line falls from the top left to the bottom right (Figure 21.14d and e). In some instances, the arrangement of the points makes it impossible to draw in a line, in which case the inference is that there is no correlation between the two sets of data chosen (Figure 21.14c). In the event of one, or both, of the variables having a wide range of values, it may be advisable to use a logarithmic scale (Figures 3.22 and 18.25).

If the scattergraph shows the **possibility** of a correlation between the two variables, then an appropriate statistical test should be used to see if there is indeed a correlation, and to quantify the relationship.

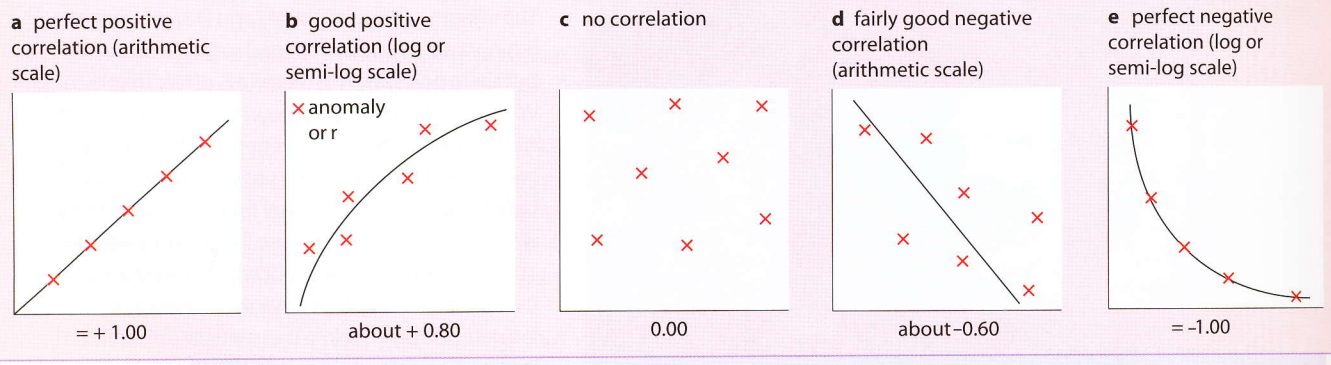


Figure 21.14 Types of correlation and their associated Spearman's rank coefficients

GDP per capita			Energy consumption per capita				Birth rate			
	US$	Rank	kg oil-equivalent	Rank	d	d^2	per 1000	Rank	d	d^2
Norway	53 000	1	5284	2	1	1	12			
USA	45 800	2	8051	1	−1	1	14			
Switzerland	41 100	3	3622	6	3	9	10			
UK	35 100	4	3992	5	1	1	13			
Germany	34 200	5	4267	3	−2	4	8			
Japan	33 600	6	4058	4	−2	4	9			
Argentina	14 300	7	1653	8	1	1	19			
Malaysia	13 300	8	1950	7	−1	1	21			
Brazil	9700	9	1012	9	0	0	20			
Colombia	6700	10	799	11	1	1	20			
Egypt	5500	11	638	12	1	1	27			
China	5300	12	902	10	−2	4	12			
India	2700	13	476	13	0	0	24			
Kenya	1700	14	466	14	0	0	40			
Sierra Leone	700	15	230	15	0	0	48			
					$\sum d^2 = 28$					$\sum d^2 =$

Figure 21.15
Ranked data for GDP, energy consumption and birth rates for selected countries, 2007

Spearman's rank correlation coefficient

This is a statistical measure to show the strength of a relationship between two variables. Figure 21.15 lists the GDP per capita for 15 selected countries. Fifteen is the minimum number needed in a sample for the Spearman's rank test to be valid.

The first stage is to see if there is any correlation between the GDP and the energy consumption per capita. This can be done using the following steps:

1. Rank both sets of data. This has already been done in Figure 21.15. Notice that the highest value is ranked first. Had there been two or three countries with the same value, they would have been given equal ranking, e.g. rank order: 1, 2, 3.5 , 3.5 (3.5 is the mean of 3 and 4) , 5, 7 , 7 , 7 (7 is the mean of 6, 7 and 8), 9, 10.
2. Calculate the difference, or d, between the two rankings. Note that it is possible to get negative answers.
3. Calculate d^2, to eliminate the negative values.
4. Add up (Σ) the d^2 values (in this example, the answer is 28).
5. You are now in a position to calculate the correlation coefficient, or r, by using the formula:

$$r = 1 - \frac{6\sum d^2}{n^3 - n}$$

where: d^2 is the sum of the squares of the differences in rank of the variables, and n is the number in the sample.

In our example it follows that:

$$r = 1 - \frac{6 \times 28}{3375 - 15}$$

$$= 1 - \frac{168}{3360}$$

= 1 − 0.05 (then do not forget the final subtraction)

= 0.95 (it is usual to give the answer correct to two decimal places).

In this example, there is a strong positive correlation (remember, a perfect positive correlation is 1.00) between GDP and energy consumption per capita.

Although the closer r is to +1 or −1 the stronger the likely correlation, there is a danger in jumping to quick conclusions. It is possible that the relationship described may have occurred by chance. The second stage is therefore to test the **significance** of the relationship. This is done by using the graph shown in Figure 21.16. Note that the correlation coefficient r is plotted on the y axis and the **degrees of freedom (df)** on the x axis. Degrees of freedom are the number of pairs in the sample minus two.

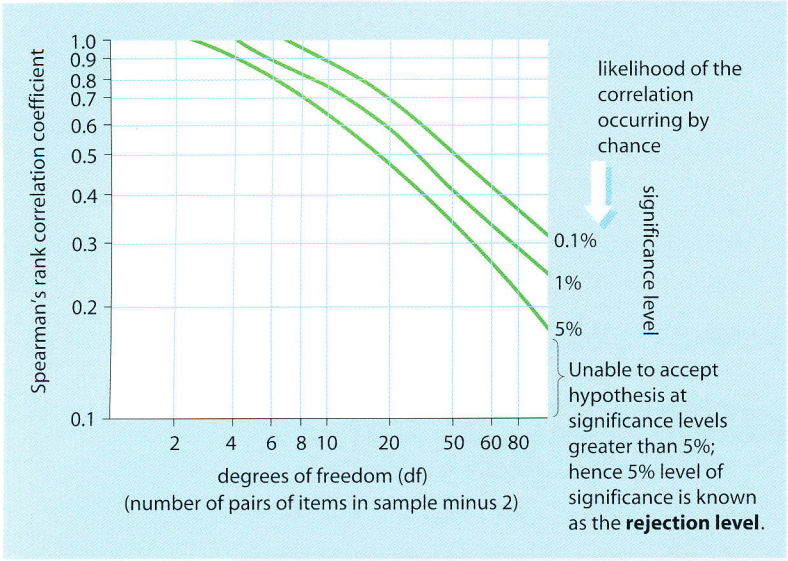


Figure 21.16

The significance of the Spearman's rank correlation coefficients and degrees of freedom

Using the correlation coefficient of GDP per capita and energy consumption per capita, which we have worked out to be 0.95, we can read off 0.95 on the vertical scale and 13 (i.e. 15 in the sample minus 2) on the horizontal. We can see that the reading lies above the 0.1 per cent significance level curve. This means that we can say with 99.9 per cent confidence that the correlation has not occurred by chance. The graph also shows that if the correlation falls below the 5 per cent significance level curve then we can only say with less than 95 per cent confidence that the correlation has not occurred by chance. Below this point, the correlation or hypothesis is rejected in terms of statistical significance – i.e. there is too great a likelihood that the correlation has occurred by chance for it to be meaningful. Even if there is a significant correlation, the result does not prove that there is necessarily a *causal* relationship between variables. It cannot be assumed that a change in *A* causes a change in *B*. Further investigation is necessary to establish this.

Chi-squared

Whereas Spearman's rank seeks **associations** between *x* and *y* values, chi-squared looks for **differences** between groups (or areas). The symbol for chi-squared (*chi* is a Greek letter pronounced 'ky') is χ. Figure 21.17 shows the hypothetical distribution of villages over an area of land consisting of four contrasting categories of height, i.e. frequencies of 0–50 m, 51–100 m, 101–150 m and over 150 m (it could have been different types of soil, or rock type, etc.). Of the 50 villages located here, 20 are in area A, 12 in each of areas B and D, and 6 in area C. Had chance been the only factor affecting this distribution, then it might reasonably be expected that as area A covers 50 per cent of the total area, then half the villages would be located there. Similarly, areas B and C, each covering 20 per cent of the area, should both have 10 villages, leaving area D, with only 10 per cent of the area, with the remaining 5 villages. This means, as shown in Figure 21.18a, that we have two sets of data showing the **observed** (*O*) number and the **expected** (*E*) number of villages. In reality, however, Figure 21.17 shows that areas B and D have more villages than might be expected and A and C fewer than expected. It is tempting, therefore, to suggest that there could be a relationship between the observed and expected distributions and that this relationship is dependent upon the height of the land, whereas the difference may in fact be due entirely to chance factors. Chi-squared is used to estimate the probability that the differences are due to chance.

It is often best to begin with a null hypothesis, which in this case might be 'There is no significant relationship between the distribution of villages and the height of the land.' We can now use the formula for chi-squared, which is:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

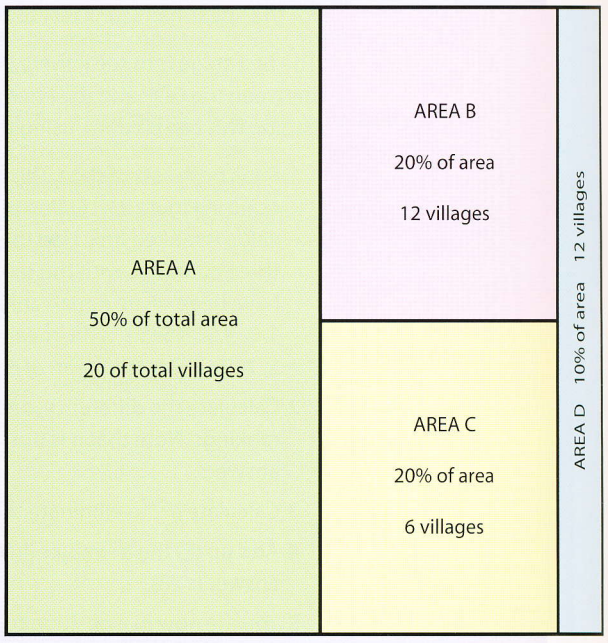


Figure 21.17

Chi-squared: observed and expected villages

Figure 21.18b shows how to use the formula and, in this example, how we obtain a calculated value of chi-squared of 12.8. We can now, by using Figure 21.19, test for the significance of this value and determine the probability that the distribution was due to chance. Notice that, as in Spearman's rank (Figure 21.16), the horizontal axis is labelled 'degrees of freedom' (df). We read the degrees of freedom by subtracting 1 from the total number of distributions (areas), in this case 4 – 1 = 3. Using our two coordinates ($\chi^2 = 12.8$ and df = 3) we can obtain a location on the graph which is just above the 1 chance in 100 curve, i.e. our distribution is only likely to occur by chance once in every 100 situations. We can assume, therefore, that there is a possible connection between the distribution of villages and height of the land and so we can start looking for causes (had the location on the graph been below the 5 chances in 100 curve, then we could assume that there was no connection between village distribution and height of the land and therefore we need not spend time seeking reasons).

Figure 21.18
A worked chi-squared example

a

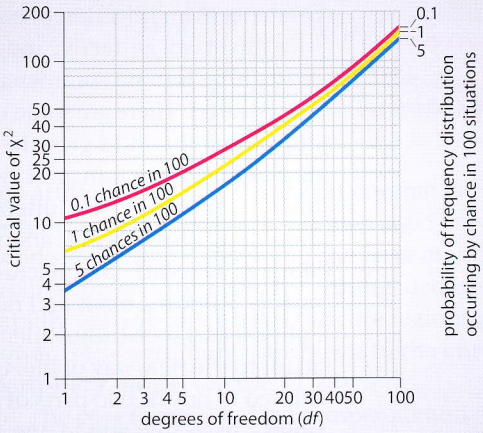
Area	A	B	C	D	Total
O (Observed)	20	12	6	12	50
E (Expected)	25	10	10	5	50

Using chi-squared

b

(i)	$(O - E)$	– 5	+2	–4	+7
(ii)	$(O - E)^2$	25	4	16	49
(iii)	$\left(\frac{O-E}{E}\right)^2$	1.0	0.4	1.6	9.8
(iv)	Σ (sum of) $\left(\frac{O-E}{E}\right)^2$	1.0 + 0.4 + 1.6 + 9.8 = 12.8			
$\therefore \chi^2 = 12.8$					

Figure 21.19
The significance of chi-squared and degrees of freedom

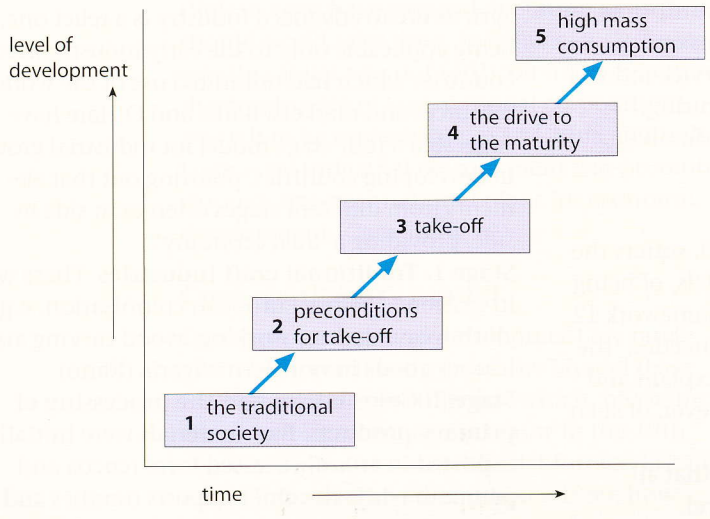


Stages in economic growth

The Rostow model

Various models, with a wide range of criteria, have been suggested when trying to account for differences in world development. These include those based on capitalist and Marxist systems as well as those more concerned with wealth, social and cultural differences. One of the first models to account for economic growth, and probably still the simplest, was that put forward by W.W. Rostow in 1960. Following a study of 15 countries, mainly in Europe, he suggested that all countries had the potential to break the cycle of poverty and to develop through five linear stages (Figure 21.20).

Figure 21.20
Rostow's model of economic growth



Approximate date of reaching a new stage of development

Country \ Stage	2	3	4	5
UK	1750	1820	1850	1940
USA	1800	1850	1920	1930
Japan	1880	1900	1930	1950
Venezuela	1920	1950	1970	—
India	1950	1980	—	—
Ethiopia	—	—	—	—

Figure 21.21
Changes in employment structure based on Rostow's model

	1 Primary	2 Secondary	3 Tertiary (services)
Stage 1	vast majority	very few	very few
Stage 2	vast majority	few	very few
Stage 3	declining	rapid growth	few
Stage 4	few	stable	growing rapidly
Stage 5	very few	declining	growing rapidly

Stage 1: Traditional society A subsistence economy based mainly on farming with very limited technology or capital to process raw materials or develop industries and services (Figure 21.21).

Stage 2: Preconditions for take-off A country often needs an injection of external help to move into this stage. Extractive industries develop. Agriculture is more commercialised and becomes mechanised. There are some technological improvements and a growth of infrastructure. The development of a transport system encourages trade. A single industry (often textiles) begins to dominate. Investment is about 5 per cent of GDP.

Stage 3: Take-off Manufacturing industries grow rapidly. Airports, roads and railways are built. Political and social adjustments are necessary to adapt to the new way of life. Growth is usually limited to one or two parts of the country (**growth poles** – page 569) and to one or two industries (**magnets**). Numbers in agriculture decline. Investment increases to 10–15 per cent of GDP, or capital is borrowed from wealthier nations.

Stage 4: The drive to maturity By now, growth should be self-sustaining. Economic growth spreads to all parts of the country and leads to an increase in the number and types of industry (the **multiplier effect**, page 569). More complex transport systems develop and manufacturing expands as technology improves. Some early industries may decline. There is rapid urbanisation.

Stage 5: The age of high mass consumption Rapid expansion of tertiary industries and welfare facilities. Employment in service industries grows but declines in manufacturing. Industry shifts to the production of durable consumer goods.

Criticisms of Rostow's model

Rostow's model, put forward in 1960, suffers the same criticisms as several other models, of being both outdated and oversimplified (Framework 12, page 352), although, as one critic concedes, 'the alternatives are just too difficult to explain and to apply'. You should be aware, however, of such valid criticisms:

- The model assumes, incorrectly, that all countries start off at the same level.
- While capital was needed to advance a country from its traditional society, often the injection of aid has been dwarfed by debt repayments which delayed, and has even prevented some countries (especially in Africa), from reaching the 'take-off' stage.
- The model underestimates the extent to which the development of some countries in the past was at the expense of others, e.g. through colonialism and imperialism.
- It predicts too short a timescale between the beginning of growth and the time when a country becomes self-sustaining. It overemphasises the effect of the **learning curve**, i.e. the time taken for a country to develop diminishes as countries learn from others that are already developed. While the emergence of the NICs (page 578) in the late 20th century and of Russia, India and China in the early 2000s seem to support Rostow's claim, he was, like most people, to underestimate the effects of globalisation.
- The model has not seen a universal sequence and is, according to Barke and O'Hare among others, too Eurocentric.

Barke and O'Hare's model for West Africa

Barke and O'Hare (*The Third World*, 1984) claimed that although developed industrial countries may have moved through Rostow's five stages, it seems increasingly unlikely that countries that have yet to develop economically will follow the same pattern. This may be because capital alone is insufficient to promote take-off. Perhaps what is needed is a fundamental structural change in society which encourages people to save and invest and to develop an entrepreneurial, business class, as was the case in Hong Kong. Possibly the process which allows transition from traditional agriculture to advanced industry is a relict one, being applicable only to the early industrialised countries which had unlimited use of the world's resources and markets. Barke and O'Hare have suggested a four-stage model for industrial growth in developing countries, pointing out that elements from different stages often exist side by side, providing a 'dual economy'.

Stage 1: Traditional craft industries These were in existence before European colonisation, e.g. cloth weaving, iron working, wood carving and leather goods in northern Nigeria (Kano).

Stage 2: Colonialism and the processing of primary products Raw materials were initially exported in an unprocessed form (cocoa and palm oil) while the chief imports (textiles and

machinery) came from the colonial power and, being cheaper, destroyed many local craft industries. Later, some processing took place, usually in ports or the primate city (page 405), if it reduced the weight for export (vegetable oils and sugar), if it was too bulky to import (cement), or if there was a large local market (textiles). To help obtain raw materials from their colonies, the European powers built ports (Accra and Lagos), but railways were only constructed if there were sufficient local resources to make them profitable. Education, along with the development of industrial and management skills, was neglected.

Stage 3: Import substitution During the Second World War and, later, following their independence, countries had to replace the import of textiles, furniture, hardware and simple machinery with their own manufactured goods. Production was in small units with limited capital and technology.

Stage 4: Manufacture of capital, goods and consumer durables As standards of living rose in several countries (notably in the NICs in Latin America and South-east Asia), there was an increased demand for heavier industry and 'Western'-style durable consumer goods. These industries, often because of the investment and skills needed, were developed by transnational companies wishing to take advantage of cheap labour, tax concessions and entry to a large local market (page 573). The American Valco company, for example, in the mid-1950s constructed a dam on Ghana's River Volta, a hydro-electric power station at Akosombo, and an aluminium smelter at Tema, in return for duty and tax exemptions on the import of bauxite and the export of aluminium, and the purchase of cheap electricity. Projects developed by transnationals are usually prestigious, of limited value to the country, and may be withdrawn (Volkswagen have stopped operating in Nigeria) should world sales drop. In other cases, where private capital was not forthcoming or where the dominance of transnational corporations was felt to be undesirable, as in China and India, large-scale industrial development was promoted through five-year national plans for economic development (Case Study 19).

Core–periphery model

Economic growth and development are rarely even. We have already seen how Myrdal (page 569) identified 'growth poles' which, he claimed, developed into core regions; how in the 19th century it was the coalfields that formed Britain's major industrial areas; and, since 1980, how

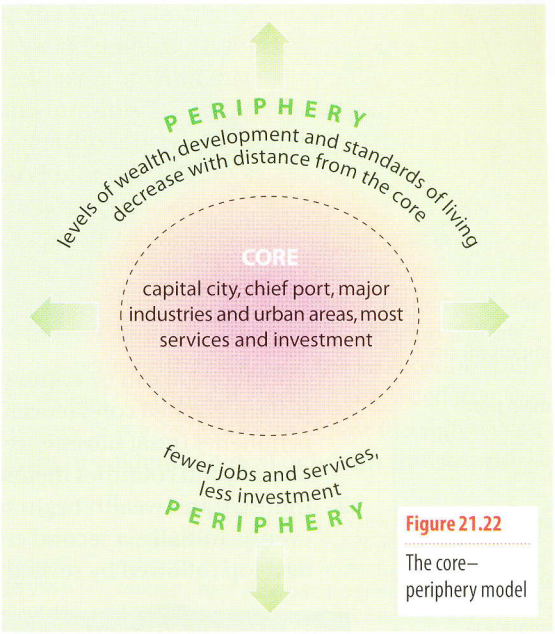


Figure 21.22 The core–periphery model

the artificially created Special Economic Zones became growth centres in China (Case Study 19). Economic activity, including the level of industrialisation and intensity of farming, decreases rapidly with distance from the core regions and towards the periphery – as shown in the **core–periphery model** (Figure 21.22).

The **core** forms the most prosperous and developed part of a country, or region. It is likely to contain the capital city (with its administration and financial functions), the chief port (if the country has a coastline) and the major urbanised and industrial areas. Usually, levels of wealth, economic activity and development decrease with distance from the core so that places towards the **periphery** become increasingly poorer.

As a country develops economically, one of two processes is likely to occur:

1 Economic activity in the core continues to grow as it attracts new industries and services (banking, insurance, government offices). As levels of capital and technology increase, the region will be able to afford schools, hospitals, shopping centres, good housing and a modern transport system. These 'pull' factors encourage rural in-migration (page 366). Meanwhile, in the periphery jobs will be relatively few, low-paid, unskilled and mainly in the primary sector, while services and government investment will be limited. These 'push' factors (page 366) force people to migrate towards the core. This process still seems to operate in the NICs and in many of the economically less developed countries (Kenya, Peru). Barke and O'Hare have suggested that 'just as it is possible to conceive of cores (MDCs) and peripheries (LDCs) on a

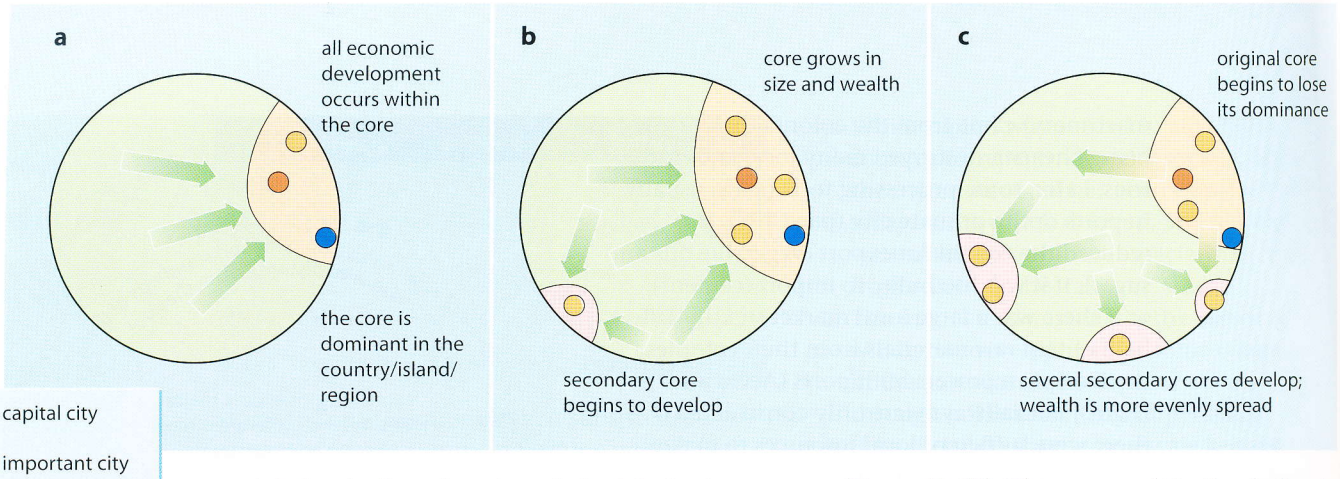


Figure 21.23
The hoped-for economic growth in a country

global scale, it can be acknowledged that colonialism inspired cores (enclave economies) and peripheries (rural subsistence sector) within Third World countries themselves'.

2 Industry and wealth begin to spread out more evenly. Initially, a second core region will develop followed by several secondary regions (Figure 21.23). This can result in the decline in the dominance of the original core. Even so, there will still be peripheral areas that are less well off. This process has occurred in many of the economically more developed countries, e.g. USA and Japan (Figure 19.20) and, more recently, the emerging China (Places 98).

Places 98 China: core–periphery

Economic development has, until very recently, been severely restricted in China partly due to the country's vast size and partly due to physical barriers such as mountains and deserts. In the early 20th century most of China's limited commercial activity was concentrated around three core regions (Figure 21.24a). These were Beijing, the capital, in the north; Shanghai, the only international port and city, near to the mouth of the Yangtze River in the centre; and Canton (modern Guangzhou) and the Pearl River estuary in the south (adjacent Hong Kong was then a British colony). In the 1950s Mao Zedong attempted to industrialise China but his efforts only further impoverished an already economically poor country that had virtually isolated itself from the rest of world.

Real progress only took place after his death in 1976 when China slowly began to open its doors to outsiders. In 1980 five Special Economic Zones (Figure 19.42) were established, creating a new industrial core along parts of the south-east coast. About that time 14 'open cities', or ports, were designated at intervals along the entire coastline with the aim of encouraging overseas trade (Figure 21.24b). Even so, apart from the heavy industrial region between Shenyang and Harbin in the north-east and around Chongqing far up the Yangtze River, economic development did not spread far into the huge periphery.

Yet within the last two or three decades, China has developed to such an extent that it is expected, in the next few years, to become the world's third largest economy and its increasing wealth, albeit from a low base, is beginning to spread to even remote villages (Case Study 14B) and provinces (Figure 21.24c). Even so, most development has been, and still is, in the coastal provinces and the Yangtze Basin where 94 per cent of the population now live. The Yangtze Basin, where the Three Gorges Dam (page 545) provides electricity for new high-tech industries and the lake behind it has improved river navigation as far as Chongqing (Figure 21.24c), is the only large core region to have developed far inland.

Figure 21.24
Core and periphery in China (see Figure 21.23 for key)

Health and development

Health, according to the UN Millennium Development Goals, is one of four basic human rights (Figure 21.7). This particular basic right is most likely to be denied to people living in extreme poverty, especially those in the least economically developed countries where there may be disease, hunger and a lack of safe water and adequate sanitation. Health is closely linked with economic development, and indeed several measures of development named on page 608 were birth and death rates, infant mortality, life expectancy, a balanced diet and the number of people per doctor or hospital bed. Good health, according to the World Health Organization (WHO), is 'a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity' – a statement that implies complex interactions between humans and their various environments (Figure 21.25).

Bearing in mind Phillips' warning in Figure 21.25 concerning difficulties in trying to correlate health with economic development, there do appear to be marked differences in the types of illness (Figure 21.27) and in health care (Figure 21.26) between the more and the less economically developed countries. It has been suggested that, as a country develops, it is likely to pass through several stages of **epidemiological** or **health transition**.

Figure 21.25
The complex inter-relationship between health and development

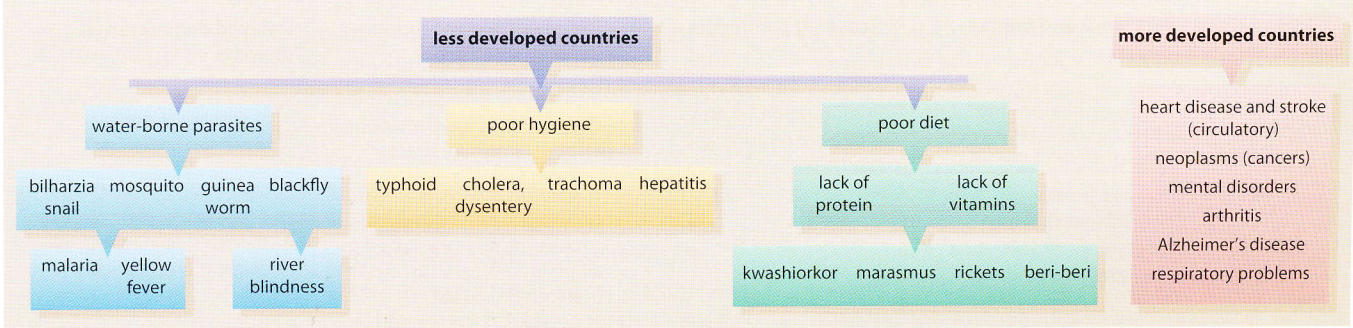
'It has long been acknowledged that the health status of the population of any place or country influences development. It can be a limiting factor, as generally poor individual health can lower work capacity and productivity; in aggregate in a population, this can severely restrict the growth of economies. On the other hand, economic development can make it possible to finance good environmental health, sanitation and public health campaigns – education, immunisation, screening and health promotion – and to provide broader-based social care for needy groups. General social development, particularly education and literacy, has almost invariably been associated with improved health status via improved nutrition, hygiene and reproductive health. Socio-economic development, particularly if equitably spread through the population – although this is rarely the case – also enables housing and related services to improve. The classical cycle of poverty can be broken by development.

However, it is notoriously difficult to provide generalisations about the relationship between economic development and a population's health status. We can cite examples in which correlations between GNP and life expectancy are not straightforward. There are many examples to show how economic development has contributed to improving quality of life and health status, via indicators such as increased life expectancy, falling infant, child and maternal mortality and enhanced access to services. By contrast, there are examples in which economic development, infrastructure expansion and agricultural intensification do not always coincide with improved human well-being. There is, in fact, a growing realisation that macroeconomic changes may not always filter down to benefit all of the population, and many perhaps soundly based policies in economic terms can have devastating human effects in increasing poverty and maldistribution of resources.'

David Phillips and Yola Verhasselt

Figure 21.26
Differences in health care
a Cataract camp, Kolkata
b Intensive care unit, St Bartholomew's, London

Figure 21.27
Differences in types of disease between less and more developed countries



The epidemiological (health) transition

The demographic transition model (Figure 13.10) suggests that fertility (birth rate) declines appreciably, probably irreversibly, when traditional, mainly agrarian societies are transformed by modernisation, industrialisation and bureaucratic urban-oriented societies. This rather straightforward and simplistic demographic transition assumes that, for example, a simple industrial-economic modernisation will occur in societies accompanied by changes in lifestyles, living conditions and health levels. Of greater interest to epidemiologists, health planners and medical geographers is that with 'modernisation' and increasing affluence and life expectancy comes a very different disease or ailment profile in most countries from that which previously existed in a 'traditional' state or developing country (Figure 21.28). Figure 21.29 has been adapted from Omran's epidemiological transition. Initially, three stages of the transition were envisaged:

1 the age of pestilence and famine which gradually merges into ...
2 the age of receding pandemics (worldwide diseases), giving way to ...
3 the age of degenerative and human-induced diseases.

More recent studies have suggested the emergence of ...

4 the age of delayed degenerative diseases and, associated with a lengthening of life, poorer health.

Omran suggested that there were three variations in the basic model:

1 The classical or 'Western' model, which took place over a prolonged period (100 to 200 years).
2 The 'accelerated' model, which occurred in Japan after the Second World War, and more recently in Hong Kong (Places 99), Singapore and other NICs in South-east Asia. This showed rapid declines in mortality and fertility.
3 The 'delayed' model, which is common to many of today's less developed countries. It contains elements of morbidity and mortality from both degenerative and infectious diseases but, at the same time, lacks the marked reduction in fertility experienced in the 'Western' model.

Figure 21.28
A view on health transition

It has long been recognised that societies pass through various patterns of morbidity (illness and disease) and mortality (causes of death) during the development process, even if not all the stages and sequences are identical in every case. In general, health improves, morbidity and mortality fall and come from different causes, and life expectancy increases; this comprises the '**epidemiological transition**' [after Omran, 1971]. More recently the term '**health transition**' is being used, as it has a broader concept than epidemiological, i.e. it focuses on health rather than just on morbidity. These changes generally come with 'modernisation' and are indeed part and parcel of the process. They seem to occur at a different pace in varying countries and, in recent years, they are related to the application of modern medical techniques and technology as well as to changing standards of living, nutrition, housing and sanitation.

David Phillips,
The Epidemiological Transition in Hong Kong, 1988

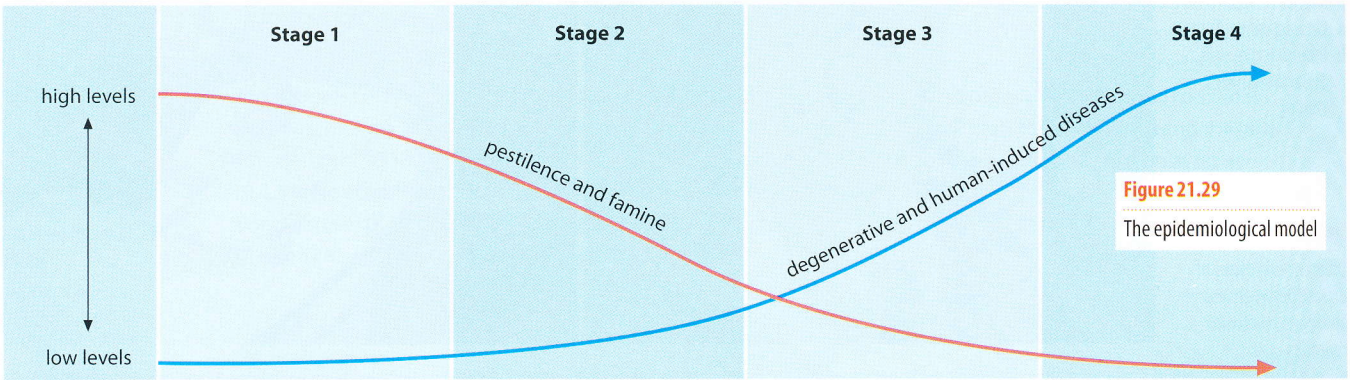


Figure 21.29
The epidemiological model

Age of	Pestilence and famine	Receding pandemics	Degenerative and human-induced diseases	Delayed degenerative diseases
Causes	mainly respiratory and infectious diseases.	reduced due to vaccines, immunisation schemes, improved housing and sanitation	increased wealth, unhealthy diets and overweight, lack of exercise, smoking, stress	longevity
Types	measles, smallpox, malaria, typhoid and cholera, tuberculosis, enteritis and diarrhoea, pneumonia		neoplasms (cancers), circulatory (heart attacks and strokes), respiratory (linked to air pollution), cerebrovascular (nervous disorders)	Alzheimer's, pneumonia (plus neoplasms and circulatory)

Places 99 Hong Kong: the epidemiological transition

Figure 21.30 shows the epidemiological changes for Hong Kong between 1951 and 2001. The graph illustrates three trends that closely match Oman's accelerated model:

1. A rapid decline in infective/parasitic diseases (due to improved standards of living, better housing conditions and improved medical care including immunisation) and digestive complaints (the result of improved health care and a better diet).
2. An initial drop in respiratory illnesses and pneumonia which has since been reversed (partly as a result of increased traffic emissions).
3. A rapid increase in deaths from 'Western' diseases, especially malignant neoplasms (cancers) and heart disease (due to overweight and an increase in stress).

Singapore shares these three characteristics with Hong Kong, probably because it too has a fairly homogenous ethnic mix living mainly in urban areas. Similar patterns showing changes in the cause of death can also be seen in other existing and emerging NICs in South-east Asia such as Malaysia, South Korea, Taiwan and, presumably in time, China. Where dissimilarities do appear, they may be credited to differences in wealth, social status, ethnic mix, religion and level of urbanisation, both within and between countries.

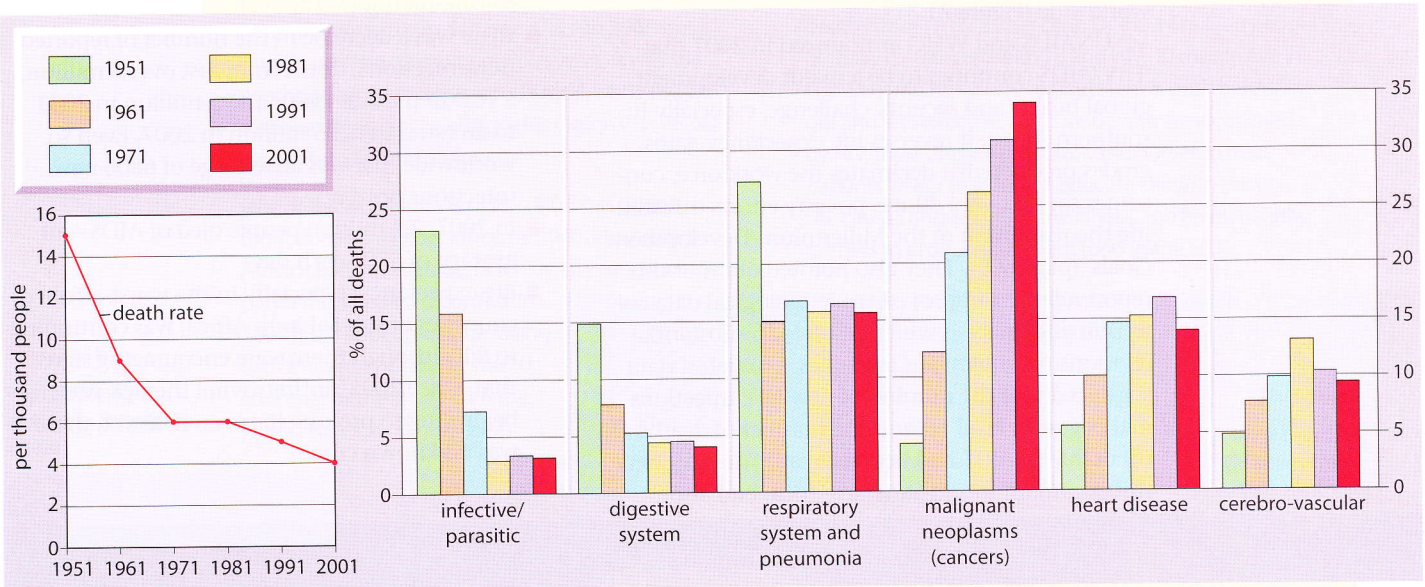


Figure 21.30
Epidemiological change in Hong Kong, 1951–2001

The value of the epidemiological (health) transition

Perhaps the most important role the epidemiological transition can play is to provide a formal framework within which to set health and health-care strategies over the medium to long term. As such, it could provide a major stimulus to future health-care needs both within countries when directed by governments, or globally through international health agencies. It could help health planners in places where change is very rapid (NICs), is varied between social groups (rich and poor communities in developing countries) and ethnic groups (South Africa), and where health care is expensive and finance is limited (the UK). It could also point out the growing needs for care from causes like mental illness, especially in developing countries, and Alzheimer's disease, in more developed countries, which are both considerably underestimated in much health sector planning.

The epidemiological transition is relevant for manufacturers and suppliers of medicines and health equipment, for researchers looking for new vaccines, and for governments trying to decide where best to allocate funds.

Finally, by identifying a fourth stage, that of the age of delayed degenerative diseases, the epidemiological transition draws attention to the world's ageing population (pages 359–360). This stage, although at present confined to the more developed and wealthy 'Western' countries (Japan, the UK), suggests a lengthy old-age potentially dogged with chronic, but non-fatal, ailments. Old age, faced by an ever-increasing proportion of the population and whose health and social needs are often greater than those in younger age groups, may not be attractive unless public and family support are forthcoming. Although developing countries are further from this stage, nevertheless many are experiencing a rapid increase in longevity, resulting in more people needing care as they live longer. Due to the increasing numbers of the elderly in many developing countries (China , Case Study 13; India), and due to the absolute totals, it is necessary to start planning now for their future health and social care.

HIV/AIDS

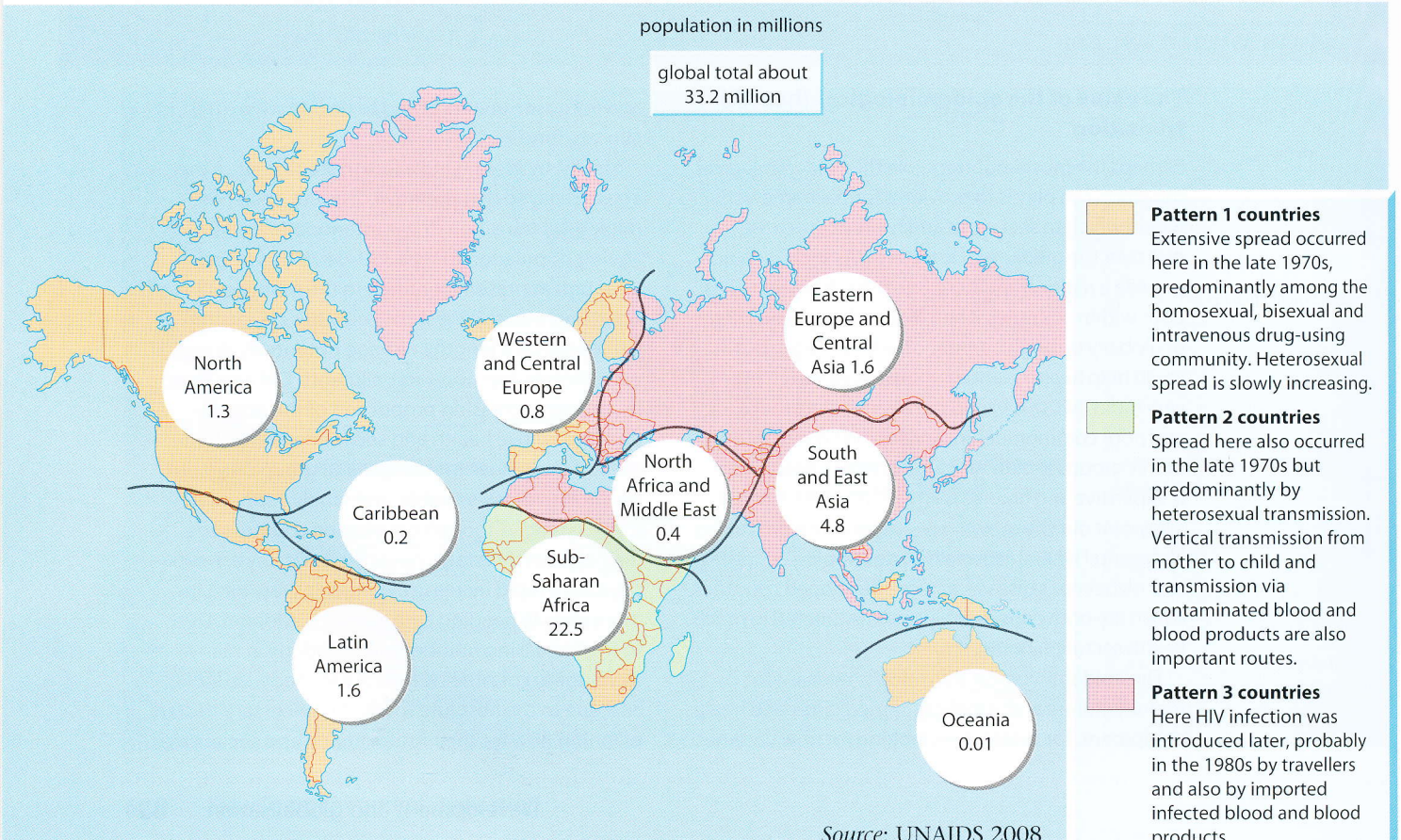
AIDS (acquired immune deficiency syndrome), first described in medical literature in 1981, had become **pandemic** (an epidemic that spreads over a wide geographical area) by the 1990s and remains one of the greatest threats to global public health. The three main means of transmitting **HIV (human immunodeficiency virus)** are by the exchange of body fluids during sexual intercourse (with greater efficiency from male to female than vice versa), through infected blood (sharing needles/syringes and by contaminated blood transfusions) and parentally from mother to child during pregnancy or birth. The dominant forms of transmission, and the way the virus spreads, vary worldwide (Figure 21.31).

UNAIDS and WHO announced in 2007 that 'HIV/AIDS continues to be a major development, global health and security challenge, especially in southern Africa. It reverses life expectancy gains, erodes productivity, decimates the workforce, consumes savings, and dilutes poverty efforts threatening the realisation of the Millennium Development Goals' (page 609). They also pointed out that this report reflected improved epidemiological data collection and analysis which resulted in substantial revisions of all previous estimates. This latest data suggested that the number of new HIV infections had begun to level off and the number of deaths attributable to AIDS had begun to fall. The pandemic, still dominant in sub-Saharan Africa, had also become increasingly infectious in Indonesia and Vietnam, followed by Eastern Europe and Central Asia (Figure 21.31).

The 2007 report claimed that:

- although all countries across the world were affected, HIV/AIDS was most prevalent in countries in sub-Saharan Africa (Figure 21.31 and Places 100) where 22.5 million people were affected, followed by South and South-east Asia with 4 million
- the percentage of people living with HIV worldwide, many of whom had been born with it, had declined from a peak of 38 million in 2003 to 33.2 million (although this in part may have been due to the improved method of data collection mentioned above)
- there was a decrease in the number of reported new infections, down from just over 3 million a year in the late 1990s and 5 million in 2003 to an estimated 2.5 million in 2007. Even so, worldwide that was an average of 6800 new infections per day
- in 2007, 2.1 million people died of AIDS – an average of 5700 each day
- life expectancy, especially in the worst-affected countries of sub-Saharan Africa, was continuing to fall although there were encouraging signs that, since 2005, antiretroviral therapy was beginning to prolong life even if, as yet, there was no known cure.

Figure 21.31
Estimated global distribution of HIV infections, 2007



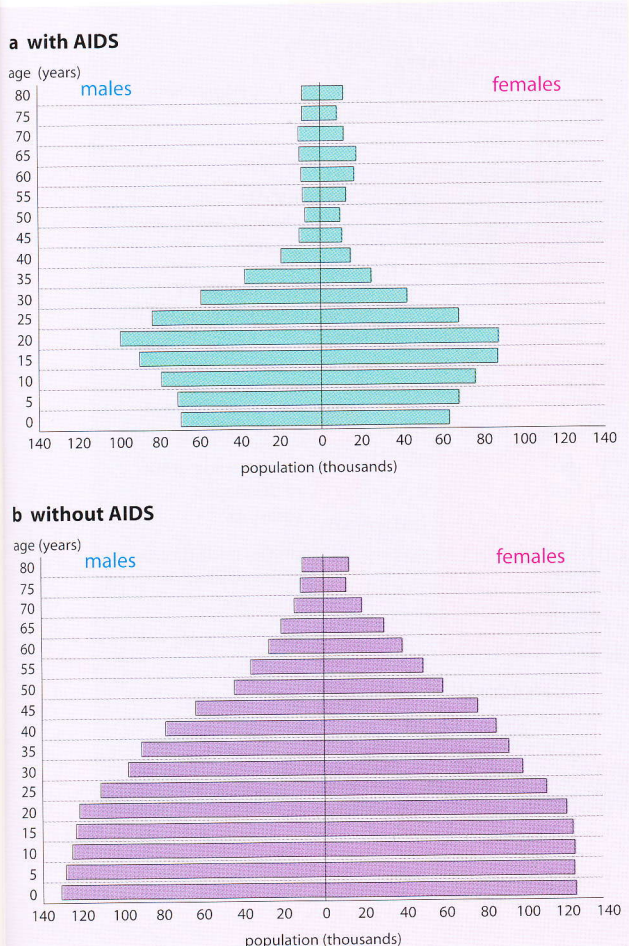
Source: UNAIDS 2008

Places 100 Sub-Saharan Africa: HIV/AIDS

Sub-Saharan Africa remains the global epicentre of the epidemic. In 2007 there were an estimated 22.5 million infected people living in this region who had HIV, i.e. 68 per cent of those affected globally and 35 per cent of this region's total population. The region also contained 43 per cent of all children aged under 15, and 52 per cent of all women above the age of 15, who were affected across the world by the virus. Eight countries in southern Africa (Botswana, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Zambia and Zimbabwe) accounted for almost one-third of all the new HIV infections and AIDS deaths across the world (Figure 21.32). Although the 1.7 million new infections in sub-Saharan Africa in 2007 was a significant reduction on previous years, it was still nearly 70 per cent of the world's total, while the 1.6 million deaths due to AIDS in this region was 76 per cent of the world's total.

One of the worst effects of HIV/AIDS has been a reduction in life expectancy. By 2005, in southern Africa it had, on average, fallen by 10 years since the pandemic was first recorded. In 2007 it still appeared to be falling, with the average age for the 10 countries in the world with the lowest life expectancy – all in this region – now being only 42.5 years (Figure 21.32). Latest predictions for these countries is that by 2015 it is likely to be under 42 years – more than 20 years less than the 63 years it might have been had HIV/AIDS never occurred. In the worst-affected countries, such as Botswana, the pandemic is creating a 'chimney-shaped' population structure (Figure 21.33), which leaves fewer people in the economically active age group (page 354). It has also left an estimated 11.4 million children in the region as orphans – just over 1 in every 4 children. More recently, and resulting from the reduced effectiveness of people's immune system, the risk of tuberculosis (TB) has increased by 50 per cent and deaths from TB by 25 per cent. Of the 14 million people globally co-infected with TB and HIV, 10 million live in sub-Saharan Africa where treatment is both harder to get and less effective. As more people are weakened by HIV, there are fewer doctors and nurses to treat patients, fewer teachers to educate children about the causes and effects of the illness, and fewer healthy farmers to produce sufficient food (page 503).

Figure 21.33
Projected population structure for Botswana in 2020



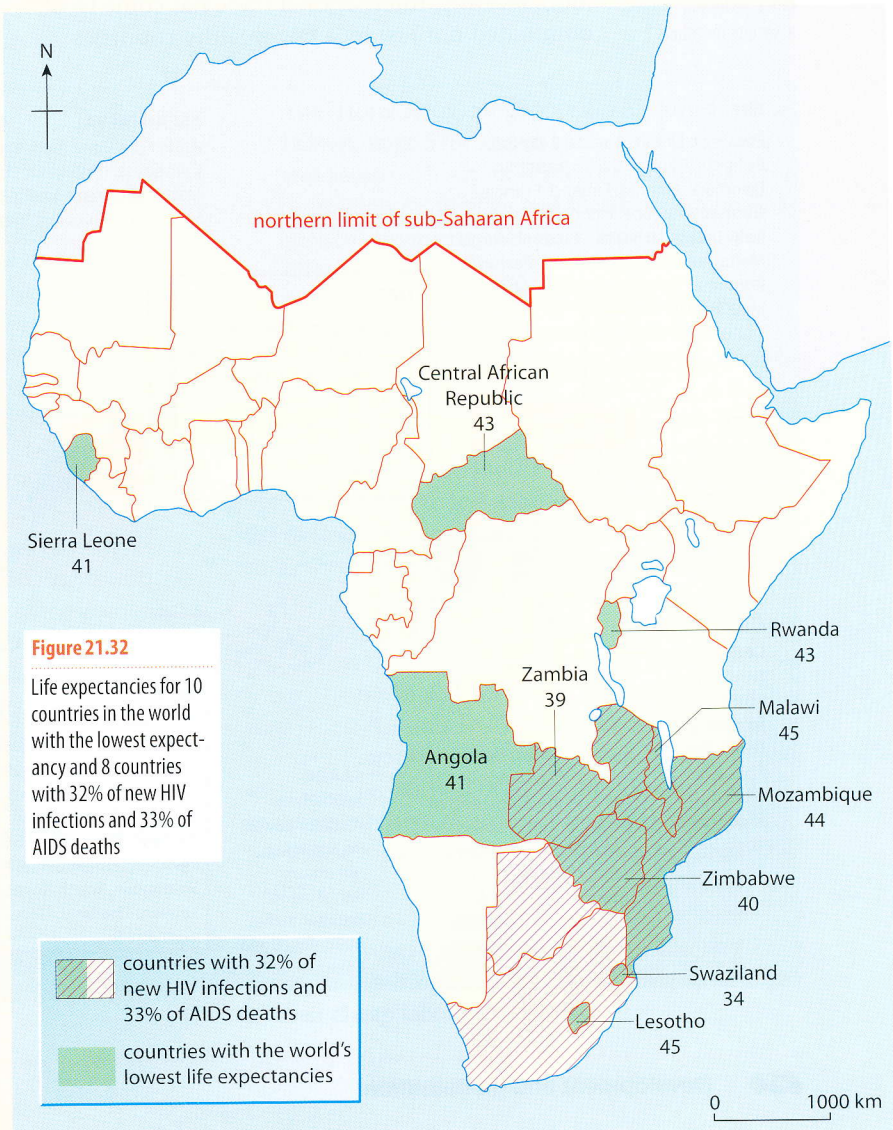


Figure 21.32
Life expectancies for 10 countries in the world with the lowest expectancy and 8 countries with 32% of new HIV infections and 33% of AIDS deaths

International trade

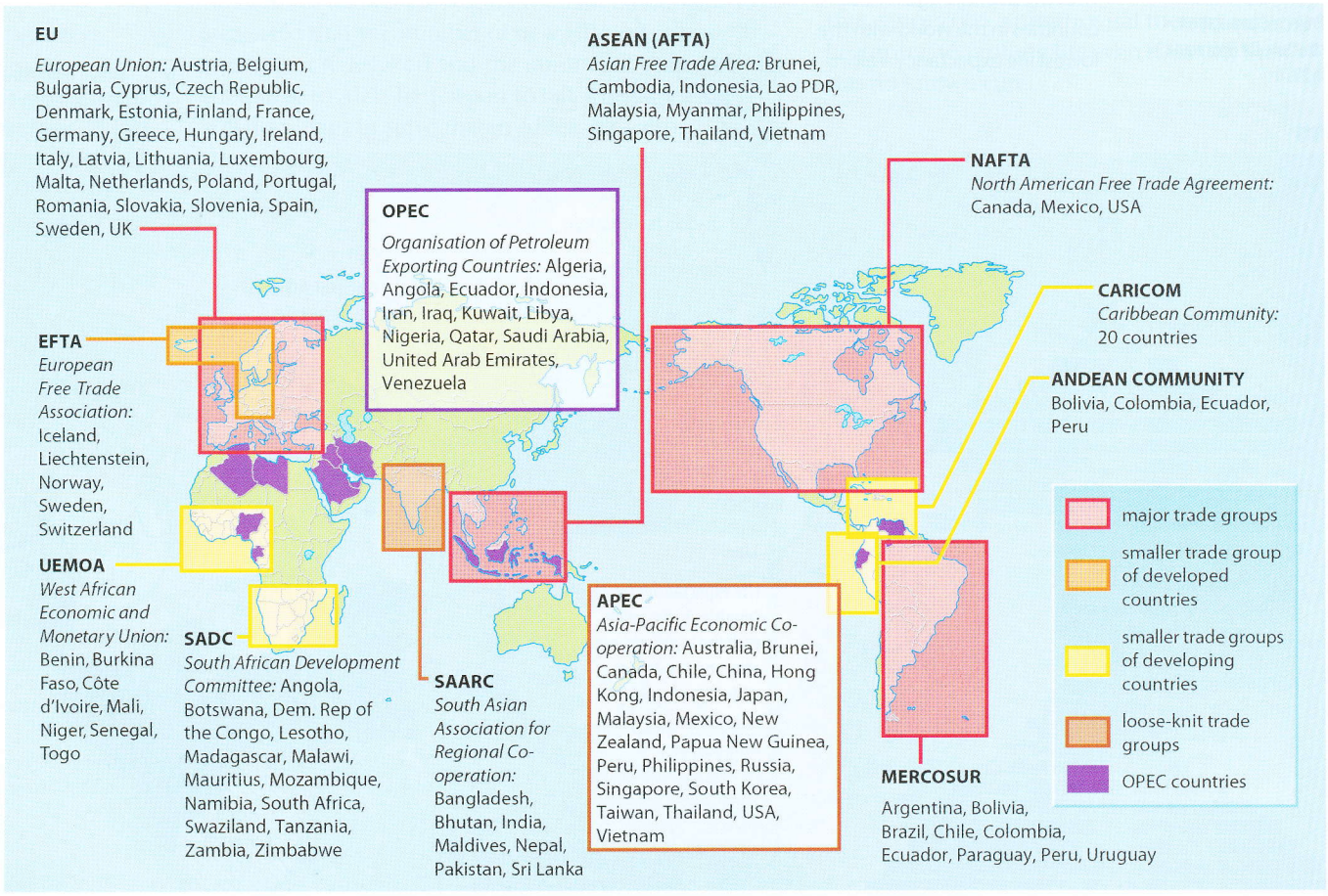
Development of world trade

Trading results from the uneven distribution of raw materials over the Earth's surface. It plays a major role in the economy of all countries as none has an adequate supply of the full range of minerals, fuels and foods; of manufactured goods; or of services to make it self-sufficient. Countries that trade with other countries are said to be **interdependent**. During colonial times, several European countries began to use raw materials found in their colonies to develop their own domestic manufacturing industries. This saw the beginning of modern international trade between those countries that provided many of the relatively cheap raw materials and those that made a much greater profit by manufacturing or processing those raw materials. Later, in the 20th century, the more economically developed countries came to specialise in particular aspects of manufacturing, as this created greater benefits than in trying to compete with other countries that had equal, or better, opportunities. Even more recently, international trade has come to be dominated not just by a few wealthy countries but by an increasing number of large **transnational corporations** (page 573 and Places 101, page 630).

Balance of trade and balance of payments

The raw materials, goods and services bought by a country are called imports and those sold by a country are exports. The **balance of trade** for a country is the difference between the income it receives from its visible exports and the cost it incurs in paying for its visible imports. The **balance of payments** includes the balance of trade together with any invisible earnings or costs such as from banking and insurance, tourism, remittances from migrant workers abroad, professional advice and air/sea transport. Countries that earn more from their exports than they pay for their imports are said to have a **trade surplus** enabling them to become richer. Those countries that spend more on imports than they earn from their exports have a **trade deficit** and so become increasingly less well-off. It is this difference between the trade of countries that has largely been responsible for the creation, and widening, of the **development gap** (page 605).

Figure 21.34
Major global trading blocs, including associate members

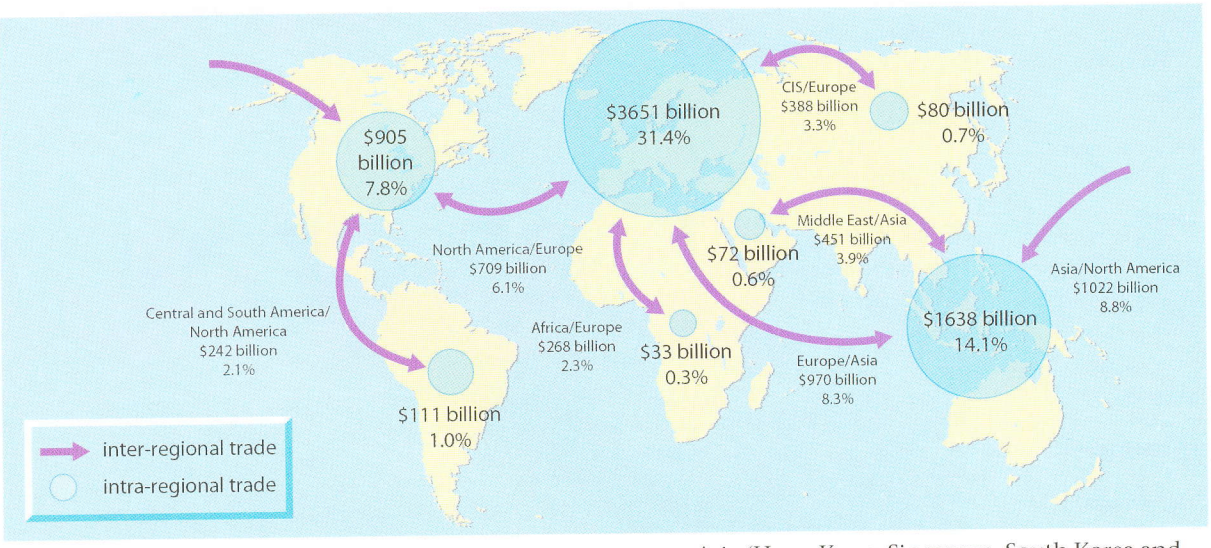


Trading blocs

During the latter part of the 20th century an increasing number of countries grouped together for the purpose of trying to increase the volume and value of their trade. Two of the earliest and largest **trading blocs** were the EU and NAFTA (Figure 21.34), each of which now has an internal market of around 500 million people. By creating trading blocs, countries can eliminate custom duties (tariffs) between member states which, in turn, will reduce the price of products sold between them. Although this made the EU, for example, more competitive against non-member countries or rival trading blocs such as Japan or NAFTA, it also created restrictions (trade barriers) between goods made in the EU and those of developing countries. This has meant that the LEDCs have found it increasingly difficult to sell their products to MEDCs, increasing further the trade and development gap.

Figure 21.35

Selected inter-regional and intra-regional trade flows, 2006



The direction of world trade

Figure 21.35 shows the pattern of world trade, by value and including finance, that has taken place over the last few decades.

- Most of a nation's international trade is with one or more neighbouring countries, e.g. Canada with the USA, South Korea with Japan, the UK with countries in Western Europe.
- Most of the world's trade is between the advanced market economies of NAFTA, the EU and Japan, although their share fell from 72 per cent in 1990 to 68 per cent in 1998 and 58 per cent in 2007.
- The advanced market economies have had relatively little trade with the developing countries. Where they have – as was seen when accounting for the development gap (page 605) – they have generally exported high-value goods and imported low-value goods in return.
- There has been relatively little trade between the developing countries themselves. This is partly because many of them have had low rates of economic growth and partly because they have tended to produce similar, and limited, types of goods, i.e. the same one or two materials.
- Since the 1970s the advanced economies have faced increasing competition from the so-called newly industrialised countries (NICs) in Asia (Hong Kong, Singapore, South Korea and Taiwan, page 578) and in Latin America (Brazil and Mexico). Even more recently there has been, in terms of scale and speed, an unprecedented emergence of a new trading nation – China (Case Study 21).
- Today world trade is dominated not by countries but by large and powerful transnational corporations (TNCs, pages 573 and 630).

Trade links

Figure 21.36 gives an indication of the importance of trade for 12 selected countries that belong to different levels of economic activity. It also shows the three main groupings of agricultural products, fuels and minerals, and manufactured products, into which most items of world trade are manageably placed together with, as a measure of their development, the trade per capita. The advanced economies, the NICs and TNCs, and now the emerging markets, have manufactured goods accounting for a high proportion of their total exports. This has enabled them to accumulate the capital and technology needed to buy and process requisite raw materials such as fuels and minerals. In contrast, although most developing countries have some manufacturing, it is usually often only primary processing or is operated by TNCs taking advantage of their cheap labour (page 573).

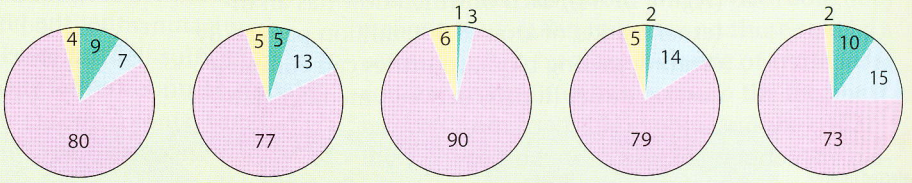
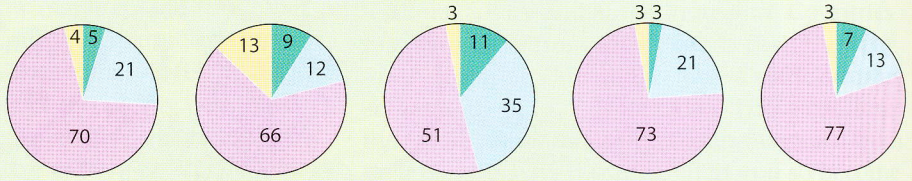
		Advanced economies			NICs	
		USA	UK	Japan	Singapore	Malaysia
World rank – exports		2	7	4	14	19
World rank – imports		1	4	5	15	23
Exports						
a Type	agricultural, fuels and minerals, manufactured, others	4, 9, 7, 80	5, 5, 13, 77	3, 1, 6, 90	2, 5, 14, 79	2, 10, 15, 73
b Value US$		1 038 278	448 291	649 931	271 772	160 676
c % world's exports		8.59	3.71	5.38	2.25	1.33
Imports						
a Type	agricultural, fuels and minerals, manufactured, others	4, 5, 21, 70	13, 9, 12, 66	3, 11, 35, 51	3, 3, 21, 73	3, 7, 13, 77
b Value US$		1 919 420	619 385	579 574	238 652	131 152
c % world's imports		15.46	4.99	4.67	1.92	1.06
Trade per capita US$		10 864	21 389	10 112	124 769	11 603

Figure 21.36

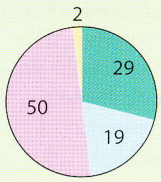
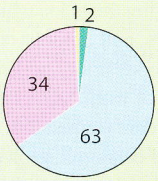
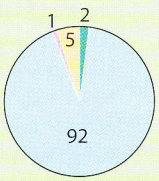
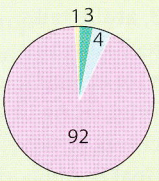
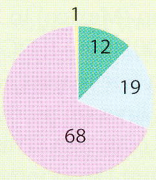
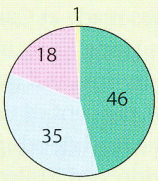
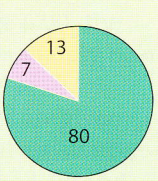
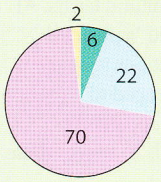
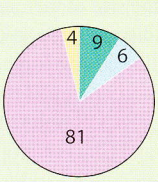
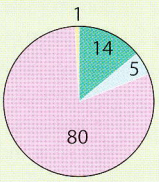
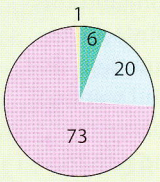
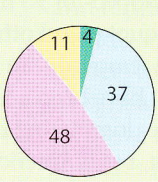
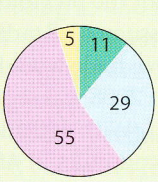
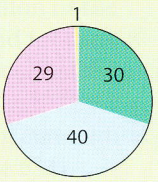
Selected exports, imports and trade per capita of selected countries

The world market in fuels, usually oil and natural gas, is dominated by the OPEC countries and, recently, Russia. Most is exported to fuel-short advanced economies in the EU and Japan, although the rapid increase in demand since about 2005 has come from China. The price of these fuels tends to be beyond the reach of developing countries, retarding their economic development even more. The pattern of mineral exports is less obvious, with both developed (Australia and Canada) and developing (Jamaica and Zambia) countries being major exporters. Again, however, it is the advanced economies, NICs and, most recently, China, that are the chief importers.

Agricultural products often account for over half of a developing country's exports, although an increasing number of African countries are now having to import cereals as their food production decreases (pages 503 and 629). While many of the more industrialised countries rely on imports of foodstuffs, some that have extensive (USA, Canada and Australia, page 486) or intensive (Netherlands, Denmark, page 487) farming systems, are net exporters.

For many years developing countries have made demands for a fairer trading system. One request is for higher or fixed prices for their primary products so as to limit the widening of the development gap; a second request is for better access to markets within the more well-off countries. There is still the tendency for some MEDCs to try to impose quotas, to add tariffs, to try to limit the quantity, or to raise the price, of goods imported from the LEDCs. Other demands have included changes in the international monetary system so as to eliminate fluctuations in currency exchange rates; encouraging MEDCs to share their technology; dissuading MEDCs from 'dumping' their unwanted, and sometimes untested, products cheaply; lowering interest rates; and an increase in aid free of economic and political strings (page 632).

The WTO report of 2008 confirmed that the growth of world trade had declined from 8.5 per cent in 2006 and 5.5 per cent in 2007 to a forecast of 4.5 per cent for 2008. This decline began with a slowdown in the North American economy which later spread to the EU and Japan, giving them average forecast growth of only 1.1 per cent in 2008. Figure 21.37 shows that, partly due to an increase in the price of raw materials, especially metals and fuels, and having to rely less on the advanced economies for trade, the emerging markets and developing countries had not, so far, been affected as much by this decline; this gave them a predicted growth of 5 per cent in 2008.

NICs		OPEC		Emerging markets		Developing economies	
Brazil	UAE	Nigeria	China	India	Kenya	Sierra Leone
24	23	43	3	28	107	170
28	27	60	3	17	87	180
						
137 470	139 353	52 000	968 936	120 254	3437	216
1.14	1.15	0.43	8.00	1.00	0.03	0.00
						
95 886	97 754	21 809	791 461	174 845	7311	389
0.77	0.79	0.18	6.37	1.41	0.06	0.00
1234	39 288	447	1207	307	275	127

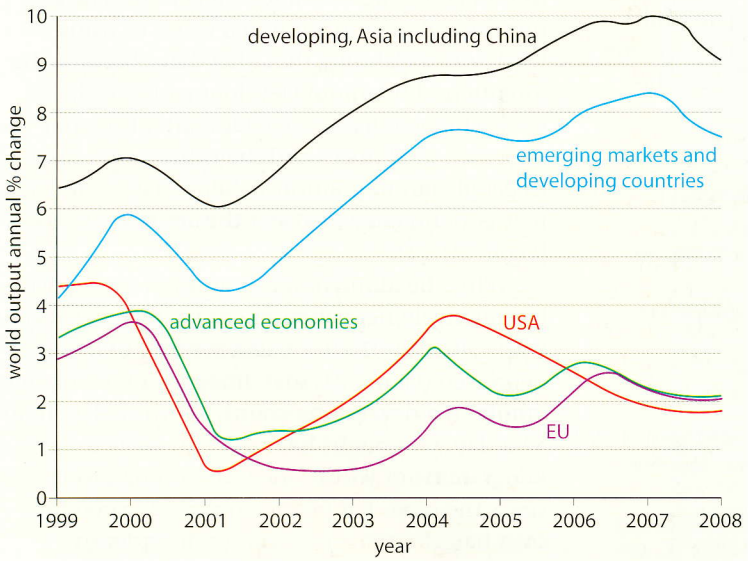
World Trade Organization (WTO)

A basic aim of the WTO is to bring together countries that belong to various customs unions, allowing them the opportunity to take decisions on multilateral trade agreements. It was established in 1995, replacing GATT (the General Agreement on Trade and Tariffs) which had been set up in 1948 to try to reduce tariffs (import duties) and to provide a forum for discussing problems of international trade. Although over 150 countries are members of the WTO, effectively most decisions are made by only eight – the so-called G8 of Canada, France, Germany, Italy, Japan, Russia, the UK and the USA – which, with the exception of Russia, also form the inner circle of the **Organisation for Economic Co-operation and Development (OECD)**. In contrast, the many developing countries, with their limited wealth, products and technology, have least say and find it difficult to obtain a fair share of the world's trade.

The first of many summit trade talks took place in 1986 when 65 developing countries and NICs met to discuss tariffs, subsidies and trade reform. Subsequent meetings, known as the Uruguay Round, followed. By 1995, some tariffs had been removed but generally only on industrial products that benefited the NICs. In contrast, mainly due to strong farming lobbies in the USA and the EU, there was little reform on agricultural products, much to the detriment of the developing countries.

Figure 21.37

Recent changes in world trade, 1999–2008



The Doha round of talks, named after the capital of Qatar where the first summit took place in 2001, initially had 101 developing countries attending. In 2002 the World Bank estimated that freeing international trade boundaries and subsidies could lift 320 million people above the $2 a day poverty line by 2015. However, after only little progress was made at Cancun (Mexico) in 2003, at the talks in Hong Kong in 2005 the MEDCs agreed to grant duty-free and quota-free market access for at least 97 per cent of tariff lines on products originating in the least developed countries. This decision, which addressed Millennium Development Goal 8: Aid, Trade, Growth and Global Partnership (page 609), still had the potential to lift millions of people out of poverty, but at the reduced figure of 75 million, not the previously hoped-for 95 million (and this assumed *all* tariffs, quotas and other obstacles to free trade would be removed – an assumption that in 2008 was seen to have been a fanciful scenario).

With agriculture dominating the poorest economies in Africa, Latin America and parts of Asia, much of the negotiations between 2001 and 2008 centred on proposals for lowering barriers to trade in farm products, and curtailing subsidies that richer nations pay their farmers to grow cotton, corn and other crops. Such subsidies can lead to gluts that depress world prices and put farmers in developing countries at a disadvantage. But not all developing countries have the same interests. While sweeping reforms of global farm policies could benefit places like Argentina and Brazil, they would make life even more difficult for the poorest countries that have to import food, especially when, in 2008, the price of cereals shot up.

The 2008 talks, attended by 153 nations, were held in Geneva but soon ran into difficulties (Figure 21.38). The talks were extended, allowing further discussions between the top trading nations of the EU, the USA, China, Japan, India, Brazil and Australia – leaving, as usual, the poorer nations to watch and wait. After nine days the talks collapsed (Figure 21.39), with neutrals blaming the USA, China and India. It will be interesting to see what the situation will be in, say, 2010 or even 2015.

Figure 21.38

The hopes and problems at Geneva, 2008

Hopes

- Farm tariffs could be reduced to 30 per cent.
- A reduction in money for subsidies on farm products by 60 per cent or even 70 per cent.
- A resultant benefit in trade could increase income for developed and developing countries.
- Reduced prices for consumers in the advanced economies and fairer prices for farmers in emerging economies.
- Millions of people could be pulled out of poverty.

Problems

- The USA, EU and Japan insisted that the larger trading nations of the emerging economies – Brazil, China and India – open their markets to Western manufactured goods.
- The emerging nations insisted on large cuts in farm subsidies and tariffs paid to farmers in the USA and the EU.

Doha Trade Talks Collapse

July 2008

THE Doha round of world trade talks has collapsed in what one former trade chief called the biggest blow to globalisation since the end of the Cold War.

Negotiators warned that there was now little or no chance of salvaging the talks, which promised to bring down trade tariffs, pull millions out of poverty and keep food and goods prices under control. It is the first time a major set of world trade talks has collapsed entirely, and insiders warned that the consequences would be weaker economic growth and a less globalised world.

Officials warned that there was now 'little or no appetite' to return to the round. Insiders said the talks had stumbled after the USA, China and India failed to compromise on the size of their agricultural tariffs. At the centre of the dispute were so-called 'safeguard clauses' which allowed developing nations to slap emergency tariffs on imports if they leaped to unmanageable levels. US negotiators apparently balked at Indian and Chinese proposals to trigger these safeguards on their cotton exports.

A WTO spokesperson said: 'We have missed the chance to seal the first global pact of a reshaped world order. We would all have been winners. Years of negotiation which were and are important for globalisation have been sacrificed by this failure.'

Figure 21.39

Collapse of the Doha trade talks

Food shortages: a global issue

In mid-2008, the UN called for action to tackle hunger and malnutrition in a world of rising food prices, claiming that 'they have become the forgotten Millennium Development Goal [page 609]. This goal has received less attention, but increased food prices and their threat, not only to people but to political stability, have made it a matter of urgency to give it the attention it needs [Figure 21.41].'

While headline news about high food prices is a relatively new phenomenon, they have been rising since 2001 after half a century of being depressed (Figure 21.40a). Imagine a low-income family in a developing country earning less than $1 a day who might have paid 20 cents for a kilogramme of wheat one year and had to pay 30 cents the next. For people in poverty spending over half their income on food in order to survive, price rises of staples can be devastating.

The root causes of these unprecedented rises have been the large increases in energy (especially oil which is needed for machinery and transport) and fertiliser costs, the demand for food crops in biofuel production, and a record low level in cereal stocks. The price of oil appears likely to remain high and the demand for biofuels to increase further. In 2007, one-quarter of the US maize crop (11 per cent of the global total) went into biofuel production when, previously, the USA had supplied over 60 per cent of the world's exports. Other factors include: a higher demand for grain to feed livestock in China, where increasing affluence means more people are eating meat (50 kg per capita in 2007 compared with 20 kg in 1990); a four-year drought in Australia which, instead of being a major exporter (page 485), has had to import wheat itself; water shortages in general when, as seen on page 610, over 70 per cent of water supply goes to agriculture; and a global reduction in the area under cereals from a peak in 1980 (Figure 21.40b). This includes the Commonwealth of Independent States (CIS) where, according to a Moscow bank, only 43 per cent of arable land in the world's largest cereal grower is still under cultivation, and the EU with, until 2008, its set-a-side land policy.

According to the FAO, in 2008 there were 36 countries in crisis as a result of higher food prices, and in need of external assistance (aid). Of these, 21 were in Africa, 10 in Asia and 5 in Latin America. In many of these places, food shortages have been worsened by internal conflicts and extreme weather – both floods and drought (Places 75, page 503).

Responding to this crisis, the UN Secretary-General listed, at a G8 meeting prior to the Doha round of trade talks in 2008 (page 628), the following needs which he said could only be met with global co-operation:

- Ensure vulnerable populations are given urgent help by scaling up food assistance, giving financial support for food aid and exempting relief food from export restrictions and taxes.
- Boost agricultural production by giving seeds and fertiliser to up to 450 million of the world's small-scale farmers and for the G8 leaders to give more development assistance to agriculture.
- Improve fair trade by reducing agricultural subsides in G8 countries (page 631).
- Increase significantly investment in farming, agricultural research and rural development.
- Strengthen global food commodity markets and provide an aid package on trade for LEDCs.
- The G8 countries and their partners to reassess subsidies and tariffs on biofuel production.

Figure 21.40

World cereal prices and production
Sources: World Bank, FAO

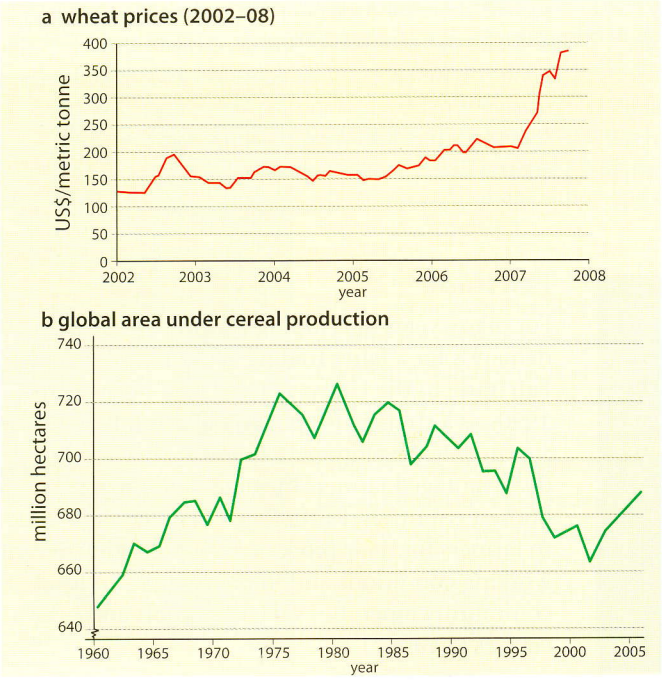
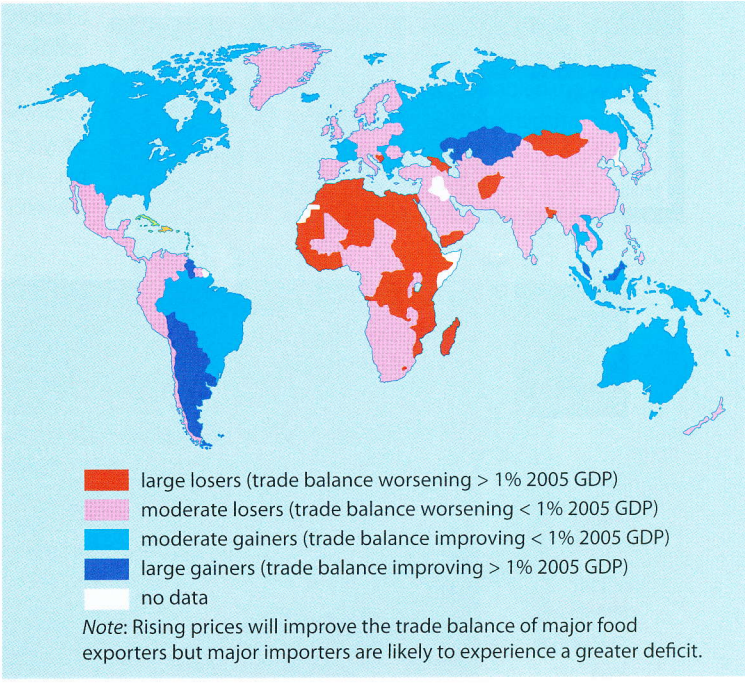


Figure 21.41

Predicted impact of food price rises on trade balances
Source: World Bank



Note: Rising prices will improve the trade balance of major food exporters but major importers are likely to experience a greater deficit.

TNCs and world trade

It is argued that globalisation is similar to the colonial period except that it is large transnational corporations, not countries, that are increasing their wealth and dominating world trade. Certainly in the last century, TNCs – usually with their headquarters in the advanced economies or in the NICs – located most of their factories in developing countries as these could provide both raw materials and the cheap labour needed to produce goods that were to be sold in developed countries. Yet, given the chance, many developing countries welcomed the presence of TNCs, seeing them as an opportunity to obtain investment and to create employment.

Places 101 South Korea: Samsung – a TNC

Figure 21.42
Samsung welcomes visitors

South Korea's tenth president, elected in 2007, had always been involved with giant corporations, in his case Hyundai. Hyundai is one of many similar family-run businesses that have become TNCs, and which are collectively known as *chaebols*. The growth of these chaebols, unique to South Korea, in the 1970s–1980s made them leading world TNCs in shipbuilding, steel, cars, construction, computers and electronics, and made South Korea one of Asia's four 'tiger economies' (page 578). The largest TNC is Samsung (Figure 21.43).

Figure 21.43
The Samsung factory at Suwon, south of Seoul

The organisation was set up as a family trading company in 1938 and was to benefit after the Korean War by supplying UN forces. In 1969 it opened a factory in conjunction with the Japanese firm Sanyo, to make black-and-white televisions and with a workforce of 36 employees. Today, the site of that factory covers an area the size of over 200 football pitches (Figure 21.43) and employs 22 000 workers, nearly all in Research and Development (one in eight has either an MA or a PhD). The corporation now has 124 offices in 56 countries, 16 overseas production factories of which 13 are in China and the others elsewhere in South-east Asia, and a global workforce of 154 000. Samsung is composed of numerous businesses, the three largest being Samsung Electronics, the world's biggest electronics company, Samsung Heavy Industries, one of the world's biggest shipbuilders, and Samsung Construction and Engineering. The three businesses reflect the meaning of the Korean word *samsung*, meaning 'three stars'. With over 20 per cent of the nation's exports, Samsung has a powerful influence on the country's economic development, politics, media and culture and has become a role-model for national pride.

It is the world's leader in LCD and flat-screen TVs, is second (to Nokia) in the production of mobile phones, and is a major producer of laptops, cameras and printers as well as air conditioners, fridges, washing machines, microwaves and vacuum cleaners. It also sponsors an English Premier League football team – another example of globalisation.

FAIRTRADE®

Guarantees a better deal for Third World Producers

The Fairtrade Mark guarantees:

- farmers get a fair and stable price for their products
- farmers and workers get the opportunity to improve their lives
- greater respect for the environment
- a stronger position for farmers in world markets
- closer links between shoppers and producers
- investment in local community projects.

Figure 21.44
The Fairtrade Mark

Fairtrade

For many years developing countries have made demands for a fairer trading system (page 626). **Fairtrade** in the UK was established in the early 1990s as a strategy for poverty allevation and sustainable development aimed at small-scale, disadvantaged farmers in some of the world's poorest countries. Fairtrade guarantees a fair price to farmers for their produce, and providing decent working conditions and improvements in local community amenities such as schools and health centres (Figure 21.44).

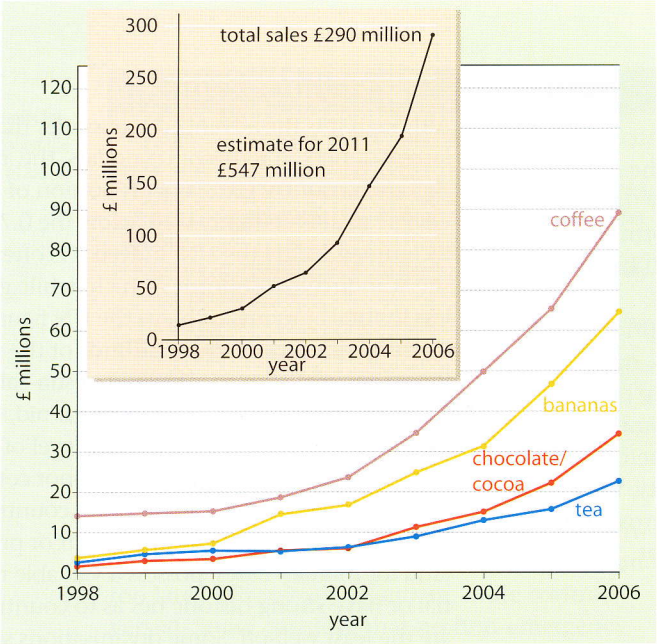


Figure 21.45
Fairtrade sales, 1998–2006

More than 4000 Fairtrade products have been licensed for sale in the UK. Shoppers can choose wine, cotton products, flowers and sports balls as well as food and soft drinks carrying the Fairtrade Mark. In 2006 alone, sales of Fairtrade products increased by 46 per cent (Figure 21.45), providing further evidence of the growth of **ethical consumerism**. This is when an increasing number of shoppers are prepared to pay more for products if they feel it will help provide jobs and lift people out of extreme poverty. Large TNCs such as Nestlé (coffee in El Salvador) and Tate & Lyle (sugar cane in Belize), together with superstores such as Asda, Sainsbury's, Tesco and Marks and Spencer, are being encouraged by shoppers to stock and support Fairtrade products.

Places 102 Ghana: Fairtrade

In 1993, a group of cocoa farmers in Ghana, together with Twin Trading (a UK trading association), set up their own Kuapa Kokoo co-operative on Fairtrade terms. Their aim was to create an organisation with farmers' welfare at its heart and with a reputation for quality and efficiency. Once the co-operative members had harvested the cocoa pods, split them open with a machete and dried the beans found inside (Figure 21.46), they were able to sell their produce to the co-operative and enjoy the benefits of selling to the Fairtrade market: prompt payment, a regular bonus, democratic rights and community improvements funded by Fairtrade income. Kuapa Kokoo, which means 'good cocoa farmers', then weighed the bags and sold the cocoa to the government cocoa board, which then sold it on all over the world. In 2008 – and still the only farmer-owned company in Ghana – the co-operative had 45 000 members (28 per cent of whom were women) in 1200 small villages which produced 5 per cent of the country's cocoa (Ghana is the world's second largest cocoa grower).

Figure 21.46
Splitting open the cocoa pods

In 1997 the members of Kuapa Kokoo voted to set up their own chocolate company, and with the help of Twin Trading, the Body Shop, Christian Aid and Comic Relief, and with a loan guaranteed by DFID (the UK's Department for International Development), Divine Chocolate was born (Figure 21.47). Today Divine Chocolate is the leading Fairtrade chocolate company in the UK, and after the Body Shop kindly donated its shares to Kuapa Kokoo, the co-operative now owns 45 per cent of the business. This means that as well as receiving the Fairtrade minimum price and the Fairtrade social premium, the co-operative also shares the profits and has a real say in how its products are produced and marketed. In 2007, Divine Chocolate Inc, also co-owned by Kuapa Kokoo, was established in the USA and with all debts paid off Divine Chocolate delivered the first dividend to Kuapa Kokoo.

Fairtrade has transformed the lives of many villagers in Ghana, delivering fundamental improvements in living and working conditions, and enabling participation in an organisation that values women, education and the needs of the farmer. As one teenager whose family was a member of Kuapa Kokoo said: 'We sell cocoa for the Divine bar getting a fairer price for our beans. My family now earn enough for me to stay at school and to buy for ourselves better machinery while the profits and end-of-year bonus have enabled the village to construct a well, which now gives us a clean water supply (Places 97), a new school and a mobile health centre.' It has also enhanced the status of women.

Figure 21.47
The Divine chocolate bar

Overseas aid and development

Overseas aid is the transfer of resources at non-commercial rates by one country (the donor) or an organisation, to another country (the recipient). The resource may be in the form of:

1 money, as grants or loans, which has to be repaid, even at low interest rates
2 goods, food, machinery and technology
3 know-how and people (teachers, nurses).

The basic aim in giving aid is to help poorer countries develop their economies and to improve services in order to raise their standard of living and quality of life. In reality, the giving of aid is far more complex and controversial as it does not always benefit the recipient.

Types of aid

Basically, there are two main types of aid: **official** and **voluntary**. The differences in their purposes and aims are summarised in Figure 21.48.

Donors and recipients

Although it is the advanced economies that are the largest donors in terms of US dollars, the amount that each country gives as a proportion of its own GDP is small – certainly well below the 0.7 per cent recommended by the UN. Indeed it is often only the Scandinavian countries which, while giving less in total amounts, achieve the UN figure. As for the recipients, while the two-thirds of the world's lowest-income countries located in sub-Saharan Africa do receive most of the overseas aid, there is no simple correlation between the level of poverty and the amount of aid received. Donor countries are just as likely to give aid to those countries that have supported them in times of war or provide land for military bases, possess a valuable raw material or have strong historic ties as to countries that are the least well-off. Some organisations such as the International Monetary Fund (IMF) also aim to help the poorest countries while others, such as the World Bank, lend capital for specific projects.

Figure 21.48
Official and voluntary aid

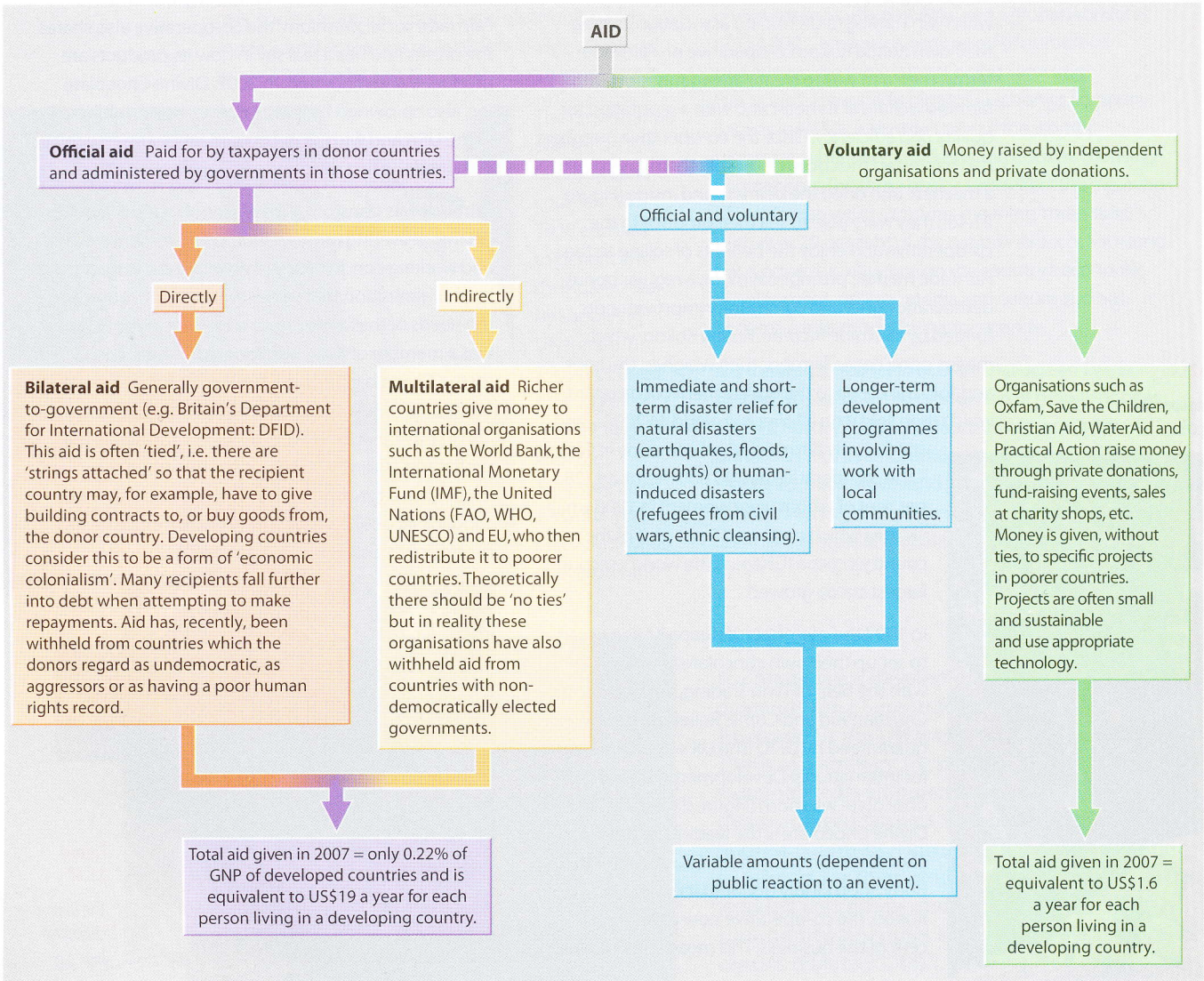


Figure 21.49
Arguments for and against the giving of aid

For	Against
• Response to emergencies, both natural and human-induced. • Helps in the development of raw materials and energy supplies. • Encourages, and helps to implement, appropriate technology schemes. • Provides work in new factories and reduces the need to import certain goods. • Helps to increase yields of local crops (green revolution) to feed rapidly growing local populations. • Provides primary health care, e.g. vaccines, immunisation schemes, nurses. • Helps to educate people about, and to implement, family planning schemes. • Grants to students to study in overseas countries. • Can improve human rights.	• Aid is a conscience-salver for the rich and former colonial powers. • Better to use money on the poor living in the donor countries. • An exploitation of physical and human resources. • Used to exert political and economic pressure on poorer countries. • Increases the recipient country's external debt. • Often only goes to the rich and the urban dwellers in recipient countries, rather than to the real poor. • Encourages corruption among officials in donor and recipient countries. • Undermines local activities, e.g. farming. • Does not encourage self-reliance of recipient countries. • Often not given appropriate technology.

Is aid good or bad?

While few people would argue against emergency aid, except to say that it is often 'too little and too late', other forms of aid are more controversial. Some consider that no non-emergency aid should be granted, especially as it is usually given in the political, industrial or commercial interests of the donor without concern for the environment or the long-term improvement in the quality of life of the recipient. Too often, aid tends to address the symptoms of poverty rather than its causes. Others feel that aid can make important contributions to the economy of many of the least well-off countries and to the welfare of some of their poorest communities. Some of the arguments of the pro-aid and anti-aid groups are listed in Figure 21.49.

Places 103 Sri Lanka: aid after the 2004 tsunami

One major effect of globalisation is the speed at which news is flashed around the world. In some cases, like the Indian Ocean tsunami in 2004 (Places 4) or the Chinese earthquake in 2008 (Places 2), people across the globe feel as if they themselves are involved in the event and consequently are anxious to help in whatever way, however small, they can.

In Sri Lanka, a place known by overseas tourists, the tsunami left almost 40 000 dead, 575 000 homeless and 16 000 seriously injured. Hospitals, schools, homes, hotels, roads and the mainline railway between Colombo and Gale were destroyed. Aid came from three main sources:

- **Emergency aid** came from voluntary international relief organisations who are used to responding rapidly to any global disaster – although they admitted never one so great as this. Initially they help to locate possible survivors and treat the injured. They then seek to satisfy the urgent needs of the survivors which, these organisations claim, is always for shelter, clothing, food, toilets, clean water and medical supplies.
- **Short-term aid** is provided partly by the voluntary relief organisations and partly by ordinary people. After the tsunami and following appeals in British newspapers (Figure 21.50) and on television, people began phoning, using the Internet or sending cheques to organisations such as Oxfam, Christian Aid and CAFOD. Within a few days over £100 million had been donated and when the Disaster Appeal closed after two months, £300 million had been raised. People in many other countries did the same.
- **Long-term aid** is provided by governments which, in this case, pledged £3700 million – easily a world record. This money was used to rebuild communications, hospitals, schools, houses and in trying to recreate jobs.

Two years later, the Sri Lankan Reconstruction and Development Agency (RADA) announced that nearly 90 per cent of the pledged money had been received – a remarkably high figure as often governments, agencies and people fail to meet their promises as their memory of an event fades – and that 1020 projects had been either completed or started.

Figure 21.50
Tsunami appeal advert

TSUNAMI
EARTHQUAKE

Hundreds and thousands of people across a dozen countries have been affected by the major disaster and devastation caused by the earthquake in the Indian Ocean and the Tsunamis that followed.

Aid agencies are working to provide emergency relief and need your support. DEC members are ActionAid, British Red Cross, CAFOD, Care International UK, Christian Aid, Concern, Help the Aged, Merlin, Oxfam, Save the Children, Tearfund, World Vision.

Give now to the Disasters Emergency Committee.

0870 60 60 900

or www.dec.org.uk

Or by cheque to PO Box 999, London EC3A 3AA, payable to DEC Tsunami Earthquake Appeal

World transport

Transport is referred to several times in this book:

- It can be viewed as an indicator of wealth and economic development, e.g. as measured by the number of cars per 1000 people. While the more developed countries have less than one-fifth of the world's population, they have over three-quarters of its cars and lorries.
- It is essential in linking people, resources and activities; in increasing personal mobility; and for the exchange of goods (trade) and ideas (information).
- It was considered a major factor in industrial location (Weber, page 557) and in determining agricultural (von Thünen, page 471) and urban (page 425) land use. The relative decrease in transport costs since the 1950s has made this a less significant location factor.
- In early economic/geographical theory, costs were thought to be proportional to distance (von Thünen's central market and Christaller's central place), especially on a flat plain where transport costs were equally easy and cheap in all directions. Later, costs were regarded to be a function of a raw material's weight and the distance it had to be moved (Weber).
- Improvements in transport resulting from **space-shrinking technologies** include containerisation, Airbus A380 and the Internet. These increase speed and ease, and all contribute to globalisation.

Characteristics of modern transport systems

A comparison of the characteristics of the major forms of present-day transport – canal, ocean shipping, rail, road, air and pipeline – is given in Figure 21.53, with each type having its advantages and disadvantages over rival forms of transport. Figure 21.53 also refers to terminal and haulage costs. **Terminal costs** are fixed regardless of the length of time of journey and are highest for ocean shipping and lowest for road transport. **Haulage costs**, which increase with distance but decrease with the number of passengers carried or the amount of cargo handled, are lowest for water transport and highest for air (Figure 21.51). It is now accepted that, as transport costs comprise terminal costs plus haulage costs, then the cost per tonne/km declines with distance. Figure 21.52 shows the changes in passenger and freight traffic in the UK in the last 50 years.

Figure 21.51
Transport costs

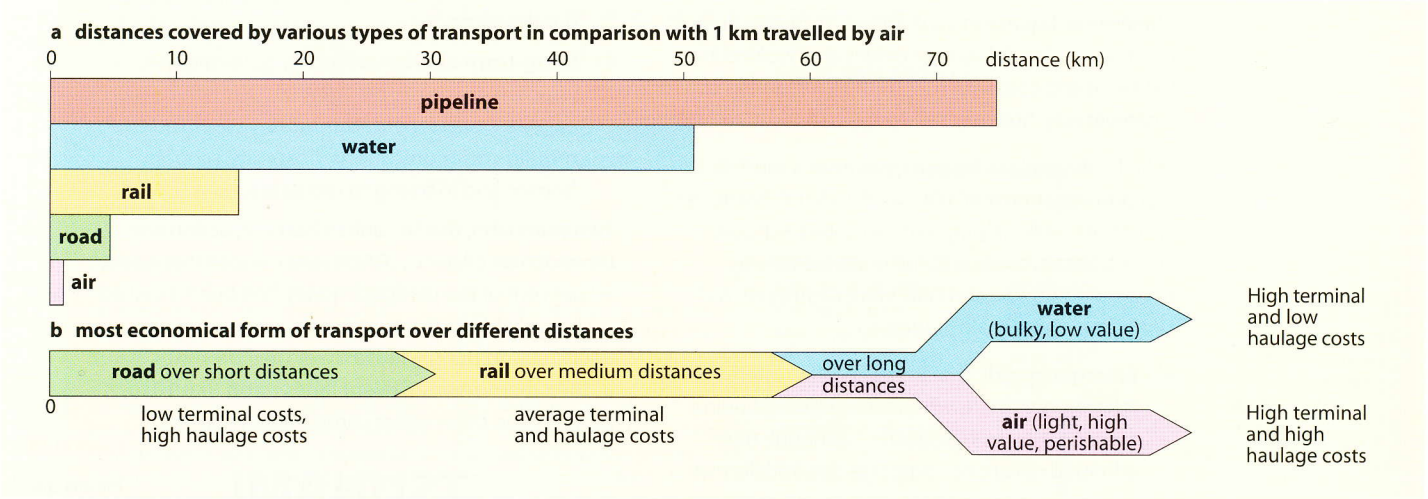
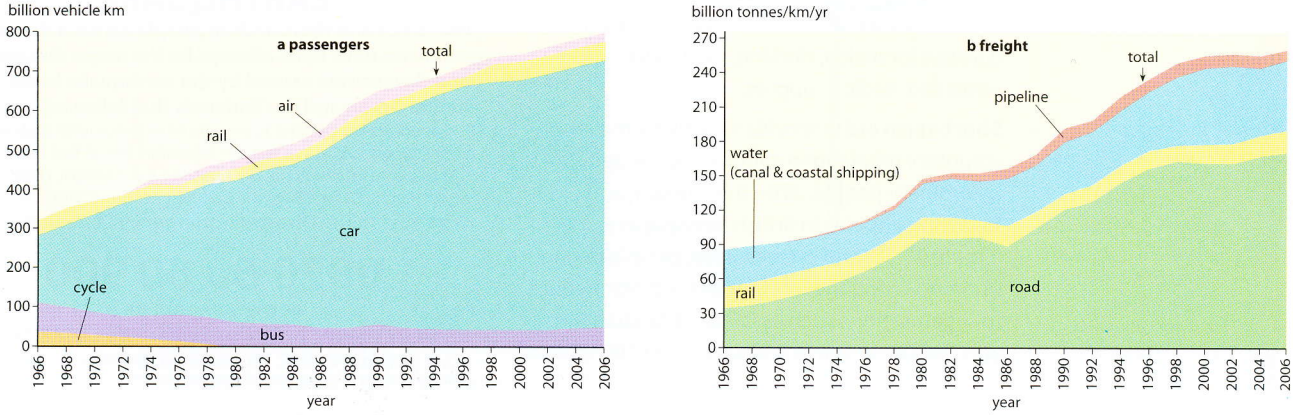


Figure 21.52
Changes in passenger and freight traffic in the UK, 1966–2006
Source: UK Department of Transport



		Canals and rivers	Ocean transport and deep-sea ports	Rail	Road	Air	Pipelines
Physical	**Weather**	Canals can freeze in winter. Drought/heavy rains make rivers unnavigable.	Storms, fog. Icebergs in North Atlantic.	Very cold (frozen points). Heavy snow (blocks line). Heavy rain can cause landslides, heat can buckle lines.	Fog and ice both can cause accidents/ pile-ups. Cross-winds for big lorries; snow blocks routes; sun can dazzle.	Fog, icing and snow: less since planes have had automatic pilots. Airports better if sheltered from wind and away from hills and areas of low cloud.	Not greatly affected.
	Relief	Width of channels. Need flat land or gentle gradients. Soft rock/soil for digging, problems with deltas. Rivers must be slow-flowing, have a constant discharge and have no rapids.	Harbours need to be deep, wide and sheltered. Tidal problems.	Cannot negotiate steep gradients so have to avoid hills. Estuaries can be obstacles. Flooding in valleys.	Avoids/takes detours around high land. Valleys may flood. May go around estuaries if no bridges.	Large areas of flat land for runways, terminal buildings and warehousing. Firm foundations. Ideally, cheap farmland or land needing reclamation. Relief not a barrier.	Difficult to lay, then relief is not a problem
Economic	**Speed/time**	Slowest form of transport. Long detours and possible delays at locks.	Slow form of transport, yet most economical.	Fast over medium-length distances.	Fast over short distances and on motorways. Urban delays.	Fastest over long distances, not over short ones due to delays getting to and passing airport security.	Very fast as continuo flow.
	Running or haulage costs (wages and fuel): increase with distance	Often family barge. Limited fuel use means the cheapest form of transport over lengthy journeys.	Expense (oil used as fuel) increases with distance.	Relatively cheap over medium-length journeys. Fuel costs and wages rising.	Cheapest over shorter distances. Haulage costs increase with distance. Recent rise in cost of petrol.	Very expensive, yet speed makes it competitive over very long distances.	Cheapest as no labo involved (provided diameter is large).
	Terminal costs (loading and unloading costs and dues): no change with distance	Canals expensive to build and to maintain, unless natural waterways used.	Ports expensive – harbour dues/taxes. Expensive to build specialised ships. Less since containers. Cheapest over long distances.	Building and maintenance of track/stations/ signalling/rolling stock are very expensive.	Expensive building and maintenance costs, especially motorways. Car tax instead of dues, but roads built from taxation therefore lower overheads. Congestion charges.	Very expensive to build and maintain airports. High airport dues. Planes expensive to purchase and maintain.	Very expensive to bu Need surveillance.
	Number of routes	Relatively few. Inflexible.	Relatively few ports, inflexible due to increased specialisation of ships. Links to hinterland. Coastal shipping.	Not very flexible. Recent increase in urban rail and new high-speed intercity routes.	Many and at different grades. Great flexibility, most in urban and industrial areas.	Often only a few internal and international airports/routes. Not very flexible because of safety.	Limited to key route Inflexible and one-v flows.
	Goods and/or passengers carried	Heavy, bulky, non-perishable, low-value goods. Present-day tourists.	Heavy, bulky, non-perishable low-value goods. Cruise passengers. Goods carried in containers.	Intercity passengers. Heavy, bulky (chemicals, coal) and rapid (mail) goods. Can carry several hundred passengers. Dependable and safe.	Many passengers. Perishable, smaller loads by lorry. Relatively few people carried by one bus or car.	Mainly passengers. Freight is light (mail), perishable (fruit) or high-value (watches).	Bulk liquid (oil, gas, slurry, liquid cemen water).
	Congestion	Very little except at locks.	Increasing delay and congestion in many deep-sea ports.	Considerable congestion on intercity and commuter routes.	Congestion heavy in urban areas, at peak times and in holiday periods.	Heavy at large airports and at peak holiday times.	None.
	Convenience and comfort	Neither very convenient, unless for leisure/ relaxation, nor very comfortable.	Not very convenient. Cruise liners very comfortable.	Commuter routes uncomfortable. Some intercity routes better.	Door-to-door (except for some city centre destinations): most convenient and flexible. Safety is questionable; strain for drivers, but independent.	Country to country. Jet lag if more than three time zones crossed. Cramped, dehydrating and tiring over longer journeys.	Raw material or por industry.
Environmental	**Environmental problems**	Some oil discharged, but relatively few problems.	Tankers discharging oil. Much land needed for ports, hard-standing and warehousing.	Noise and visual pollution limited to narrow belts. Noise decreases with welded rails, increases with high-speed trains. Electric trains cause less pollution.	A major cause of noise and air pollution. Effect on ozone layer, acid rain, and global warming (greenhouse effect). Uses up land, especially farmland. Structural damage caused by vibrations.	High noise levels. Some air pollution. Uses up much land for airports.	Few are buried underground. Eyesore on surface.

Figure 21.53

Comparable characteristics of transport systems

Ocean shipping

Many ports in Western Europe developed either by trading with their former colonies or across the Atlantic to the Americas. In turn, large ports were created within the colonies to export raw materials or acting first as entrepot ports and now as **free-ports**. A freeport is an area of land exempt from taxes paid by the rest of the country in which it is located. As such, it can attract imports that can be manufactured into goods that are then exported without having to pay duties or tax, e.g. Singapore with, amongst other industries, its oil-refining (Places 104). Just as ocean shipping continues to grow in quantity, so too have ships increased both in size and in specialisation, e.g. oil tankers and bulk iron ore carriers. This in turn has meant that it is the wider, deeper estuaries that have seen the most concentrated growth in the world trade by sea, a trade that has been increasing steadily for several decades and which has, since 2000, grown enormously since China began exporting its wide range of cheaply manufactured goods. Most of the world's trade is moved by water.

A ship berthed at a quayside is not only not earning money, it is having to pay out harbour dues. Two innovations have enabled the turn-round time (the time it takes to unload and load cargo) to be shortened:

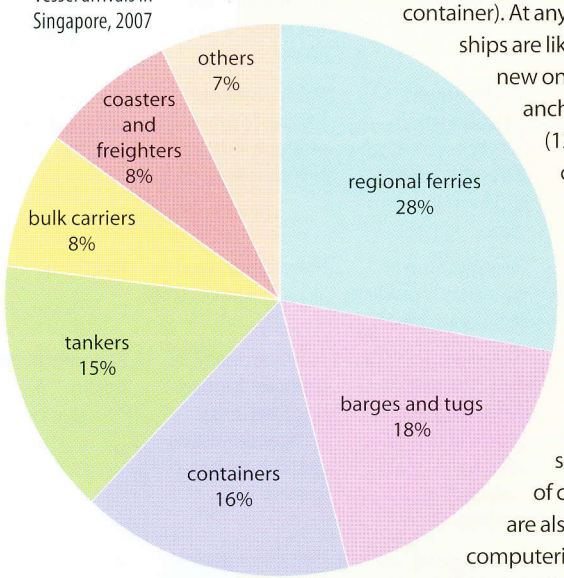
1. The development of **roll on/roll off (Ro-Ro)** methods whereby lorries can drive straight on to ships, reducing the need for cranes and, indeed, dock workers.
2. The introduction of **containerisation** in which goods are packed into containers of a specific size at, for example, a factory and taken by train or lorry to the container port where they are easily and quickly loaded onto ships using specialised equipment (Places 104). Containerisation is considered to have been one of the major driving forces in the process of globalisation.

The *Emma Maersk* is the world's largest container vessel (capable of carrying over 11 000 containers) and longest ship (at 397 m). Its regular run is between China and Western Europe.

Places 104 Singapore: an ocean port

On founding the port of Singapore in 1819, Sir Stamford Raffles decreed that it was open to all maritime nations. Today over 400 shipping lines with links to more than 600 ports worldwide have taken advantage of that decree and since 1986 Singapore has been the world's busiest port in terms of shipping tonnage, and its main bunkering port (i.e. fuel container). At any given time, over 800 ships are likely to be in port, with a new one arriving or weighing anchor every seven minutes (128 568 vessels in 2007 compared with 81 000 in 1992). To save time, harbour pilots are flown out by helicopter to meet incoming vessels. With its modern handling equipment, it takes less than a second to move 1 tonne of cargo. Warehouses are also automated and computerised. Vessels vary from modern supertankers, bulk carriers and container ships to the more traditional bumboats and barges (Figure 21.54). In 2007 the port also handled 27.9 million containers making it, along with Shanghai, the world's busiest container port (Figure 21.55).

Figure 21.54
Vessel arrivals in Singapore, 2007



In 2007 Singapore was voted – for the twentieth time since 1987 – the best port for its cost competitiveness, container shipping-friendly regime, adequacy of investment in port infrastructure, and visionary developments. Singapore is a freeport, still open to all countries, with seven free trade zones of which six are for seaborne cargo and one is at nearby Changi international airport. Goods can be made or assembled in these zones without payment of import or export duties and profits can be sent back to the parent company without being taxed. Many high-tech TNCs assemble their goods here before selling them at competitive prices. However, the port's largest money-earner is oil, a resource that the country does not possess. This is because Singapore imports crude oil from the Middle East, Indonesia and Malaysia, refines it in the freeport and then exports a range of oil products, making it the world's third largest oil-refining centre.

Figure 21.55
The port of Singapore

Air transport

Air transport has the highest terminal charges, high haulage costs (aviation fuel) and affects large numbers of people living on flightpaths near to airports. Its advantages (Figure 21.53) include speed over long distances both for passengers such as tourist and business people, and for freight especially if it is of high value (watches, diamonds), light in weight (mobile phones) or perishable (fruit). Apart from employing large numbers of people at airports, air transport is important to countries that are of considerable size (Brazil), where ground terrain is difficult (Sahara Desert, the Alps), when crossing stretches of sea (London to Belfast), or when relief aid is essential following a human (Rwanda) or natural (earthquake) disaster or international conflict (Afghanistan).

Since deregulation in the EU in 1993, there has been increased competition between existing airlines, a wider availability of routes and the advent of low-budget airlines with their reduced fares. This led to an increase in the number of flights, passengers and freight, with congestion at airports and competition for airspace. This increase in demand, especially during holiday periods and at 'hub' locations, has resulted in the building of more and larger airports.

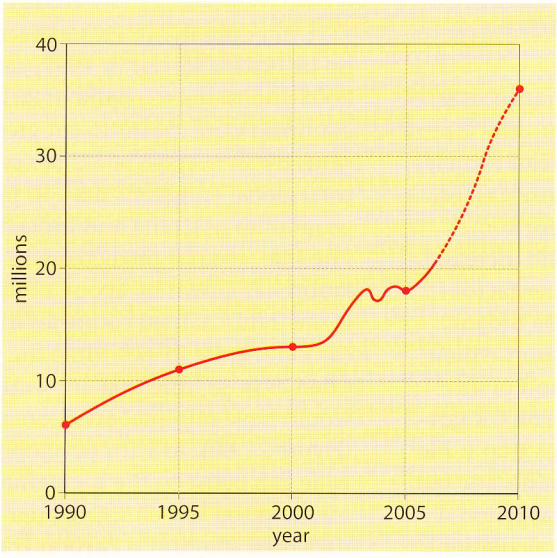
Beijing's third terminal, opened in time for the 2008 Olympics, is 2.9 km from end to end and is larger than all five Heathrow terminals put together (Figure 21.56). It will increase Beijing's passenger capacity from 35 million to 85 million. China plans to build another 97 airports by 2020, bringing the country's total by then to 239. National passengers have grown from 7 million in the mid-1980s to 185 million by 2007, in response to China's rapid economic growth.

This, and other world airport planned development, was before the surge in oil prices in 2008, which left airlines in a state of uncertainty, not knowing whether fuel costs will remain high, go higher or even fall, and air travel was included in carbon-credit trading.

Figure 21.56
Beijing's new Terminal 3

Places 105 London Heathrow and Dubai: 'hub' international airports

Figure 21.57
Numbers of people passing through Heathrow



Heathrow

Heathrow is the leading European 'hub' airport for international flights and is said to be Britain's main gateway to the global economy. A 'hub' is when, instead of small planes flying relatively short journeys between many cities, large planes fly between the biggest cities with feeder flights (Figure 21.57). Part of Heathrow's importance stems from the fact that 21 per cent of passengers arriving at the airport are 'in transit', just stopping long enough to change flights. This causes congestion in the airport and little income for the UK but is essential for filling seats on British Airways flights and maintaining the airport in pole position. However, to maintain this position it is argued that a third runway will be needed by 2015 and the two existing ones need to be used more. Events leading to the final decision will provoke a major economic, social and environmental debate. Some of the advantages and disadvantages of the proposed expansion are summarised in Figure 21.58.

Figure 21.58
Arguments for and against expansion

For expansion	Against expansion
• The prestige of being Europe's major 'hub' airport and the world's busiest. • Heathrow is vital to the British economy with 170 000 jobs dependent on it. • If Heathrow does not expand, flights and jobs will go to rival airports in Paris, Frankfurt and Amsterdam. • In 1991, 16 per cent of the total arrivals were passing through 'in transit'; by 2006 this was 21 per cent and by 2010 it is predicted to be 31 per cent (Figure 21.57). These are essential for filling, and maintaining, BA flights (40 per cent of Heathrow's total). • The environmental damage is exaggerated – aircraft only contribute 6 per cent of Britain's total carbon emissions, far less than cars and coal-fired power stations.	• Aviation is the fastest-growing source of avoidable carbon emissions, and must be curtailed. • Residents in the south-east will experience an increase in noise, congestion and pollution; some 700 existing homes will have to be demolished, and a further 150 000 people will be under the new flightpaths. • The new runway is expected to cater more for short-haul flights for which there are less damaging alternatives. • The vast number of the present 18 million 'in transit' passengers spend virtually no money as they pass through the airport, contributing little to Britain's balance of trade. • The airport already has a reputation for congestion, long delays and lost luggage.

Dubai

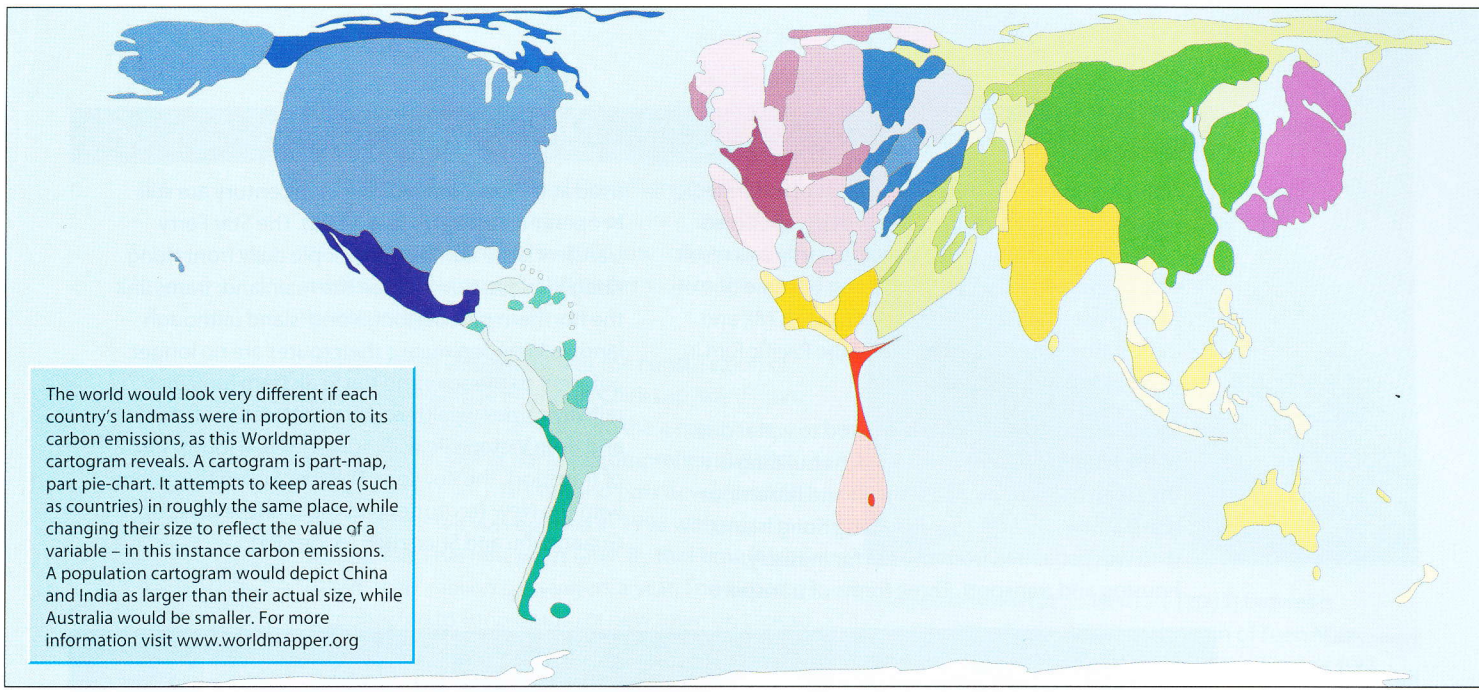
Dubai has made itself the new 'hub' for air transport in the Middle East and beyond. It is a time-zone bridge between the Far East and Europe on the east–west axis and between the CIS and Africa on the north–south axis. A third terminal was opened in 2008 to relieve pressure created by the 34 million passengers and 260 000 flights that used the airport in 2007. It has been constructed to take the new Airbus A380 which has 525 seats. Dubai's success as a 'hub' has been its linking together of seemingly unlikely pairs of cities, e.g. Nagoya and São Paulo, Moscow and Cape Town, Guangzhou and Dar es Salaam (Figure 21.59). Emirates airline also uses Dubai airport to link smaller cities with major world centres, for example passengers from Newcastle can fly to Dubai and have a night's rest before travelling on to places in Japan, China and Oceania.

Figure 21.59
Dubai as an air transport 'hub'

Transport, carbon trading and international agreements

After power stations and industry, transport is the major cause of carbon release into the atmosphere. The effect of cars and other road vehicles emitting carbon dioxide, a greenhouse gas, on global warming, have been known for some time. It is only more recently that the increase in air traffic has been seen as a further factor in climatic change. What is still to be broadly accepted is the effect of ocean transport which handles most of the world's trade, and of an increasing number of cruise liners. The UK government, as just one example, claims that it has reduced carbon emissions in the last decade but, as environmentalists point out, it has ignored both ocean and air transport in its calculations. If these emissions were included, it would mean that Britain had an overall increase in carbon emissions.

Under the Kyoto Protocol – which was drawn up in 1992, adopted in 1997, came into force in 2005 and is due to expire in 2012 – industrialised countries were meant to cut greenhouse gas emissions by an average of 5.2 per cent. Since Kyoto, total global emissions have in fact soared; the economies of China and India have boomed at a rate that was not predicted and the world's population has grown by about 1 billion. At present it is the industrialised countries that emit most carbon (Figure 21.60) while the poorest nations often emit so little that any cutbacks by them would have minimal effect on a global scale (Figure 21.60). As with development, there is a wide gap between the high-emitting rich countries and the low-emitting poor countries. One suggested solution is **carbon trading**. The EU already has an emissions trading mechanism in operation, together with voluntary offset schemes.



The world would look very different if each country's landmass were in proportion to its carbon emissions, as this Worldmapper cartogram reveals. A cartogram is part-map, part pie-chart. It attempts to keep areas (such as countries) in roughly the same place, while changing their size to reflect the value of a variable – in this instance carbon emissions. A population cartogram would depict China and India as larger than their actual size, while Australia would be smaller. For more information visit www.worldmapper.org

Figure 21.60

Cartogram to show contribution to carbon emissions by different parts of the world

Source: © 2006 SASI Group (University of Sheffield) and Mark Newman (University of Michigan)

Carbon trading is when each country is given a quota for its emissions. Those countries that emit most would be able to buy from countries that do not use their full quota, allowing those that emit less than their quota to earn money by selling their surplus. While this may be a way for the poorest countries to earn extra income, it hardly solves the global problem as rich countries will presumably buy extra credits rather than reduce their own emissions. Problems relating to international trade and transport would remain. Take two examples:

1 A country in the EU buys bananas, even through Fairtrade, from a country in the Caribbean. Which country is liable for the carbon transport emissions – the exporter or the importer?
2 Another country in the EU, or a TNC based there, orders goods to be made in China where they can be produced more cheaply. Is it the country/TNC that orders and sells the goods that is responsible for the transport emissions, or China where the goods were manufactured?

Carbon trading can only work through international co-operation but getting 200 countries with a wide divergence of interests to agree is a different matter. These interests include the following:

- The USA fears that a reduction in its emissions would mean job losses and a possible fall in the country's standard of living. It agreed, for the first time in 2008, to talk about emissions at the 2009 Copenhagen conference.
- The EU countries argue for a 30 per cent reduction but are finding it hard to achieve.
- Emissions of emerging countries, such as China and India, are surging and these countries are under no pressure to cut back. China, where numerous new coal-powered stations are being built, claims that it needs this energy to create jobs, while India says it needs the extra energy just to improve, or even to maintain, the standard of living of its rapidly growing population.
- Developing countries do not see why they should help solve a problem that was not of their making, and to do so would mean their being given money and technology by the developed countries.

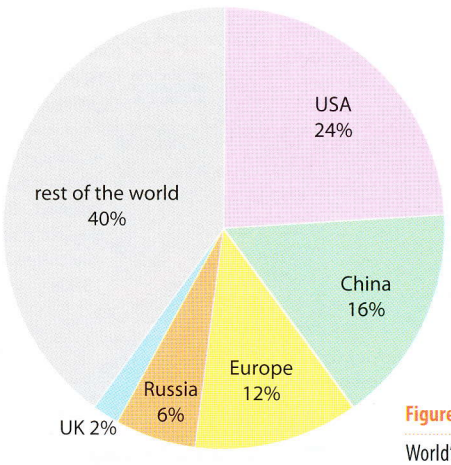


Figure 21.61

World's leading carbon contributors

Integrated transport systems

Although most long-distance transport is either by ship (freight), plane (passengers) or pipeline (oil and natural gas), both road and rail can be used to cross continents such as North America, or to travel from Western Europe to the former Eastern bloc countries. In an ideal world, there would be a stronger link between these various types, whereas in fact integrated systems tend to be limited to regions and large urban areas (Places 106) than being on a global scale.

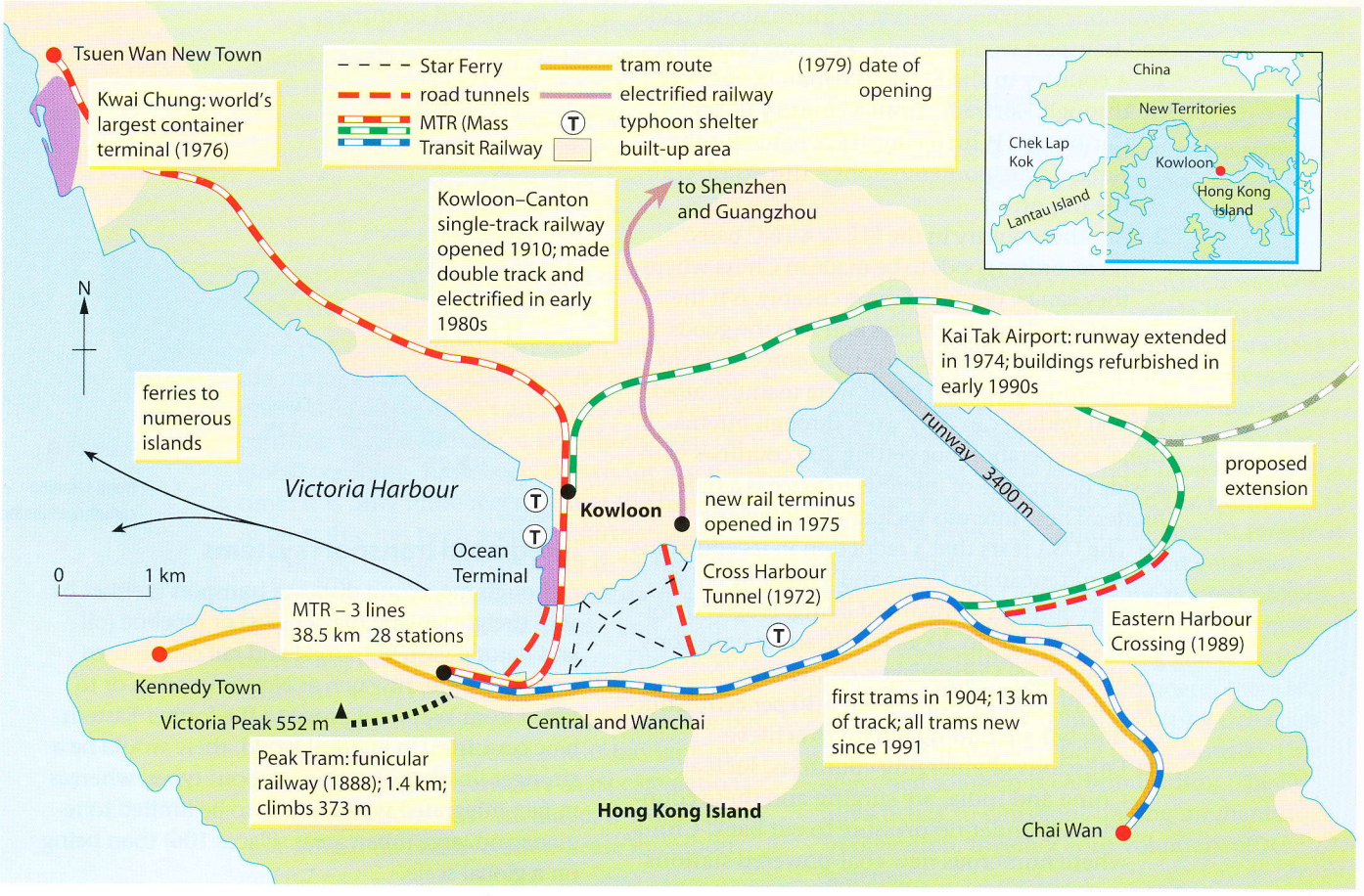
Places 106 Hong Kong: an integrated traffic system

Hong Kong originally grew as a result of its strategic trade route location and its large, deep, sheltered harbour, and continued to develop partly as a result of later industrialisation. Hong Kong became one of South-east Asia's four 'little tigers' (page 578), and trade with China in particular and the Pacific Rim in general expanded rapidly.

Early transport was mainly restricted to water due to the limited amount of flat land. As building on the steep hillsides proved difficult and hazardous (Case Study 2B), especially on Hong Kong Island, land was reclaimed from the sea for industry, housing and transport. Three forms of transport used at the beginning of the 20th century are still in operation today (Figure 21.62). The Star Ferry transfers large numbers of people daily from Hong Kong Island to Kowloon on the mainland; trams link the northern part of Hong Kong Island (although land reclamation means their routes are no longer adjacent to the sea); and the Peak Tram funicular railway carries wealthy commuters and tourists to and from Victoria Peak (Figure 21.63). A fourth form of transport, the Kowloon Railway, linked the colony with the New Territories and the Chinese cities of Guangzhou and Shenzhen (page 581).

Figure 21.62
Hong Kong's Star Ferry, funicular railway and tram

Figure 21.63
The development of transport in Hong Kong before 1992



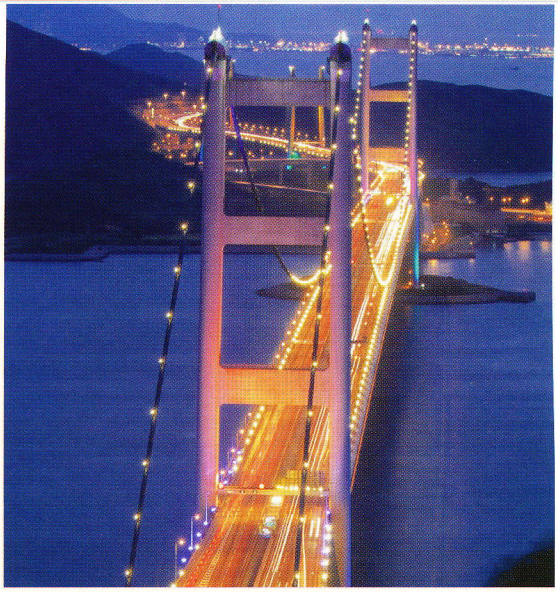


Figure 21.64
The Tsing Ma bridge

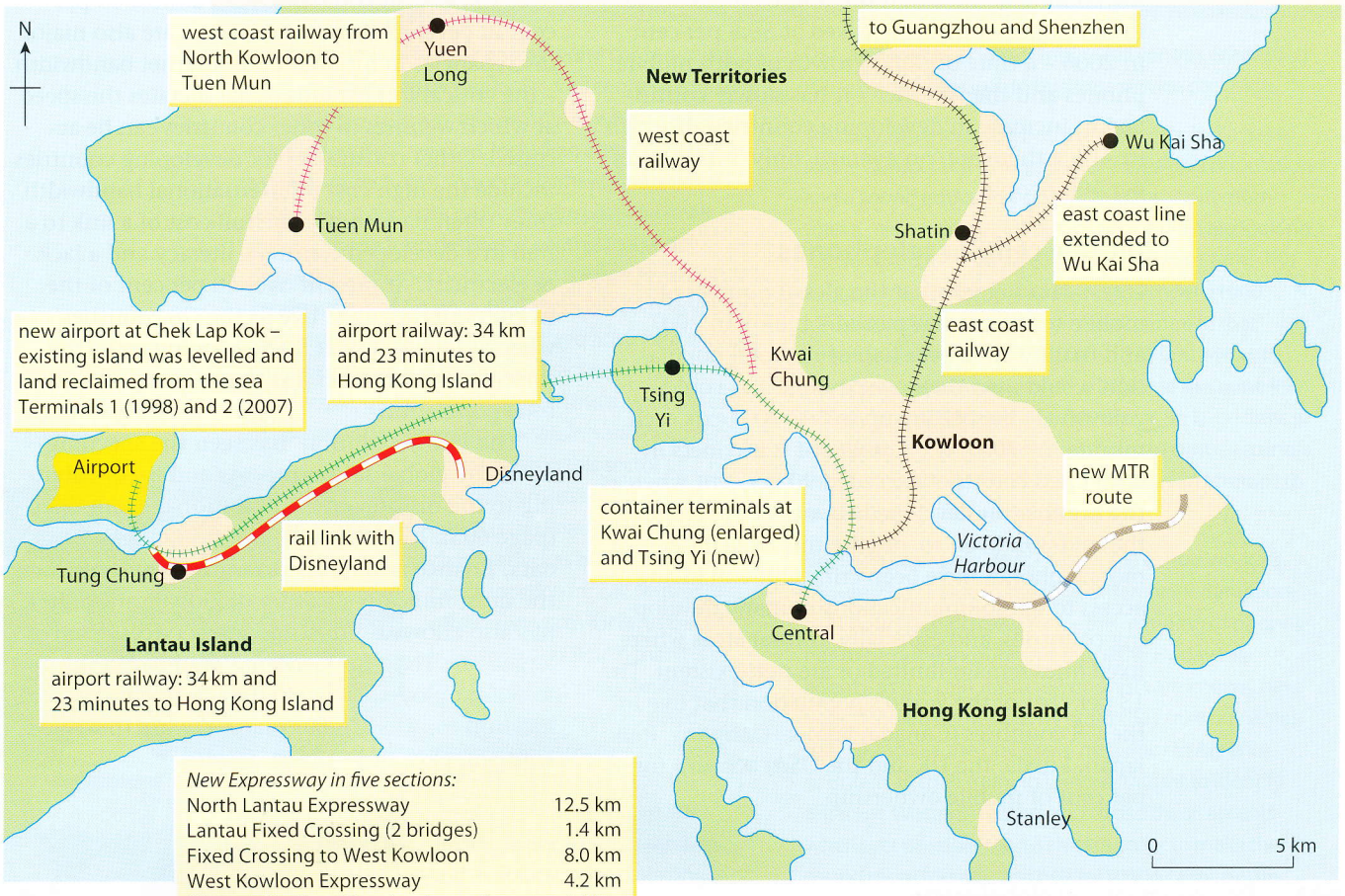
Transport since 1997

In 1997, the British handed Hong Kong back to China and the former colony became a Special Administrative Region. By 2008, the following additions and changes had been made to the transport system.

The largest development was the construction of a new international airport at Chek Lap Kok (Figure 21.65). The decision to re-locate the airport here was made in 1989 as part of a comprehensive plan to incorporate air, road, rail and port developments. The airport itself was opened in 1998 with a second terminal nine years later. By that time it was handling 47 million passengers a year. The airport is connected to Tung Chung (a new town on Lantau Island), Kowloon and Hong Kong Island by a 27 km expressway that includes two bridges (Figure 21.64) connecting islands west of Kowloon, and a new tunnel under Victoria Harbour. Adjacent to the expressway is the Airport Express (AEL) whose trains cover the 35.3 km to Hong Kong Island in 24 minutes. Of two new MTR lines, one connects with Disneyland on Lantau Island and the other was built between eastern Hong Kong Island and eastern Kowloon using yet another new under-harbour tunnel. At present the MTR tracks cover 91 km and have 53 stations. The Kowloon–Canton Railway (KCR) has extended its east coast line (2004), and opened a new west coast route (2003) between northern Kowloon and the new town of Tuen Mun (Figure 21.65). These two routes will themselves be linked in 2009. The east coast route of the KCR now provides a high-speed direct link with Shanghai and Beijing. The port of Hong Kong received 39 000 vessels in 2006 while the twin container terminal of Kwai Chung and Tsing Yi remains one of Asia's largest although it has now been overtaken by Singapore (Places 104) and Shanghai (Case Study 15B).

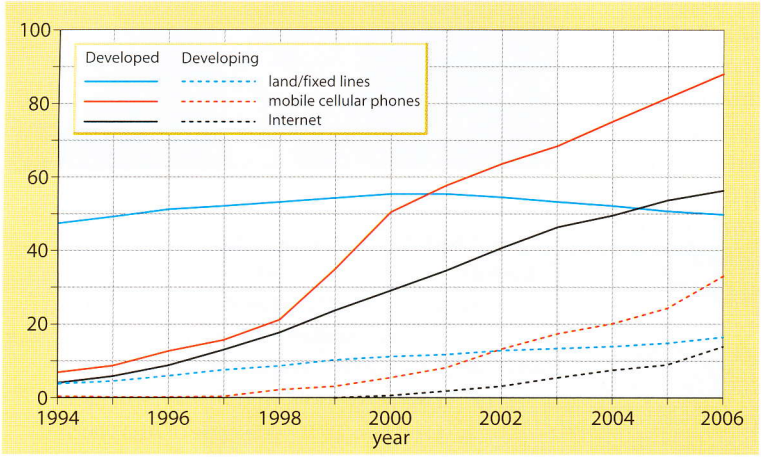
Each day, about 11 million passenger journeys are made including over 4 million by bus, 3.8 million by MTR, 1.4 million by rail, 240 000 by tram, 155 000 by ferry and 28 000 by AEL.

Figure 21.65
Transport developments since 1997



Information and communications technology (ICT)

Since the mid-1990s, the telecommunications/ICT sector has undergone major changes. Indeed when a previous edition of this book was being written in 1998 and when the latest figures available would have been for 1996, only 12.9 per cent of the world's population possessed a fixed or landline telephone; only 2.5 per cent owned a mobile cellular telephone; and only 1.4 per cent had access to the Internet (Figure 21.66). Consequently this section did not appear in that book. Within a decade these **space-shrinking technologies** have become a major reason for the growth and spread of globalisation.



ICT	Developed countries %		Developing countries %	
	1994	2006	1994	2006
Fixed lines	48.8	51.5	4.4	13.9
Mobiles	5.2	90.9	0.2	32.4
Internet users	2.2	58.6	0.03	10.2

Figure 21.66

Fixed telephone lines, mobile cellular phones and Internet users per 100 inhabitants, 1994–2006

Fixed telephone lines (landlines)

Fixed lines were easily the most available of the three forms of ICT in the 1990s with a frequency ten times greater in developed than in developing countries. Although the number of landlines in developed countries peaked at 56.8 per cent in 2000 – a time of rapid growth of both mobile phones and the Internet – it has slowly continued to increase in developing countries although in Africa there are, on average, only 3 fixed lines per 100 people.

Mobile cellular telephones

Latest data suggest that the global number of mobile telephones surpassed 3 billion in 2007 and that by 2008 over half of the total population would own their own mobile and could collectively be sending up to 300 000 texts each minute. By 2007, the number of subscribers in developed countries exceeded 90 per cent whereas the number for developed countries was still in the mid-30s. Even so, despite this large difference, mobile phones have been critical in enhancing access to telecommunications in many developing countries, and especially in rural areas where fixed lines remain limited or are non-existent. The 13 per cent of the world's population that live in the G8 countries (Canada, France, Germany, Italy, Japan, Russia, the UK and the USA) account for 30 per cent of mobile ownership.

Internet

Although access to the Internet has also been growing rapidly, the number of users in developing countries again remains limited with only just over 10 per cent compared with almost 60 per cent in developed countries. There are also major discrepancies in international Internet bandwidth – the critical infrastructure that dictates the speed at which websites in other countries can be accessed. Other constraints for developing countries include the high cost of international bandwidth (they often have to pay the full cost of a link to a hub in a developed country), literacy and a lack of electricity. At present over 40 per cent of the world's Internet users live in the G8 countries whereas in as many as 30 developing countries, Internet users number less than 1 per cent of the total population.

The ICT 'revolution' has seen the speeding up of the globalisation process and is contributing to the disintegration of national economies (page 605). It is, arguably, the resultant flow of data, finance and migrant remittances that forms the most indicative feature of globalisation. ICT has also allowed industries and services, from large-scale TNCs and international banks down to self-employed individuals, a freer choice of location for their site or place of work (post-Fordism, page 561).

The global value chain

The **value chain**, a later development of the **commodity chain**, is a connected group of activities that are required to see a product through a series of stages from concept-design to marketing-distribution (Gereffi 1994). The process of globalisation has promoted two types of chain:

1 The **producer-driven chain** is characteristic of capital- and technology-intensive industries (automobiles, computers and other high-technology activities) where the system is controlled by large TNCs.
2 The **buyer-driven chain** is typical of labour-intensive activities such as the fashion industry (Case Study 21), retailing (Wal-Mart – Figure 19.46 – and Ikea) and merchandising (Nike and Adidas) which involves the setting up of a global network and which increasingly depends on access to, and advances in, ICT.

The value chain involves dividing the industry into several components, each of which may be located in a country that offers the lowest-cost factors. For example:

- The head office for administration and from where raw materials may be ordered and designs for the product drawn is in the USA with its available finance.
- Research and development (R&D) into improved methods of processing is carried out in the UK with its skilled technical labour force.
- Processing/manufacturing of parts is done in China where labour is plentiful and cheap (Case Study 21), although the final assembly may be in an NIC such as Malaysia.
- Marketing and distribution are carried out in North America and the EU with their large and wealthy consumer markets.
- After-sales and customer services operate through a call centre located in India (Places 107), taking advantage of its low-priced but skilled labour.

Each year, the value chain becomes more complex, dynamic and service industry oriented. The issue is where and when can value to a product be added and how far can factories and locations at the lower end of the chain manage to upgrade (Places 102 on chocolate in Ghana). For example, in the garment industry (Case Study 21), where design adds considerable value, sub-contractors in places such as Turkey and India used only to make the clothes designed elsewhere but now, increasingly, they design their own.

Places 107 India: call centres

The rapid growth in **call centres** is one consequence of space-shrinking technologies. Call centres represent a company–customer relationship in which a wide range of support services, including after-sales advice, marketing, technical support, claims enquiries, seat reservations and data provision, are provided over the telephone from dedicated centres to a widely dispersed customer base by firms such as American Express, Bank of America, BT (British Telecom) and Dell. Call centres provide information and advice for existing customers as well as trying to attract new ones. In the last decade, globalisation has seen India, with the city of Bangalore in particular, specialising and becoming a world hub in this sector of business process outsourcing, which is the final link in the value chain. India has become such a prime location for call centres and offshore services for firms based in the USA and Britain that it is in danger of becoming stereotyped for providing that specialised type of service, rather than being known for its wider economic development. It is the world's leading exporter of ICT services and its volume of outsourcing is doubling every three years, to the USA and the UK. Some of India's call centres are adding value by moving up into business service provision.

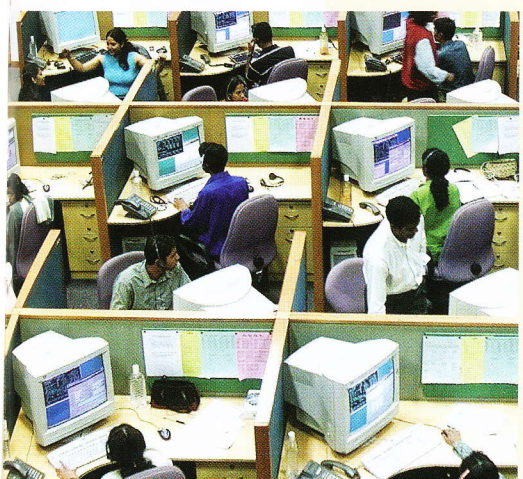


Figure 21.67
A call centre in Bangalore

To many American and British employers, India has a stable democracy, a huge English-speaking population and a sound education system that turns out more than a million graduates a year, all of whom are looking for well-paid jobs. But 'well-paid' is a relative term. The average income per capita in India is under $1000 a year; for a person working in a call centre in that country it is between $15 000 and $25 000 a year; to pay someone in America or the UK to do the same job is likely to cost $70 000–$90 000 a year. So large firms in the Western world are moving their call centres to India in order to reduce their financial costs in an attempt to remain competitive in today's world.

But it is not an easy life for Indian call centre workers (Figure 21.67). Due to the time difference – Bangalore is 11 hours behind New York – the manning of phones has to be done throughout the night. By day the agents, as the call centre telephonists are known, have typical Indian names but by night they take on names that sound like the boy or girl next door in America or Britain. In their training they are taught to identify different 'Western' accents and to use those accents whenever possible themselves in order to make them sound more friendly and helpful to the caller. By the end of their training, only 5 out of every 100 of the

21 Case Study

China and India: globalisation in the textile and fashion industry

In the early 19th century, Britain was a leading producer of textiles. At that time, it imported silk from China and some cotton from India. Later, Britain began exporting textile machinery to countries such as India which were then able to export manufactured textiles back to the UK. This, on hindsight, was the beginning of globalisation in industry and the creation of a relatively simple value chain.

Today, the mention of globalisation can provoke extreme opinions. Certainly its impact on the peoples and economies of both China and India has been considerable – sometimes for the good, sometimes for the worse. But this impact of globalisation has not just been one-way. The growth of the Chinese and Indian economies has affected many people across the world, again sometimes for their benefit, sometimes to their detriment. The textile and fashion industry provides a good example of how a global value chain affects people and where, as so often is the case, some are winners and some are losers:

garment design (sourcing) → production → retail (sales) → supply (wearing)

China

Many designer clothes, including sportswear, trainers and jeans, are produced on a global scale by large TNCs which have located their main production factories in developing countries, especially if, like Mexico and Turkey, these countries are near to the market for mid-range products. As designs and styles of clothing are constantly changing, then it is quicker, easier and cheaper to get employees to adapt to these changes than it is to replace expensive machinery geared to specific garments. This means that the TNCs locate their main factories in countries like China where labour costs are still low, although in China's case many garment factories were initially financed from Hong Kong.

Many people living near to new textile and fashion factories, which have modern machinery, have **benefited from globalisation**. They are likely to get the better jobs and, should two or three members of the family also be employed, may earn enough to build a new house for themselves (Figure 21.68a). Unlike the house they will have left, this will be larger, lighter and cleaner; it will have electricity, running water and sewerage; and the new owners can probably afford a washing machine, TV, fridge and computer.

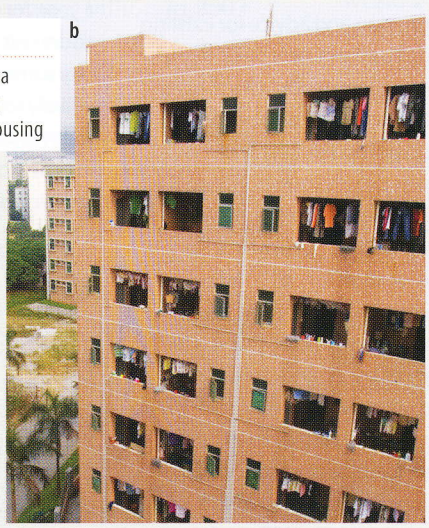


Figure 21.68
Housing in China
a New housing
b Dormitory housing

However, the number of new factories that have opened has greatly exceeded the supply of local labour. This has led to thousands of people from the surrounding poorer, rural areas being attracted to the large cities, creating a scale of rural to urban migration never before seen anywhere in the world (page 366). As is so often the case, the reality of urban factory life is far from the migrants' perception and so China's 150 million migrant workers, many of whom are women, have **benefited less from globalisation**. They are likely to get the worst jobs, may have to work more than 12 hours a day for at least six days a week, and earn under £100 a month (£4 a day). The worst factories have been described as 'sweatshops' as working conditions are often cramped and sometimes unhealthy and the jobs repetitive and boring (Figure 21.69). Accommodation may be in single-sex dormitories (Figure 21.68b), sharing a room with up to 12 other workers. There is little space or privacy, and washing facilities may have to be shared with up to 50 people. Most of their wages will be sent home as remittances but the workers can rarely afford to return to their villages themselves.

Figure 21.69
Sweatshop conditions

Figure 21.70
Women sewing in a small shop/workshop

There is another group of people who certainly have **not benefited from globalisation**. Tang Lee's family have been making children's clothes in Beijing for five generations and then selling them in their small shop in a quiet back street (Figure 21.70). Now his business is failing in the face of globalisation. As China becomes richer, more of its people can afford the brand-named fashion products that are pouring into or being made in China and which are available for sale in the hundreds of new, large department stores. Added to this, the increase in the number of foreign television programmes has made the Chinese, especially the younger ones, more aware of 'Western-style' designer products. As Tang Lee said: 'People want whatever they see on television but it will mean the end of small clothes makers, small shops and the traditional Chinese culture'.

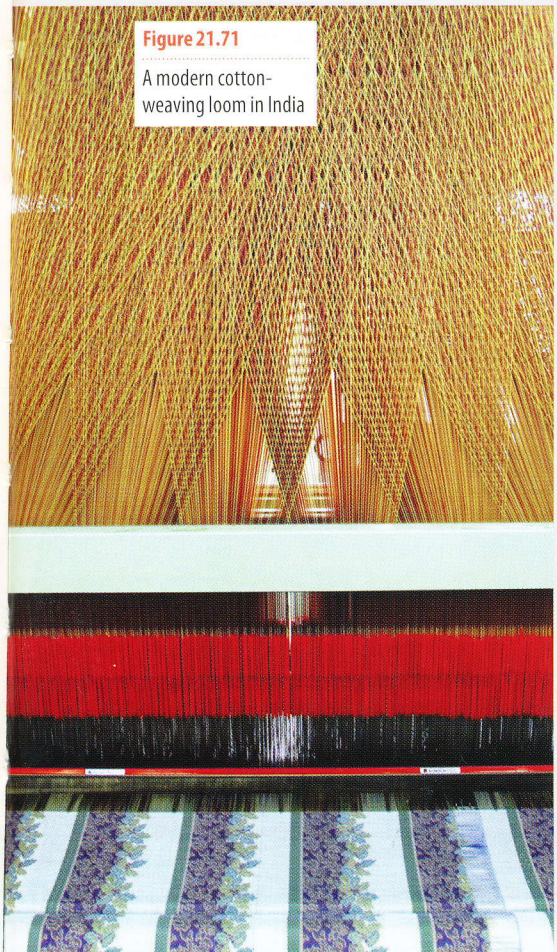


Figure 21.71
A modern cotton-weaving loom in India

India

In 2005, India's newspapers reported that, due to the end of textile quotas and Chinese trade disputes, 'exports to the USA had increased by 36 per cent and the textile boom has given jobs to India's poor' and a government minister predicted that 'as many as 12 million jobs could be created in the textile sector over the next few years'.

The globalisation policy of the government has seen the construction of modern capital-intensive spinning mills that use modern technology (Figure 21.71); the introduction of a promotion and marketing strategy aimed at capturing both the urban and rural market; and a diversification in the range of the products which are aimed to be low-price and high-quality. The industry has also invested heavily in acquiring sophisticated high-technology equipment and tools from overseas countries and introduced production and marketing collaboration with foreign manufacturers. The high-volume production of quality synthetic and cotton items, which has benefited so many people as well as the national economy, has, however, given it a competitive advantage over traditional handloom products.

The government has recognised the impact that the entry of global competitors is having on the handloom sector (Figure 21.73) which is mainly located in rural areas and operated by women working in weaver communities (Figure 21.72). The weakening of the handloom sector is posing a serious threat to the socio-economic life and livelihood of traditional weaver communities in general and the socio-economic status of rural women working in those communities in particular. As rural women constitute a major segment of the labour force in the handloom industry, it will have a far-reaching effect on the government's drive for rural poverty alleviation and economic empowerment for women.

Figure 21.72
Hand spinning yarn – in a weaving community

21 Case Study China and India: globalisation in the textile and fashion industry

Although Bangalore has become the global hub for call centres (page 643), it is still important for textiles. Figure 21.74 describes how the less wealthy, less educated members of the community can also benefit from globalisation.

> With increasing globalisation, the degree of competition for marketing textile items has intensified with the entry of foreign suppliers and foreign brands. The position and share of handloom products has been suffering by the entry of major competitors. It is imperative that the handloom industry sector, with its distinct and unique features, prepares and strengthens itself to meet the challenges and intensity of competition in the global and internal market.
>
> *Source*: Ministry of Human Resource Development, government of India

Figure 21.73
Extract from a government report

> Champa Kala does not have the English nor the computer skills needed to find work in one of the many call centres located in the skyscrapers of central Bangalore, nor with one of the software firms that have transformed the region into a high-tech hub. Instead she works in an industrial suburb as a seamstress in a new garment export factory which, since the expiration six months earlier of a 30-year-old global system of textile quotas and the end of a long USA–EU trade dispute with China, is part of India's booming textile sector.
>
> Naturally she does not earn the wages nor work in the air-conditioned atmosphere of a call centre but she is happy enough simply to have found a job that pays around $1200 a year as she helps produce jackets for Gap Inc.
>
> Many economists believe that it is new factories like this that typify the low-end, labour-intensive manufacturing sector that India needs if it is to improve the standard of living of its 400 million low-skilled, poverty-stricken citizens who live on less than $1 a day and who have been largely by-passed by the country's high-end job growth. A director for the garment factory claimed that it was providing jobs for the illiterate and semi-illiterate classes by taking up to 300 people a week straight from villages and farmland and, within a month in their training centre, giving them the skills to work the machines. The garment firm opened this factory in 2004 and within 12 months employed 1600 people. It has since opened several more in the region. In 2006 the textile sector, which nationally employed 35 million people and generated $14 billion in exports, had raised the hopes for sustained job creation, especially if India's share of the global textile market rises from the 4 per cent of 2004 (China had 20 per cent) to a predicted 15 per cent by 2010.

Figure 21.74
Textiles in Bangalore

China, the EU and North America: the quotas row, 2005

This crisis had its origins in the scrapping, at the beginning of the year, of the Multi-Fibre Arrangement (MFA) which set quotas on how many garments could be imported from individual countries into the EU and North America.

Cheaper manufacturing costs in China mean that it can undercut other countries by up to 25 per cent and so hundreds of retailers switched production there (as manufacturing costs in China are only 4 per cent those of the USA and the EU, then production, packaging, shipment to and then distribution in the EU and the USA can all be paid and still leave a decent profit). As a result, imports from China soared by up to 1200 per cent and, by the middle of the year, several *billion* more garments were en route to European markets.

Within months, at least 50 000 jobs were lost in traditional textile countries in South-east Asia as factories closed down, and by the end of the year over 1 million jobs were to be lost in Bangladesh, Sri Lanka (still recovering from the previous year's tsunami), Cambodia and the Philippines (Figure 21.75). According to the UN, these countries lost 10 per cent of their export earnings in eight months. However, it was only when firms in Italy (Europe's leading garment manufacturer), France and the UK began closing that the EU acted. In July it imposed quotas on ten categories of garments coming from China in order to protect its own domestic market from a deluge of cheap goods – but by then more than 80 million items were already made up and on their way!

Retailers in the EU were unhappy, claiming that the quotas inhibited free trade and that consumers would be hit through price rises and shortages of jumpers, jeans, trousers and lingerie. Campaigners said that Western demand for cut-price clothes was fuelling a vicious circle of supply-chain switches, rapid wage reductions in the poorest countries and worsening labour relations globally. They argued that the introduction of quotas was protectionism at its worst and that while the EU had been preaching to the developing countries about the need to open up their markets, the EU then imposed restrictions to protect their own. The general secretary of the International Textile, Garment and Leather Workers' Federation said: 'Our concern is that countries like Bangladesh and Sri Lanka are being forced to try to undercut China and each other. They can only do this by increasing their already long working hours and reducing their already low wages. Garment manufacturing provides one of the few economic opportunities for poorer countries to raise their incomes. Now people working in textile factories in those countries are having to live at a subsistence level, and undercutting means that these nations cannot lift themselves out of poverty.'

Although the crisis was eventually brought to a conclusion, it did not prevent further factory closures and job losses in both developing countries and the EU as China continues to dominate the world's garment trade (Figure 21.76).

The quotas row, the rise of China, and the West's demand for cheaper clothing, are consigning hundreds of thousands to poverty.

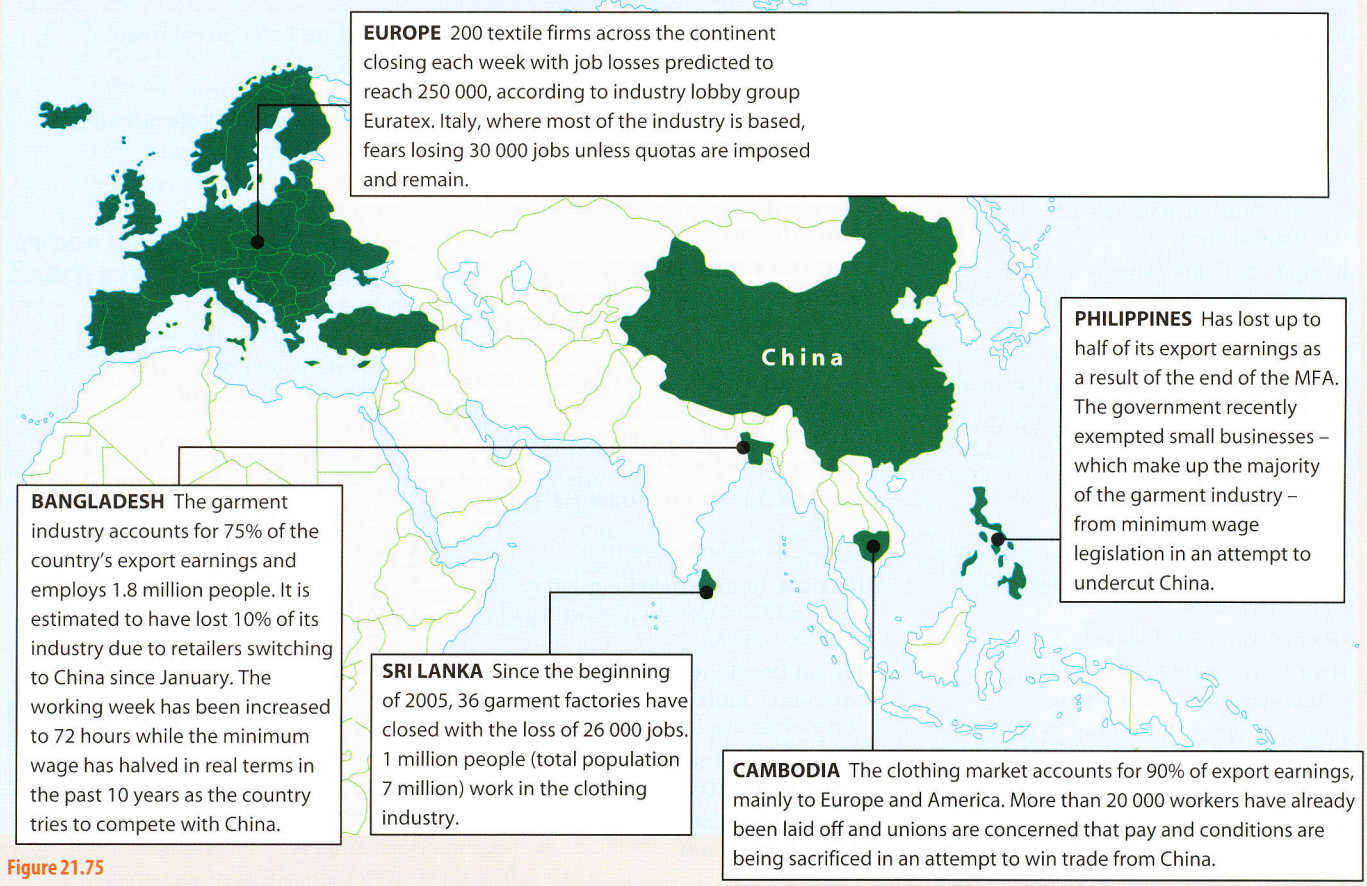


Figure 21.75

The quotas row: the situation in August 2005

Figure 21.76

From the *Newcastle Journal*, February 2008

Slow death of region's textile industry

THE North-East clothing and textile industry has been in decline for two decades, when customers such as Marks & Spencer – which once prided itself on selling British-made clothes – began to source garments from cheaper foreign suppliers.

Dewhirst, once one of M&S's largest suppliers, employed up to 20,000 people in the UK at one stage. Now, the business has around 1,500 British staff, mainly in design, sampling and office-based roles. In the region, it retains a menswear manufacturing site in Sunderland and a plant in Peterlee.

Much of the work at these two sites is alterations to clothing that is made abroad. The region's textile industry has been hit hard by cheap imported goods in recent years. Since the late 1990s, more than 5,000 clothing jobs have been lost in the North-East.

The North-East's textile industry is made up of around 600 firms – mainly working in the areas of design, laundry and distribution – the majority of which employ fewer than 20 staff.

The manufacturing side of the business tends to concentrate on quality, expensive goods such as the garments made by Barbour in South Shields. Beau Brummell in Seaham makes blazers and other school clothing.

Fred Kirkland, from the North-East Textile Network and Skillfast – the UK sector skills council for fashion and textiles – said: 'Clothing and textiles as an industry has changed and moved on. What we do retain is the design and technical aspect. This is the high value end of the industry. It is very important we keep these skills in order to compete with companies abroad.'

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Questions & Activities

Activities

1 a i What is meant by 'gross domestic product' (GDP) per capita? *(2 marks)*

ii Why is this often chosen as a useful indicator of a country's level of development? *(2 marks)*

iii Sometimes the Human Development Index (HDI) is used to indicate level of development, rather than using GDP/capita. What are the advantages of using the HDI? *(4 marks)*

b Study Figure 21.3 on page 606.

To what extent does this map support the view that the old division of the world into the 'rich north' and the 'poor south' is no longer very useful? *(7 marks)*

c Choose one of the following sets of statistics that can also be used to show development:

- energy consumption/person
- number of doctors/thousand people
- level of education of females.

Explain why your chosen set of statistics is a good indicator of a country's level of development. *(10 marks)*

2 **a** The Rostow model shows the economy of a country going through five stages:
- traditional society
- preconditions for take-off
- take-off
- the drive to maturity
- high mass consumption.

Describe the characteristics of each stage. *(10 marks)*

b In Myrdal's core–periphery model, why does population often move from the periphery towards the core? *(5 marks)*

c Name a country that shows evidence of having a core and a periphery. Explain how Myrdal's model helps you to understand the distribution of economic development in that country. *(10 marks)*

Exam practice: basic structured questions

3 Study Figure 21.36 on pages 626–627.

a Describe the main features of the imports and exports of:

i the developed countries (USA, UK and Japan) *(3 marks)*

ii the OPEC countries (UAE and Nigeria). *(3 marks)*

b Choose **one** of the emerging market countries (China or India) and explain how that country has succeeded in developing its economy in recent years. *(9 marks)*

c Referring to **two** developing economies, for example Kenya and Sierra Leone, explain how changes in the world trade system might help their process of development. *(10 marks)*

4 **a i** What is a 'hub' airport? *(2 marks)*

ii Name **one** international hub airport and explain why it has become important on a world scale. *(3 marks)*

b Discuss the economic and environmental arguments for and against an increase in the number of aircraft flights around the world. *(10 marks)*

c Name **one** city with an integrated transport system. Outline the main components of that system and explain the social, economic and environmental benefits of the integrated system. *(10 marks)*

Exam practice: structured questions

5 **a** Choose **one** of the MDGs in Figure 21.77 numbered 2, 3, 4 or 5. Explain why your chosen MDG can make an important contribution to the development of poor countries. *(5 marks)*

b Many people think that HIV/AIDS is a disease that is particularly damaging to the development process in many poor countries.

Suggest reasons for this view. *(8 marks)*

c With reference to **one or more** case studies, show how the process of economic development can take place whilst also ensuring environmental sustainability. *(12 marks)*

1	Eradicate extreme poverty and hunger
2	Achieve universal primary education
3	Promote gender equality and empower women
4	Reduce child mortality
5	Improve maternal health
6	Combat HIV/AIDS, malaria, and other diseases
7	Ensure environmental sustainability
8	Develop a global partnership for development

Figure 21.77
The eight Millennium Development Goals (MDGs)

6 **a** Explain the importance of capital investment in Rostow's model of industrial development. *(4 marks)*

b Barke and O'Hare developed a different model to help explain the way many African countries were developing. Explain the importance of transnational corporations in their model. *(5 marks)*

c Name a country where a clear core–periphery relationship exists. Explain why the core developed much more than the periphery and discuss whether the difference between the core and the periphery is likely to be reduced in the future. *(15 marks)*

7 **a** Study Figure 21.33 on page 623.

Discuss the economic and social significance of the prevalence of HIV infection in the different age cohorts in Botswana, and in similar countries of southern Africa. *(12 marks)*

b Outline the main features of the epidemiological transition model, and explain how a study of the model can help with an understanding of the process of economic and social development. *(13 marks)*

Exam practice: essays

8 With reference to **one** country where there are marked differences between the level of development in the core region and the periphery:
- explain why the different levels of economic development have arisen
- explain what the government is doing to try to reduce the differences between the core and the periphery. *(25 marks)*

9 With reference to countries at different stages of economic development, discuss how globalisation has affected *either* the textile and clothing industry *or* the ICT industry. *(25 marks)*

10 'Free Trade is more important than Fair Trade in encouraging the economic development of the poor countries of Africa, South America and Asia.'

Discuss this statement. *(25 marks)*