

Unit 2 Geographies of human wellbeing

An unequal world

The city of Sao Paulo in Brazil is home to more than 11 million people. Like many cities around the world today, there are huge differences between the way people in some parts of the city live compared with others. The access they have to food and fresh water, the types of houses in which they live, their levels of education, access to health care and levels of employment vary enormously. Geographers are interested in measuring these variations and exploring the reasons why they exist. Studying the links between all of these factors gives geographers an idea of the level of **wellbeing** in different populations. Wellbeing is an overall measure of the ability of human beings to access the things they need in order to live happy and healthy lives.

In this chapter we will explore some of the reasons why these enormous variations in wellbeing exist in different populations around the world and look at some of the many ways in which geographers measure them.



chapter 4

4A

How does wellbeing vary around the world?

- 1 Compare the standards of housing that you can see in the Paraisópolis favela with housing standards in the region where you live. What are the similarities and differences?

4B

How does wellbeing vary within countries?

- 1 What variations in living standards can you identify between those living in the favela and those living in the apartment block?
- 2 Why do you think these variations exist in such a small area?

Source 1 An apartment building with a pool and tennis court shares a fence with one of Sao Paulo's largest favelas (a shanty town or slum), Paraisópolis (meaning 'Paradise City'), home to about 100 000 people. This scene starkly illustrates the inequalities in wellbeing worldwide.

4.1 Defining wellbeing

Geographers define wellbeing as the ability of people to access the things they need in order to live happy, healthy and contented lives. Whether a person is born in a refugee camp in Tanzania, a megacity in China, a rural town in France or a coastal city in Australia, their basic requirements for life are the same. The primary requirements include fresh water, a secure food supply, shelter, clothing, and safety. Once these primary needs have been met, secondary needs, such as good health, the ability to make a decent living and access to education become important in determining an individual's level of wellbeing.

The ability to meet these needs varies a great deal within communities, within countries and between countries. Many people around the world struggle simply to find enough food to eat or enough water to drink every day. Other people lack access to good health care or the ability to send their children to school. These experiences lead to a wide range of variations in human wellbeing. Geographers are interested in describing these variations and exploring possible reasons for them. They are also interested in analysing any strategies introduced to improve wellbeing and offering possible responses to resulting problems.

Three of the most important variables that influence levels of wellbeing around the world today are wealth, health and education.

Wealth

Our access to the basic necessities of life (and other wants we may have) are determined largely by our degree of wealth and our ability to earn a living. Wealth is generated by producing and selling things, earning wages from work, making investments or owning assets. If we have enough wealth, we can use it to access a wide



Source 1 China has one of the world's fastest growing economies. However, as in all countries, wealth is unevenly distributed.

variety of goods and services. If we do not, we may struggle to buy things such as food, medicine and tools that we could use to generate more wealth (see Source 1). There are huge variations in wealth across the globe. It is estimated, for example, that the wealthiest one per cent of adults own 40 per cent of the world's assets and that the three richest people in the world are wealthier than the world's 48 poorest countries combined.

Health

Human health is affected by a wide range of factors. Clean air, clean water and a secure supply of nutritious food are all vital but other factors are also important. These include the ability of a community to treat and control the spread of diseases, provide health care when individuals are sick or injured, care for the vulnerable such as babies and the aged, and provide emergency services in times of crisis. Access to health care is vital during natural disasters such as a drought or man-made disasters such as war, which can limit supply of food and water. People living in war-torn countries often struggle to find the basic requirements needed for a healthy life.



Source 2 People in Singapore enjoy one of the world's best healthcare systems. A baby born in Singapore is 45 times more likely to survive their first year of life than a baby born in Afghanistan.

Education

Access to a formal education is viewed by many people as the key to improving wellbeing. Being able to read and write gives people access to a greater number of services and provides a range of options that can lead to better jobs, higher wages and improved standards of living. Education also increases people's self-esteem and allows them to have more control over their future.

In many communities, education is difficult to obtain. In many countries, poverty and conflict are the two major reasons why children do not attend school. Education can be especially difficult for girls to obtain, because in many cultures educating boys is seen as more worthwhile. While parents may work hard to send their sons to school, they prefer to have their daughters helping out at home.

Despite these obstacles, rates of schooling and literacy (the ability to read and write) are increasing around the world. In Sub-Saharan Africa, for example, the enrolment rates of children in primary school rose from 58 per cent in 1999 to 76 per cent in 2010. This means that 43 million more children received a primary education in the region by 2010. In wealthy countries, such as Australia, New Zealand and the United States, education is seen as so valuable that it is made compulsory, free and universal.



Source 3 In 2013, about 74 per cent of Indian adults could read and write. This compares with a rate of just 12 per cent in 1947. Despite this dramatic improvement, India is home to the world's largest number of illiterates.

Check your learning 4.1

Remember and understand

- 1 Write your own definition for the term 'human wellbeing'.
- 2 Why is access to education seen by many as the key to improving wellbeing?

Apply and analyse

- 3 What are some of the ways in which a person's wellbeing could be measured?
- 4 Describe the contrasts in wealth shown in Source 1.
- 5 Why do you think survival rates of babies are so poor in Afghanistan? Make a list of possible reasons. Explain why the survival rates of babies are so much better in Singapore.

Evaluate and create

- 6 Conduct some research and describe wellbeing in Australia. Use the headings of wealth, health and education to guide your description.
- 7 Which photograph on these pages best shows what wellbeing means to you? Give some reasons for your answer.

4.2 Different views of wellbeing

The way in which we define wellbeing is dependent on a large number of factors. These include our values, beliefs, history, environment, level of education, language and culture. People from different environments and cultures often view wellbeing in vastly different ways. For example, owning your own home might be considered a factor that increases wellbeing, but in many Indigenous Australian communities guardianship of the land is considered more important to wellbeing than individual ownership.

Common indicators of wellbeing

Geographers often rely on a range of **quantitative data** to measure and compare levels of wellbeing around the world. Two of the most common measures used today include **Gross Domestic Product (GDP)** and **literacy rates**. These measures are referred to as universal indicators because, while they are not perfect, the data they provide is easily obtained and allows geographers to make basic international comparisons.

Gross Domestic Product (GDP) provides a measure of the total market value (i.e. the monetary value) of all the goods and services produced in a country in a given year. By dividing the GDP of a country by the total number of people living there, the GDP per capita can be calculated. This gives an approximation of the value of goods and services produced per person in the

country each year. This data is then used to assess the average productivity and wealth of individuals.

Another universal indicator used to measure and compare wellbeing around the world is literacy rates. Literacy rates give an indication of the number of people in a population who are able to read and write. Data relating to literacy is often used as a measure of educational results in different countries. In general, low levels of literacy and education can impede the economic development of a country and affect wellbeing.

Although universal indicators like GDP and literacy rates are commonly used by geographers, they do not provide an objective and complete picture of the situation. For example, relying only on GDP to measure wellbeing assumes that feelings of wellbeing in a population are based exclusively on how much money people have. In the same way, using only literacy rates assumes that feelings of wellbeing are linked exclusively to people's level of education. From our own experiences we know that it's just not that simple. These quantitative measures do not take into account the many different attitudes and values of people within a population, nor do they give an indication of how satisfied individuals may feel with their place in society. In order to give a more complete picture, a range of additional data – known as **qualitative data** – needs to be taken into account. Qualitative data about wellbeing is often more difficult and time consuming to collect because it is gathered from surveys and interviews.



Source 1 For Indigenous Australians wellbeing is partly determined by connection to the land.

Over the course of this unit we will be looking more closely at a range of different indicators of wellbeing, including one developed by the United Nations known as the **Human Development Index (HDI)**, which combines a range of different measures into one.

Wellbeing for Indigenous Australians

Many Indigenous Australians have a view of wellbeing based on traditional beliefs of inter-relationships between individuals, their community and the land. Wellbeing is achieved when the relationships between these factors work together in harmony. This is often described as a holistic view of wellbeing. Importantly, ill-health will arise and persist when the harmony of these relationships is disrupted.

It can therefore be difficult to measure the wellbeing of Indigenous Australians using only the common universal indicators. The Australian Bureau of Statistics has recently attempted to develop a model that takes into account Indigenous values when considering wellbeing levels. As well as using measures of health, literacy and wealth, this new model includes wellbeing measures related to an individual's connection to their community, ancestry, cultural traditions and identity, land and spirituality.

Case study: Bhutan and Gross National Happiness (GNH)

It's easy to mine the land and fish the seas and get rich. Yet we believe you cannot have a prosperous nation in the long run that does not conserve its natural environment or take care of the wellbeing of its people, which is being borne out by what is happening to the outside world.

Thakur Singh Powdye, Bhutan's Minister of Education

Since 1971, the tiny Himalayan country of Bhutan has rejected GDP as the way to measure the wellbeing of its people and instead adopted a measure known as Gross National Happiness (GNH).

While this might seem like nothing more than a good idea, in Bhutan it is taken very seriously. A GNH measure is taken every year as the country's government attempts to move its citizens towards a happier state. The four guiding principles of GNH are equitable social development, cultural preservation, conservation of the environment and promotion of good governance.



Source 2 Since 1971, Gross National Happiness has replaced Gross Domestic Product as a measure of wellbeing in Bhutan.

Children are taught these principles at school along with better environmental practices and basic agriculture. At school, bells have been replaced with soothing music and there are daily meditation sessions. In a recent study that measured happiness in 178 countries, the Bhutanese ranked as the eighth happiest people on the planet. Bhutan was the only country in the top 20 with a low GDP.

Check your learning 4.2

Remember and understand

- 1 What is Gross Domestic Product (GDP) an indicator of? Why is it often used as a measure of wellbeing?

Apply and analyse

- 2 How do you think Gross National Happiness would be measured?
- 3 Why do you think other countries have not adopted Bhutan's measure of GNH?

Evaluate and create

- 4 What are some important aspects of your own wellbeing? In what ways are they similar or different to the Bhutanese view of wellbeing?

4.3 Mapping wellbeing

Geographers often use a range of maps to explore the spatial patterns in wellbeing within and between countries. Maps can be used to show variations in wellbeing around the world using specific indicators, such as **Human Development Index (HDI)** or levels of poverty. By using a range of different mapping techniques, geographers can easily identify if countries with a high proportion of people living in poverty are clustered together or spread across the globe. They can then use this information to make comparisons and draw conclusions about the level of wellbeing in these places.

Choropleth maps

Choropleth maps give a quick impression of a spatial pattern by using dark and light shades of the same or similar colours. Darker shades usually show ‘the most’ and lighter shades show ‘the least’. In Source 1, for example, countries are shaded according to their **Human Development Index (HDI)** rating. This measure, developed by the United Nations, combines several indicators into a single measure. The world’s countries are ranked using indicators of health (life expectancy), education (literacy) and income (Gross Domestic Product). This ranking is then used to place the world’s countries into four categories ranging from very high HDI to low HDI. The United Nations uses the same measure each year in its annual *Human Development Report* so that a country’s scores, rankings and categories are regularly updated.

WORLD: HUMAN DEVELOPMENT INDEX RATINGS



Source 1 Source: Oxford University Press

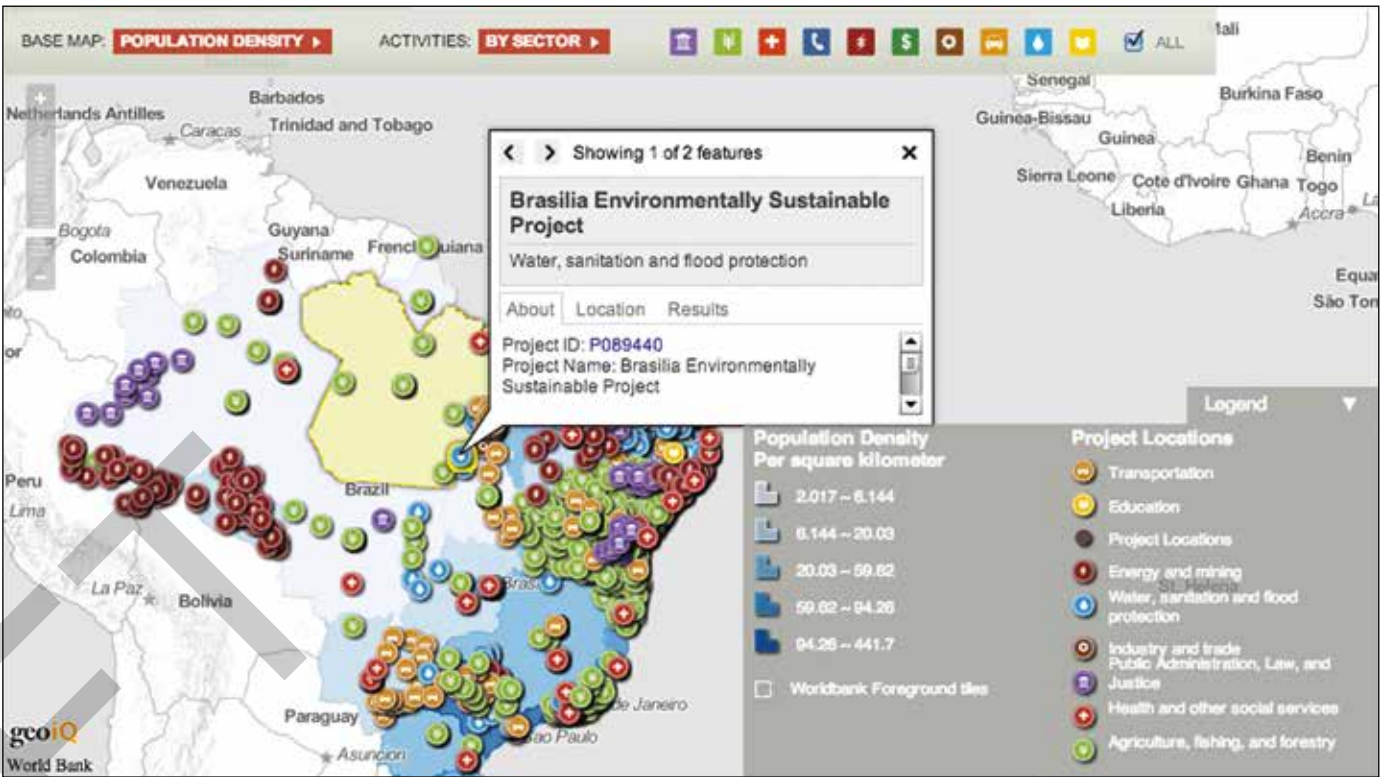
WORLD: PROPORTION OF POPULATION LIVING IN POVERTY



Source 2 Source: Oxford University Press

Cartograms

A **cartogram** is a type of map that displays countries in roughly their correct geographic locations but the size of countries is determined by the variable being mapped. For example, in Source 2, the size of each country is determined by the proportion of the world population that is living in poverty within that country. The larger the country is shown on this map, the greater the number of people living in poverty in that country. The smaller the country is shown on the map, the fewer the number of people living in poverty.



Source 3 Screenshot of a World Bank GIS map showing a range of projects currently being undertaken to improve sustainability and wellbeing in Brazil

The colours are added to the map to divide the world into geographic regions so that different cartograms can be easily compared.

GIS maps

Geographic Information Systems (GIS) maps display data as a series of layers of digital information. Each layer of the map focuses on a different aspect of the environment, such as poverty, population, roads, settlements or land relief. When using a GIS program,

geographers can switch layers on and off, allowing them to compare different aspects of the environment and look for interconnections between them. International organisations such as the World Bank are increasingly using GIS technology to map their activities and projects.

Check your learning 4.3

Remember and understand

- 1 What is the HDI and what is it used for?
- 2 What is a cartogram?

Apply and analyse

- 3 Do you think cartograms or choropleth maps are more useful for investigating variations in patterns of wellbeing? Give some reasons for your answer.
- 4 Describe the patterns of World Bank sponsored projects that you notice in Brazil on the GIS map.

Evaluate and create

- 5 Use the ‘World statistics’ section on pages XX–XX to complete this task.
 - a In groups of three, each research a different indicator of wellbeing in South America: GDP, literacy rates or **life expectancy**.
 - b With your data, each create a choropleth map for the countries of South America. Use the same colours or shades for all the maps.
 - c Place the maps on the classroom wall beside each other so that you can easily compare them. What similarities do you notice? What are some of the key differences?

4.4 Exploring links between wellbeing

Aspects of wellbeing such as health, wealth and education are usually closely related. A change in one aspect of a person’s wellbeing usually affects other aspects of their wellbeing. For example, children who attend school tend to have better health than those who do not. Links such as these can be seen at the national scale as well as at the local scale. One of the most useful tools when exploring these links is a special type of graph known as a **scatter plot**.

Scatter plots

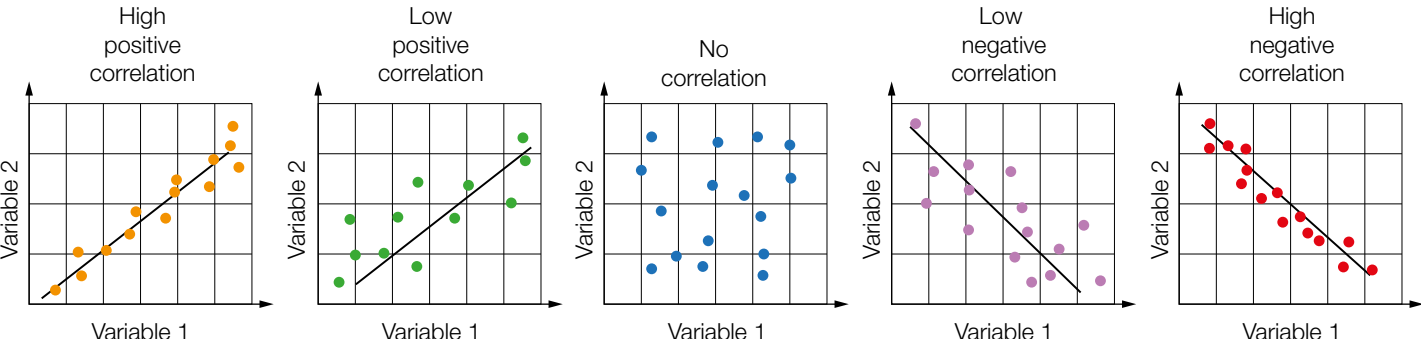
Scatter plots are similar to line graphs in that they are used to display data plotted against two variables. Scatter plots are used by geographers to show the degree to which one of the variables shown on the graph is related to the other. This relationship is known as the **correlation**. Commonly, scatter graphs show data for a number of countries, each of which is represented by a dot on the graph. When the dots come close to forming a straight line, they are closely related and therefore are said to have a high correlation. When the dots do not come close to forming



Source 2 This scatter plot taken from the Gapminder website is exploring the correlation between life expectancy and fertility rates (children per woman) worldwide.

a straight line, they are not closely related and therefore are said to have a low correlation (see Source 1). When the trend is increasing, the correlation is positive. When the trend is decreasing, the correlation is negative. A trend line is often added to a scatter plot to demonstrate the strength of the relationship between the two variables.

Source 1 shows a selection of the most common trends that can be represented on a scatter plot. With the introduction of digital graphing tools it has been possible to add more data to make scatter plots even more useful. Three variables can now be graphed to create a three-dimensional scatter plot. By animating graphs it is also possible to show changes in variables and their correlation over time. In Source 2 the size of each dot is determined by the size of the population of the country. The graph is able to show life expectancy in each country as well as **fertility rates**.



Source 1 Simple scatter plots showing different types of correlation

skilldrill: data and information

Constructing scatter plots using Microsoft Excel

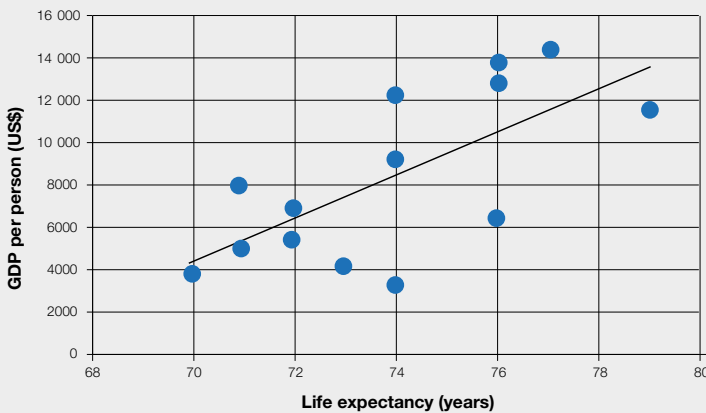
You can use a computer program such as Microsoft Excel to construct a scatter plot and show the correlation between two variables. Note: These instructions may vary a little depending on the version of the program you are using.

- Step 1** Enter the data into an Excel spreadsheet. The first indicator goes into column A and the second into column B. The data for each country must go into a separate box, known as a cell, on the spreadsheet.
- Step 2** Highlight all of the cells containing data.
- Step 3** Using the menu at the top of the spreadsheet select insert→scatter→the first scatter plot. This will convert your data into a scatter plot.
- Step 4** The vertical axis usually defaults to begin at zero but the correlation is often easier to see if it begins slightly less than the lowest value being graphed. Look at your graph and decide what you would like as the lowest value on the vertical axis. Use layout→axes→primary vertical axis→more primary vertical axis options→change minimum auto to minimum fixed and enter the value you have decided on. Close the menu.
- Step 5** Right click on one of the dots on the graph and select add trendline→linear.

Step 6 Use the chart tools menu 'layout' to turn off the gridlines and the legend. Add a title and label the axes.

Apply the skill

- 1** Use the 'World statistics' on pages XXX–XXX to find the life expectancy and GDP rates for all the countries of Oceania. With this data construct a scatter plot exploring the links between life expectancy and GDP per person for the countries of Oceania.



Source 3 A scatter plot showing the correlation between life expectancy and GDP per person for South America countries

Check your learning 4.4

Remember and understand

- 1** What is the purpose of scatter plots?
- 2** What does the word 'correlation' mean?

Apply and analyse

- 3** Describe the relationship between life expectancy and children per woman as shown in Source 2. Describe what this means in your own words.
- 4** Describe the relationship between life expectancy and GDP per person as shown in Source 3. Why do you think this correlation exists?
 - a** Scatter plots often contain one or two countries that do not conform to the general pattern and

sit apart from most other countries on the graph. These are called outliers. How many outliers can you identify in Source 1?

- b** Why do you think these countries do not conform to the general pattern?

Evaluate and create

- 5** Visit the Gapminder website (www.gapminder.org) and download Gapminder World. Click the play button to see how countries have changed over time. Explore the graphs on this website by selecting different indicators for each axis and watching the ways in which their correlation changes.

4.5 Contrasts in wealth

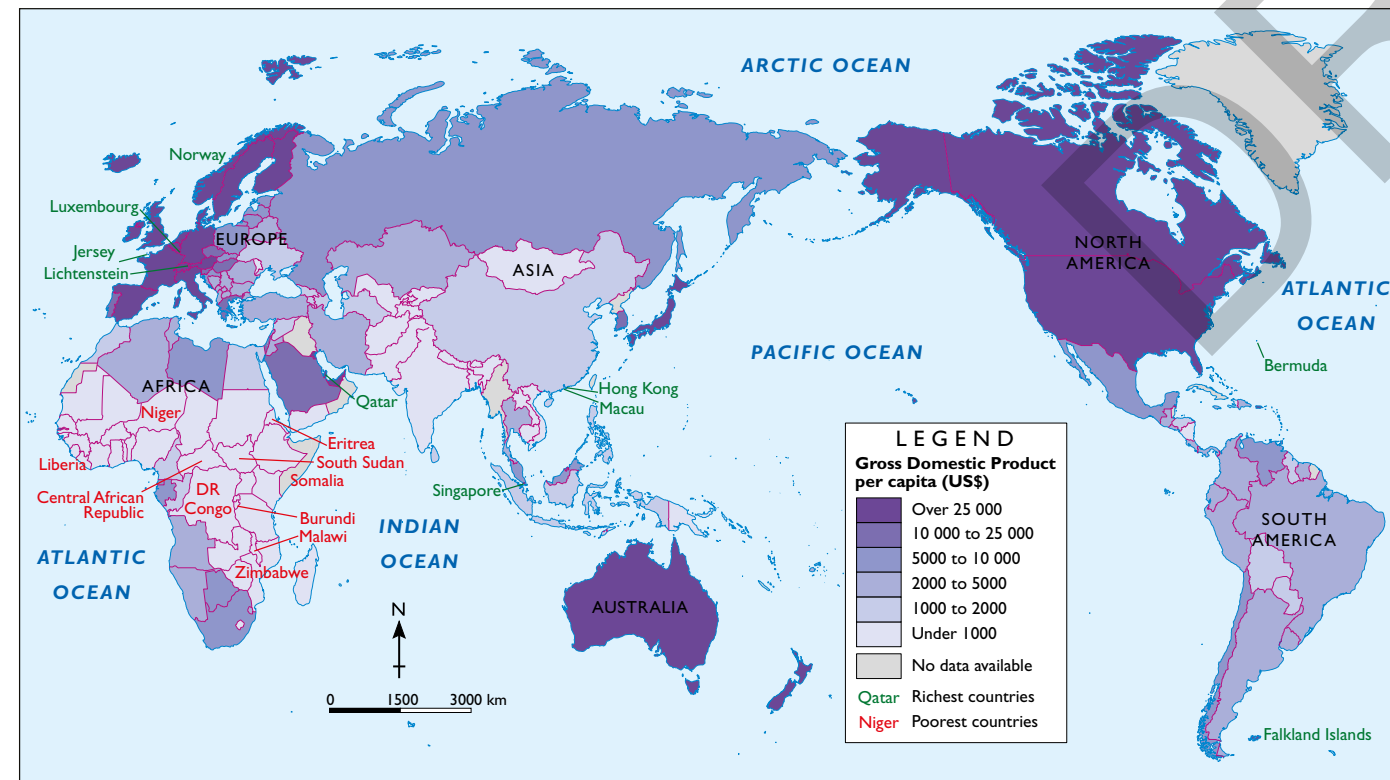
By any measure, the world's wealth is unevenly distributed (see Source 4.14). The richest one per cent of the world's population has approximately the same amount of income as the poorest 56 per cent of the world's population (3.5 billion people). All 10 of the world's poorest countries are in Africa.

Measuring wealth: Gross Domestic Product (GDP)

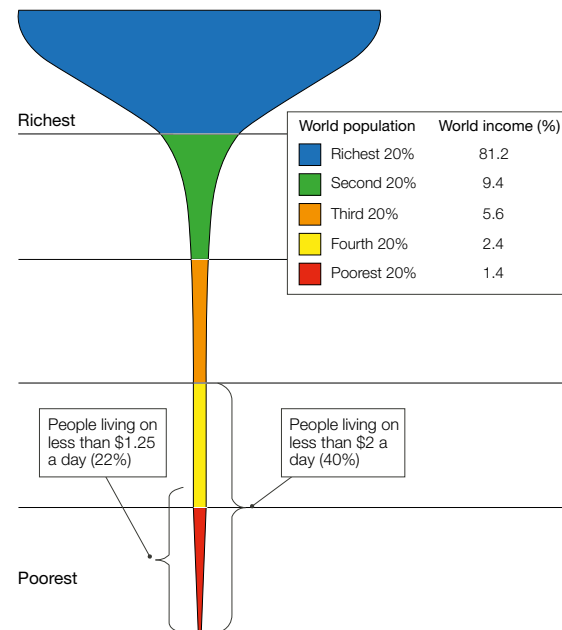
A country's Gross Domestic Product (GDP) is one way to measure wealth. This is done by calculating the size of its economy by adding the total value of all goods and services produced during a year. To make meaningful comparisons between countries, the total GDP is divided by the size of the population to produce a measure known as GDP per capita. Source 1 shows the GDP of countries worldwide, together with a listing of the world's 10 richest countries and the world's 10 poorest countries.

In 2012, the GDP per capita of Qatar, the world's richest country, was \$103 900 and the GDP per capita of the Democratic Republic of the Congo, the world's poorest country, was \$272. Australia's GDP was \$42 000. (All these figures are given in US dollars.)

WORLD: GROSS DOMESTIC PRODUCT SHOWING RICHEST AND POOREST



Source 1



Source 2 A graph of the world's wealth distribution, 2011, known as the 'champagne glass distribution' because of its shape



Source 3 Indian and Nepalese window-washers abseil down a skyscraper in Doha, the capital city of Qatar.

Case study: levels of wealth in Qatar

As mentioned, the residents of Qatar are, on average, the wealthiest people on Earth. Its two million people earn an average of US\$103 900 each year (compared with the global average of US\$12 500). Qatar is a tiny country (slightly smaller than the Sydney metropolitan area) with vast reserves of oil and gas. The wealth generated from developing and exporting these resources has been used to increase the state of wellbeing for many Qatari residents. The country boasts one of the world's

best healthcare systems, while water, gas, electricity and even food are partially paid for by the state. The employment opportunities in Qatar attract many migrants from other Middle Eastern countries as well as from South and South-East Asia, particularly India, Nepal and the Philippines. More than half of the population is made up of foreign workers (the highest migration rate in the world).

Check your learning 4.5

Remember and understand

- 1 Where are the world's ten poorest countries?
- 2 Examine Source 3. Why do you think these men have travelled from Nepal to Doha to do this work?

Apply and analyse

- 3 When GDP per capita is calculated, small countries with a low population are often at an advantage over countries with large populations. Explain why this is the case.
- 4 Examine Source 1. In a carefully worded paragraph, describe the global distribution of wealth using the PQE method. For more information on the PQE method, refer to page XX of 'The geography toolkit'. Refer to specific regions and countries in your description.

- 5 Describe the pattern of wealth distribution as shown in Source 1.

Evaluate and create

- 6 Conduct some extra research on the Internet to complete the following task.
 - a Brainstorm the factors that might help to explain why global wealth is so unevenly distributed. Why are people in some countries such as Qatar, the USA and Australia wealthy while people in other places are not?
 - b Try to think of as many reasons as you can and then classify them into groups of factors. Decide on headings for these groups.

4.6 Living in poverty

In 2000, the United Nations set several wellbeing targets that they aimed to meet by 2015. These targets became known as the Millennium Development Goals. The first of these was to eradicate extreme hunger and poverty by halving the proportion of people living on less than US\$1.25 a day (known as the ‘poverty line’). The ‘poverty line’ is the estimated minimum income needed per day in a particular country to secure the necessities of life. The target was met five years early, due largely to the economic development of countries with large populations such as Brazil, China and India. This meant that a lot fewer people were living in extreme poverty than in the past. This, of course, is great news but this improvement in wellbeing was not felt in all of the world’s countries.

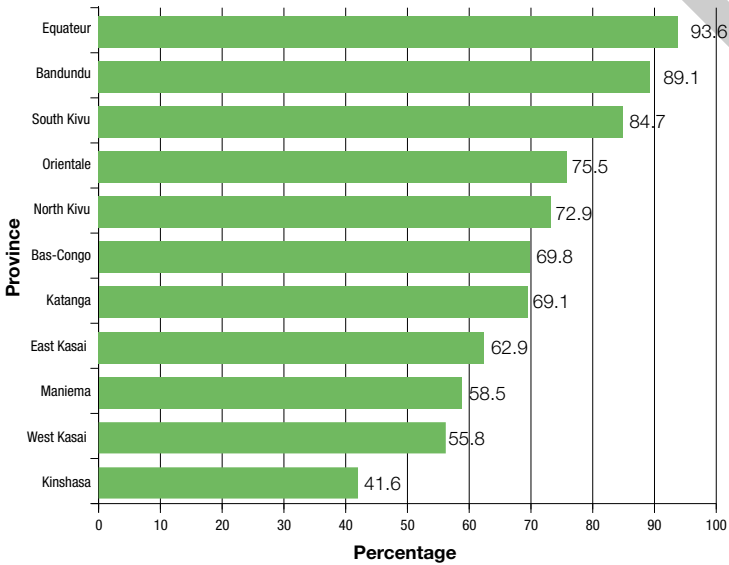
In the countries of Africa that lie south of the Sahara Desert (a region known as Sub-Saharan Africa), almost half of the population lives on less than US\$1.25 a day. While this proportion has decreased over the last few decades, it still leaves 420 million people living in absolute poverty. Almost 60 million of these live in the Democratic Republic of the Congo (DRC), the world’s poorest country.

Case study: Wellbeing in the Democratic Republic of the Congo

Source 1 Gold mining in the DRC is hard, back-breaking work with little hope of personal gain. For many people in rural areas, however, it provides one of the only opportunities for on-going work. Up to 150 000 mines dot the landscape in the Ituri district of the Orientale province. Gold is seen by many as a road to wealth and worth fighting for. This has resulted in armed conflict in the Ituri district. It is also taking workers away from farming, leaving the country without enough food to feed its people.



Source 2 The capital of the DRC is Kinshasa. Kinshasa’s population is expected to top 10 million within the next year or so when the city will become the world’s newest megacity. Migrants from rural areas and a high birth rate have swelled the number of people in the city. Many of the city’s residents live in slums such as this one in the city’s east.



Source 3 The percentage of the population of the Democratic Republic of the Congo living in poverty, by province, 2005.

DEMOCRATIC REPUBLIC OF THE CONGO



Source 4

Source: Oxford University Press

Check your learning 4.6

Remember and understand

- 1 What is meant by the term ‘poverty line’?
- 2 What are the Millennium Development Goals?

Apply and analyse

- 3 Use Sources 3 to 4 to examine and describe the relationships in the DRC between:
 - a conflict and poverty
 - b mineral deposits and poverty
 - c city living and poverty.

- 4 Access the indicators of wealth for Qatar and the DRC in the ‘World statistics’ section on pages XXX–XXX. Use these to write five statements comparing the wealth of the people living in these countries.

Evaluate and create

- 5 Trace an outline map of the DRC including the province borders. Use the data in Source 4 to construct a choropleth map of poverty in each province.
- 6 Describe the pattern of poverty within the DRC using the PQE method. Use the names of specific places in your description.

4.6 Contrasts in health

In some countries, people struggle to obtain the most basic health care services and doctors work in hospitals that are old and poorly equipped. In other countries, hospitals have state-of-the-art facilities and access to the newest treatments and drugs. While it is easy to see how unevenly distributed health services are worldwide, the level of health and its contribution to the wellbeing of a community or country is a complex concept. There are many other variables that can affect the health of people, including diet and other lifestyle factors.

For these reasons, geographers rely on indicators of health such as **life expectancy** and the infant mortality rates to measure and compare the health of individuals within countries. Other indicators such as the number of doctors per 1000 people and access to reliable water can also be used to examine the reasons why health differs between countries.

Thirst and hunger

The greatest threat to good health in the world today is hunger. The simplest way to improve the health of

people around the world is to provide them all with enough clean water to drink and enough food to eat. One in eight people worldwide are undernourished, making them more susceptible to disease, less productive in their work and more likely to die young. Hunger is often the result of a range of factors including conflict, natural disaster, poverty and environmental degradation.

Dirty water causes health problems as well, including diarrhoea, and carries diseases such as cholera and typhoid. Around 780 million people around the world do not have access to clean water, and 345 million of these live in Africa. The importance of clean water cannot be under-estimated. More than 3.4 million people die each year from diseases caused by dirty water or a lack of sanitation, including thousands of children every day.

Life expectancy

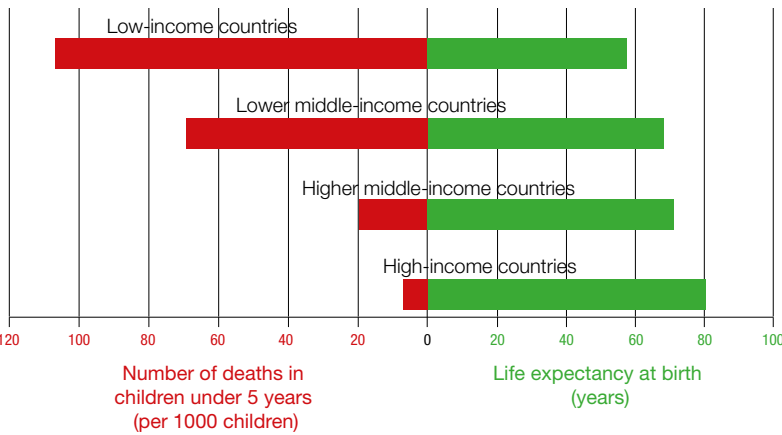
Life expectancy is the average number of years that a person can expect to live. For people in developing

countries, life expectancy is generally shorter than for people in developed countries. A child born in Sub-Saharan Africa in 2013, for example, can expect to live for 55 years, while a child born on the same day in the USA can expect to live for 79 years – 24 years longer. The lower life expectancy in Sub-Saharan Africa is due to a wide range of factors including the presence of diseases such as malaria and HIV/AIDS, poor water and **food security** and poor access to health care. Source 2 clearly shows the relationship between the wealth of a country and the life expectancy of its citizens.

Infant mortality

In the same way that life expectancy varies greatly between the developing and the developed world, **infant mortality** rates (the proportion of children who die in their first year) are also strikingly different (see Source 2). A child born today in Sub-Saharan Africa is 12 times more likely to die in their first year of life than a child born in the USA.

Studies of infant mortality in developing countries have discovered some specific factors that put children at higher levels of risk. Children and their mothers are much more vulnerable in rural areas than in cities. Women in cities tend to give birth in hospitals and health clinics, while women in rural areas often give birth at home without a nurse or doctor present. Children born to educated mothers, even those with only a primary school level of education, also have a higher survival rate. In some regions survival rates can be up to three times greater than for children of uneducated mothers.



Source 2 The links between a country's wealth, child deaths and life expectancy

Check your learning 4.7

Remember and understand

- 1 In your own words, explain the links between poverty and indicators of health like life expectancy and infant mortality.
- 2 What are some of the effects of hunger?

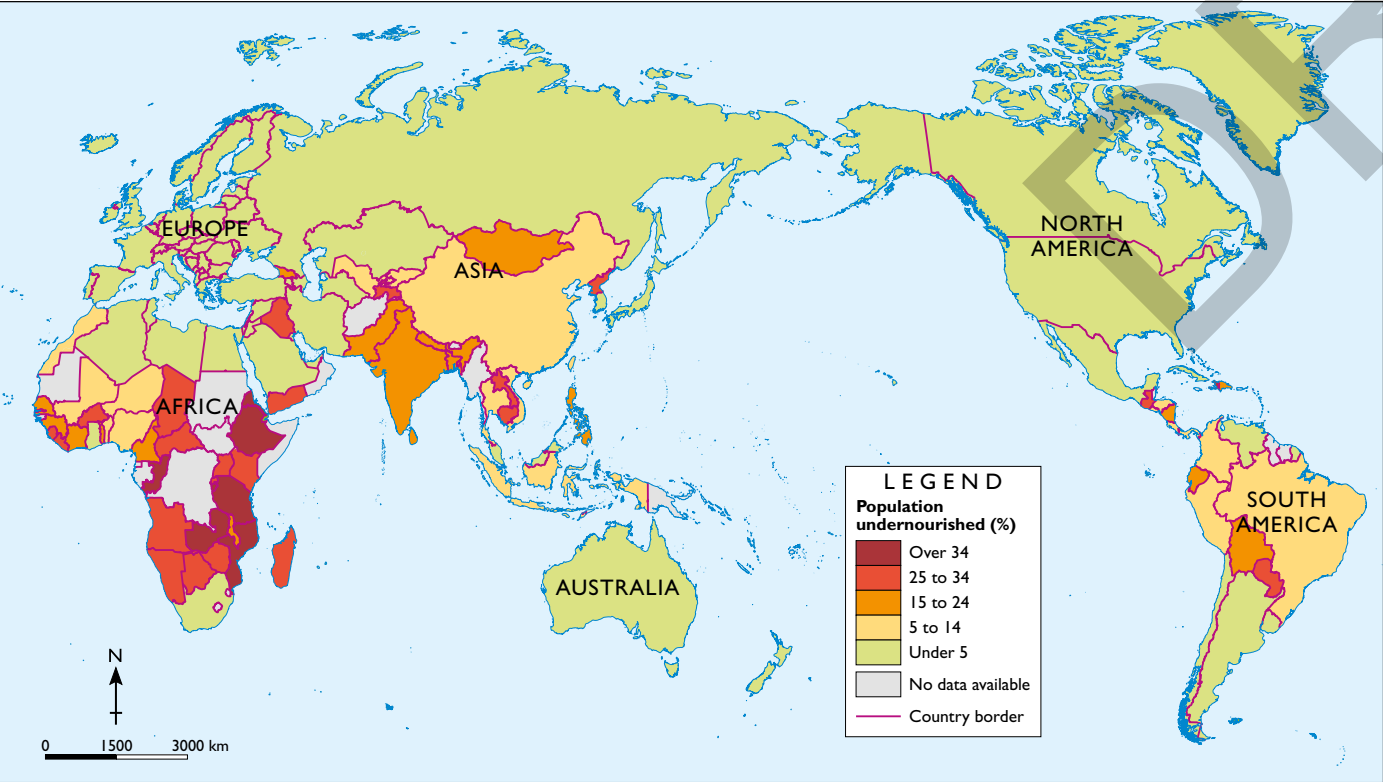
Apply and analyse

- 3 Examine Source 1.
 - a In which regions of the world are more than 95 per cent of the population well nourished?
 - b In which regions of the world are more than 25 per cent undernourished?
 - c Compare this map with other world maps in this chapter. What links can you find between hunger and other factors such as Gross Domestic Product (Source 1 on page XX) and literacy rates?
- 4 Using the 'World statistics' section on pages XXX–XXX, compare the life expectancies of people born in two different regions of the world – one developed and one developing. Compare average life expectancy in these regions with infant mortality. What pattern do you notice when comparing these two figures?

Evaluate and create

- 5 Use information from your own research on the Internet to complete the following task.
 - a One of the Millennium Development Goals is to reduce the infant mortality rate by two-thirds between 1990 and 2015. By 2010, it had fallen by one-third. Research how this was achieved and suggest changes that could be made to reach the goal by 2015.

WORLD: HUNGER LEVELS 2012



Source 1

Source: Oxford University Press



Source 3 Mali, a country in West Africa, has one of the highest infant mortality rates in the world. Vaccinations against disease and more clinics for mothers and children are seen as crucial steps in lowering this rate.

4.8 The Sub-Saharan HIV epidemic

One of the most serious health challenges facing individuals and communities in developing countries is the spread of the Human Immunodeficiency Virus (HIV) which can lead to Acquired Immunodeficiency Syndrome (AIDS). HIV is a virus that attacks the body's immune system and makes people highly susceptible to infections. As the body is unable to fight these infections, common illnesses become life-threatening. About 34 million people are living with HIV worldwide. Sixty-nine per cent of these people are in Sub-Saharan Africa where almost one in 20 adults has the virus (see Source 2).

HIV is a contagious disease spread through contact with blood, most commonly through poor health practices such as sharing intravenous needles and having unprotected sex. Tragically, unborn children can contract the virus from their mothers and newborns can contract it through breastfeeding. Over 300 000 children per year become infected with HIV from their mothers. Treating pregnant women who are HIV positive with suitable medicines is seen as the frontline in the battle to reduce and eventually eliminate HIV.

The impacts of HIV/AIDS

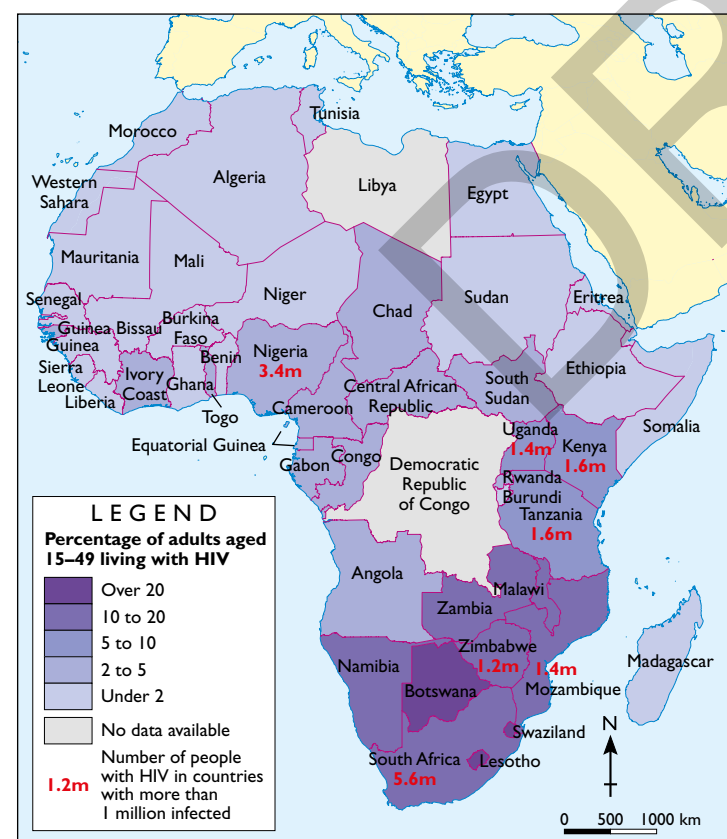
The spread of HIV among populations in Africa is having devastating impacts on communities. These include:

- impacts on population – the loss of life among age groups that would usually be at their most productive; lower life expectancy across the population as a whole; and the slowing of population growth.
- impacts on families and households – the loss of income and cost of caring for infected family members has increased poverty levels; families face discrimination and social stigma; loss of parents has left increasing numbers of orphans and single-parent families or resulted in an increased burden on extended family.
- impacts on food security – the loss of workers on farms has affected productivity leading to reduced farm output and subsequent food shortages.



Source 1 Mourning her eighth child to die from HIV-related illnesses, an 80-year-old Ugandan woman is left to care for her surviving three grandchildren.

AFRICA: ADULTS LIVING WITH HIV



Source 2

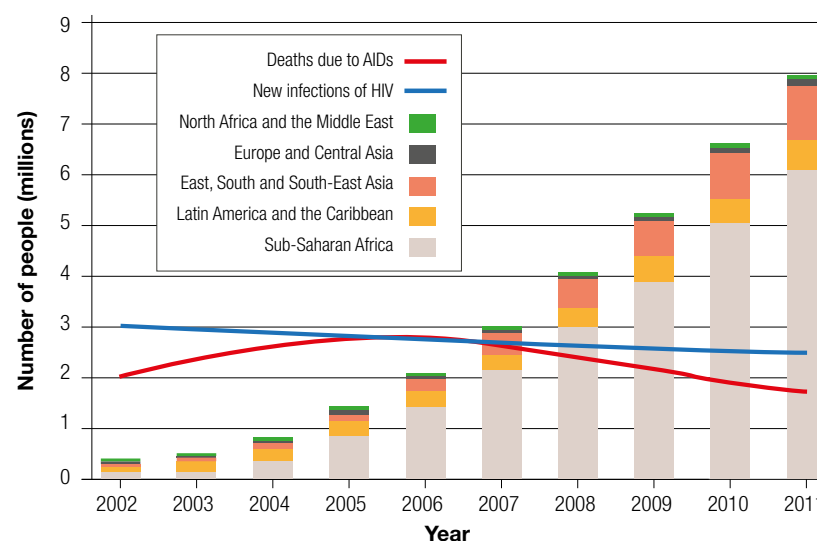
Source: Oxford University Press

- impacts on health care – greater demands placed on healthcare systems, with increased strains on doctors, nurses, hospitals and pharmacies often in areas already under stress; the death of healthcare workers; funds needed to treat other diseases are being diverted to treat HIV patients.
- impacts on education – the death of teachers; fall in attendance by children caring for ill parents or replacing them in the workforce; loss of income makes it harder to pay school fees.
- impacts on the economy – the strain on the national economy from increased health costs and a fall in GDP increases income inequalities and poverty; loss of 'human capital' such as skilled and educated young people.

HIV health programs

The United Nations has embarked on an ambitious program to reduce and even eliminate HIV/AIDS. The program is called 'Getting to Zero' and lists as its main targets zero new HIV infections, zero discrimination against those with the virus and zero AIDS-related deaths. There are a large number of projects that have proven effective in reducing HIV, in particular the use of new drugs (known as antiretroviral therapy) for those with the infection. For those without the infection, education programs aimed at preventing future infections have been very effective.

In recent years, the number of people who have been newly infected with the virus has fallen. In Sub-Saharan Africa, for example, new infections fell from a peak of 2.4 million in 2001 to 1.8 million in 2011. Along with this decline has come a fall in the number of people dying from HIV-related illnesses. This is largely due to the greater availability of medicines for low- and middle-income households, particularly in developing countries (see Source 3). Studies show that successful treatment of the virus is often followed by improved economic conditions in these countries.



Source 3 Number of people receiving HIV therapy in low- and middle-wealth regions of the world, 2002–2011

Check your learning 4.8

Remember and understand

- 1 What is HIV?
- 2 Examine Source 1. Describe what has happened to her family. What do you think she is feeling? How do you feel about her situation?

Apply and analyse

- 3 Examine Source 3.
 - a Describe the general trend in the treatment of HIV on a global scale.
 - b In which regions of the world has the number of people receiving treatment grown most quickly?
 - c What do you see as some of the barriers to infected people receiving treatment? How could these barriers be overcome?
- 4 Describe and account for the trend in AIDS deaths in these regions since 2002.
- 4 Examine Source 2.
 - a Which country in Africa has the greatest percentage of adults living with HIV?
 - b Which country has the greatest number of people living with HIV?
 - c Describe the general pattern of infection as shown on the map.

Evaluate and create

- 5 Classify the effects of HIV into impacts on individuals, impacts on communities and impacts on nations.
- 6 Select an African country with high rates of HIV infection as shown in Source 2.
 - a Refer to the 'World statistics' section on pages XXX–XXX for more information on this country. Use this data to describe other indicators of wellbeing there.
 - b Use your research skills to investigate the health situation in this country. In your research, focus on rates of HIV infection and find out if they are increasing or decreasing.

4.9 Contrasts in education

Education provides much more than the opportunity to read, write and count. It is seen by many international aid agencies and experts in the field as the key to helping people, communities and nations lift themselves out of poverty. Education provides individuals with opportunities to become more engaged with society, to have a range of skills and tools to better

care for themselves and their children, to participate in the workforce and improve their country's economy, to live healthier lives, to combat poverty and to reduce inequalities in wellbeing.

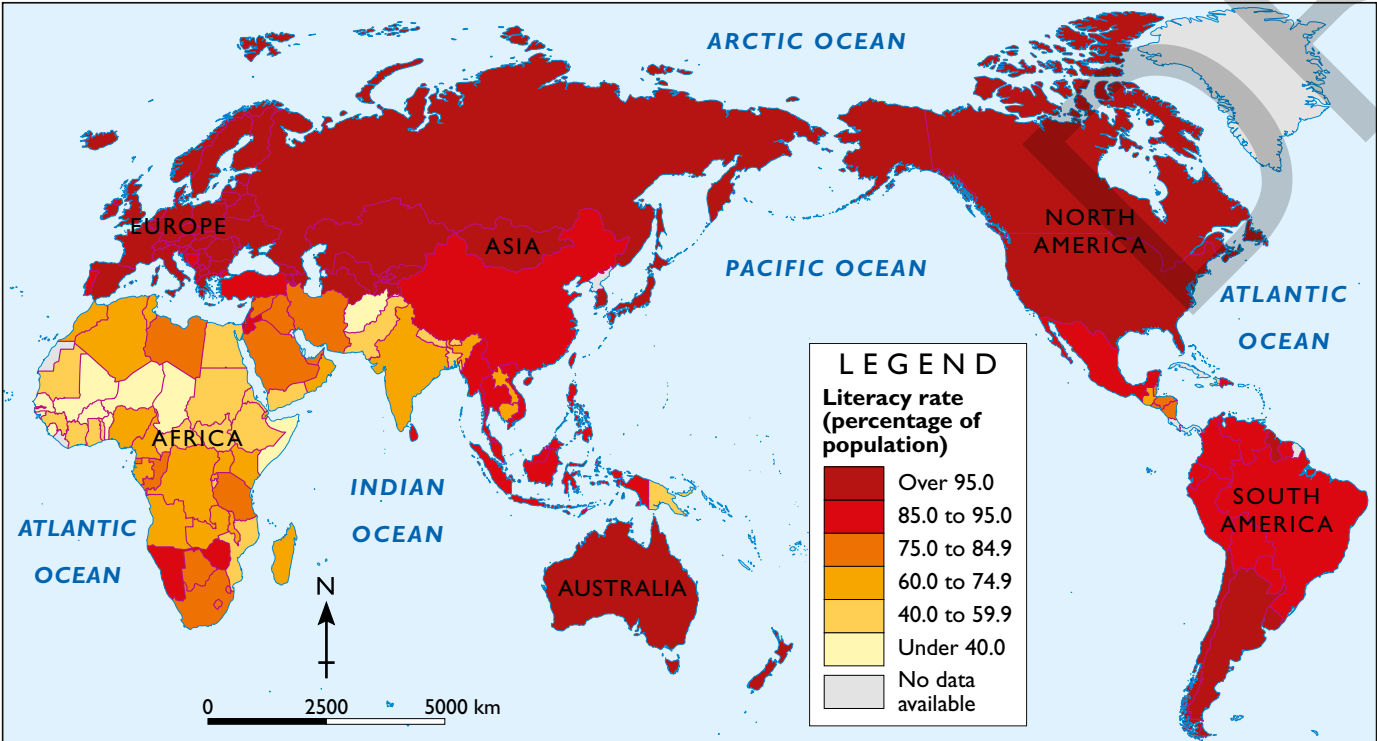
Literacy rates

Literacy rates measure the percentage of adults who can read and write and are often used as an indicator of education levels within countries. Literacy rates can be difficult to calculate, however, as many countries do not keep accurate data. It is also important to be aware of potential variations in literacy within countries. In many countries, for example, people in rural areas have lower literacy levels than city dwellers. In other countries, girls are not given the same educational opportunities as boys.

Source 1 Between 1999 and 2010, the percentage of Sub-Saharan African children attending school rose from 58 per cent to 76 per cent. Despite this remarkable improvement, 33 million children receive no schooling.



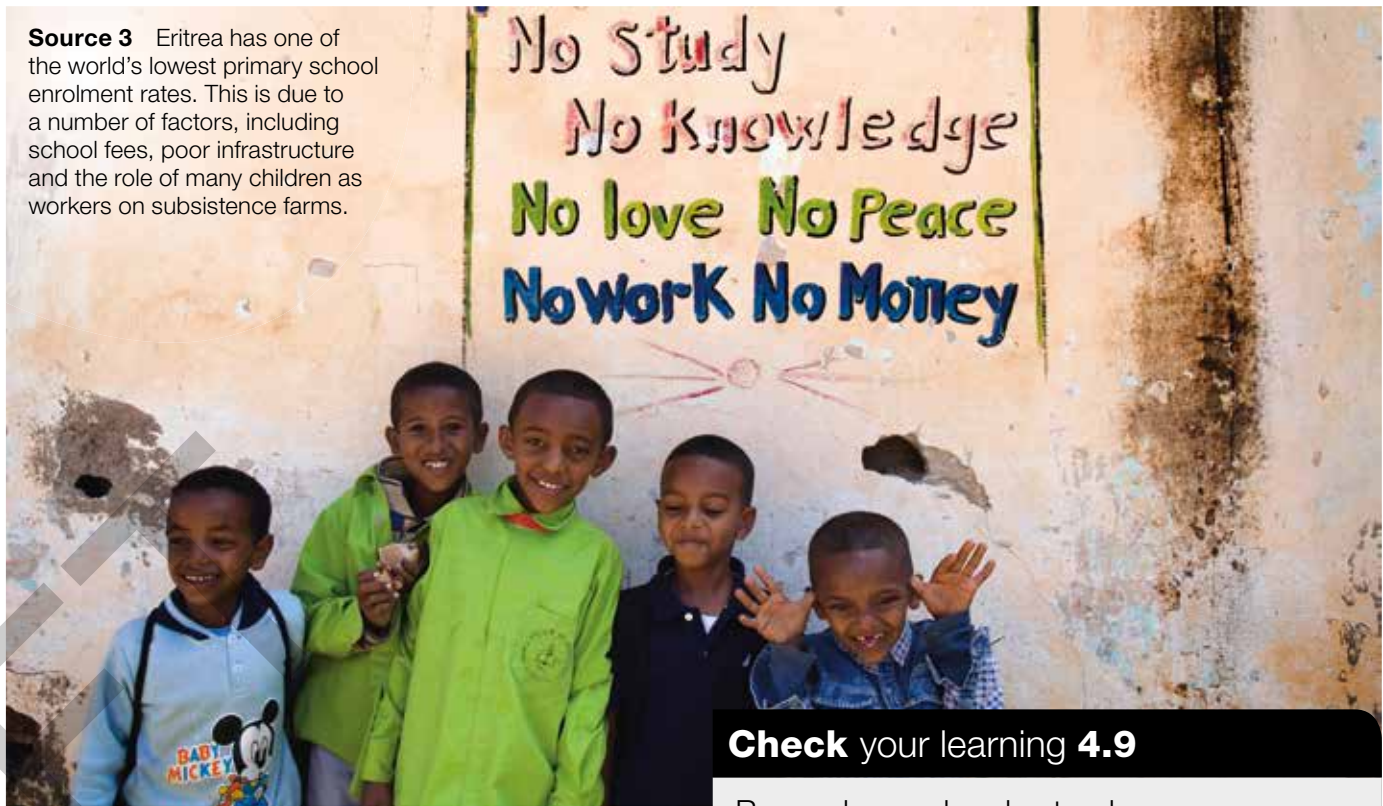
WORLD: LITERACY RATES



Source 2

Source: Oxford University Press

Source 3 Eritrea has one of the world's lowest primary school enrolment rates. This is due to a number of factors, including school fees, poor infrastructure and the role of many children as workers on subsistence farms.



Barriers to successful education

Access to education varies widely across the globe. In developed countries such as Australia, Britain, Germany and France, about 99 per cent of all school-aged children are enrolled in schools. In developing countries such as Mali, Ethiopia and Niger, it is only 90 per cent. While the enrolment rate has improved markedly over the last two decades, a 90 per cent participation rate means that 61 million children of primary school age are not receiving an education. More than half of these children are in Sub-Saharan Africa. A further one-fifth are in South Asia.

- There are many factors that determine whether or not a child will attend school. These include:
- system barriers – such as a lack of trained teachers, classrooms and educational materials including books
 - attendance barriers – such as school fees, distance to school, poor transport networks and the concern of many parents about the safety of their children. Many children also work to help support their families.
 - social barriers – such as variations in language, religion and conflict within countries. Conflict is one of the greatest barriers with children in war-torn nations such as Somalia and Syria much less likely to attend school.

Check your learning 4.9

Remember and understand

- 1 Why do you think Sub-Saharan African children are less likely to attend school than children in other regions of the world?
- 2 List three social barriers that may determine whether or not a child attends school.

Apply and analyse

- 3 Examine Source 3. Who do you think has painted this sign on the school wall? What is the purpose of this sign?
- 4 Compare Source 1, the world map of literacy levels, with Source 1 on page XX, the world map of Gross Domestic Product. Comment on the relationships you see between these two indicators.
- 5 What is the literacy rate in Eritrea (refer to the 'World statistics' section on pages XXX–XXX)? Compare this with the literacy rate in Australia. Suggest reasons to account for the differences in literacy between these two countries.

Evaluate and create

- 6 Which of the barriers to education discussed here do you think would be the most difficult to overcome? Give some reasons for your answer.
- 7 In a small team, develop some strategies to help communities overcome one or more of the barriers to education. Share your strategies with the class.

4A rich task

Global obesity epidemic

As you have learnt, many people around the globe face chronic food shortages and hunger. However, one of the fastest growing public health crises in many countries is obesity. Once only a problem in developed countries, obesity has now spread to developing nations such as Mexico, China, India and Brazil. The World Health Organization (WHO) estimates that more than 1.4 billion people in these countries are overweight and 500 million of these are obese.

Excessive body weight and obesity are linked to health problems such as heart disease, stroke, arthritis, diabetes and some cancers. Obesity is a leading cause of premature death in many countries and a huge burden on public health resources. It has become such a serious issue that many experts now describe it as the global obesity epidemic.



Source 1 'Global threat waiting room'

skilldrill: place, space and interconnection

Developing geographical questions from media reports

Much of our understanding about events and trends happening around the world comes to us through media reports. These reports can take the form of printed media such as newspapers and magazines, electronic media such as television and radio reports, or new media such as the Internet and mobile phones. News has never been more accessible and plentiful than it is right now. By learning a few simple techniques you can use the news to generate geographical questions to guide your inquiries.

Step 1 Check the source of the news article for reliability and possible bias. Find out who wrote the article and the news organisation that published it. Mainstream media organisations are generally more reliable than smaller ones but this may not always be the case. If possible, use the news company website to investigate possible bias.

Step 2 Work out what type of report you are watching, reading or hearing. Is the information presented being reported as fact or is it an opinion piece? Both are valuable but it is important to know the difference.

Step 3 What is the reporter's main contention or key point? State this in your own words.

Step 4 What information and arguments are used to support the reporter's contention?

Step 5 What evidence does the reporter use to support these arguments? What is the source of this evidence?

Step 6 Look closely at any images or graphics that are included in the report. How do they help to support the reporter's contention and arguments?

Step 7 What further questions does this article raise for you? Good geographical questions open up new lines of inquiry for you to explore. Try using question starters such as 'How many', 'Where does', 'Why does', 'Who is affected', 'What changes does' and 'How should people'.

Apply the skill

- 1 Use the steps provided to analyse and develop questions about Source 2, 'Obesity epidemic spreads to developing world'.
- 2 Share your geographical questions with your classmates and build up a class list of questions.

Obesity epidemic spreads to developing world

The world is getting very fat, very fast and now the obesity epidemic has spread from rich countries to poor and developing countries. It is likely 1 billion people will be obese by 2030.

Fat is being called the new tobacco.

Body weight is not just about vanity, it is about life and death, with obesity increasing the risk of heart disease, type-2 diabetes and some forms of cancer.

So how and why did the problem of obesity explode in places that, not so long ago, counted malnutrition and even famine as major health concerns?

Well it's about increasing wealth, changing diets, genetic programming and aggressive marketing by international food companies.

The most perplexing problem in emerging economies is how they are going to deal with a tidal wave of obesity with relatively scant health resources.

We've canvassed opinion from notable authorities on diet, nutrition and fat issues, and met people in these countries struggling with the consequences of obesity.

It's an eye-opening, sometimes shocking journey.

First stop: Mexico. The biggest killer here is diabetes. In the past 30 years this country has gone from dealing with widespread malnutrition to coping with two thirds of the population growing overweight or obese. One of the main culprits is the super-pervasive spread of soft drinks: Mexicans drink more carbonated beverages per head of population than anyone else in the world. In a country where running water isn't guaranteed and bottled water is expensive, these soft drinks have become a daily dietary staple for everyone from infants to the elderly.

Next is Brazil, where global food giants are moving into every corner of the country, from the big cities to the remote reaches of the Amazon to sell their highly processed products readily and cheaply. Profits and market share are soaring and so is obesity, with another 1 percentage point of Brazil's population joining the ranks of the obese every year.

In India, as incomes have risen so too has weight. But the effects here are even more dramatic than elsewhere because the Indian body type magnifies the effects of obesity. Many have a genetic predisposition to diabetes and heart disease. The situation is so dire

that health experts warn a staggering one in two babies born in India today will get type-2 diabetes, delivering future generations the real possibility of widespread disability and early death. India is bracing for an estimated 100 million type-2 diabetes patients.

The final stop on our Globesity tour is China – where the rapid transformation of the economy has been mirrored by massive changes to the consumption of food. Not just the sort of things Chinese are eating but the way they eat. Snacking was a rarity not so long ago. Now it abounds. Thirty years ago the Chinese ate only small amounts of sugar and oil – today they are a big part of the diet and a big part of the reason more and more Chinese are getting bigger and bigger.

Source 2 Media report 'Obesity epidemic spreads to developing world' from ABC News, 24 July 2012.



Extend your understanding

- 1 Look closely at Source 1. What point is the cartoonist making about obesity?
- 2 Select one of the geographic questions from the class analysis of the article, 'Obesity epidemic spreads to developing world'. Use this as a starting point for research into the global obesity epidemic. Report back to the class on what you find during your research.

4.10 Variations in wellbeing within India

Within every country, access to wealth, health care and education varies between states or regions, between different ethnic groups and between rural and urban populations. In the same way that they can compare the wellbeing of one country with another, geographers can also take a detailed look within a country to investigate the variations in wellbeing that exist.

India is a vast, complex and dynamic nation. Its population currently stands at more than 1.2 billion and is growing by about 16 million people a year. It is estimated that India will overtake China as the world's most populous nation by 2030, a position it is unlikely to lose for centuries. As with all nations, there are tremendous variations in wellbeing within India. At one end of society, there are hundreds of millions of poor, subsistence farmers growing just enough food to feed their families. At the other end, there are around 164 000 entrepreneurs and business people classed as super-rich. This means they have investable assets worth more than US\$1 million each.

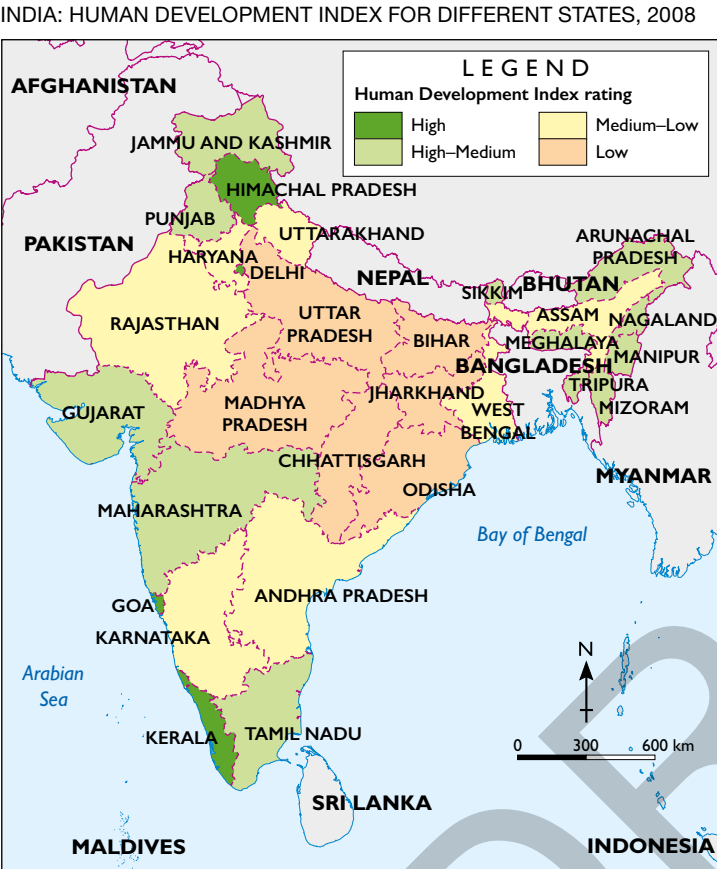
India also has one of the world's largest middle classes, estimated to be about 250 million people.

India is divided up into many different states and union territories. Source 1 shows the range of rankings for these states and territories under the Human Development Index (HDI).

By looking at two states in particular, Kerala and Chhattisgarh, the states with India's highest and lowest rankings in human development respectively, we can see the great contrasts in wellbeing that exist within India.

Wellbeing in Kerala

The south-west state of Kerala is ranked as the having the highest HDI in India. The state has the lowest level of poverty, the highest literacy rates, the lowest population growth rates and the fastest economic growth in the country. In many ways, the state compares favourably with wellbeing in many developed countries.



Source 1

Source 2 Wellbeing indicators for the states of Kerala and Chhattisgarh, and India (total)

Indicator	Kerala	Chhattisgarh	India
People living in poverty	15%	40.9%	27.5%
Under 5 mortality rate	16.3/1000	90.3/1000	74.3/1000
Underweight children	22.9%	47.1%	42.5%
Literacy rate	93.9%	71%	72%
Houses with no toilet	4.3%	72.9%	49.2%

There are several factors responsible for this comparatively high level of wellbeing. More than 2.5 million people from the state live and work in the countries of the Persian Gulf such as Qatar (see Source 3 on page XX) and each year they send home a combined income of US\$6.81 billion. This means their families can afford education and health services. The state was

also one of the first to change its laws so that individual farmers can own land, increasing their incentives to make a profit. Fertile soils and a favourable climate also help to boost agricultural production (see Source 3). Tourism is Kerala's biggest industry, with its attractive backwaters (a chain of lagoons and lakes) and sandy beaches making it popular with tourists.

Wellbeing in Chhattisgarh

The north-east state of Chhattisgarh is ranked as having the lowest HDI in India. The state is two-thirds rural and relatively undeveloped, though it is rich in minerals and has good electricity, steel and cement industries. Forty-five per cent of the population is made up of tribal

groups and ethnic minorities, often living in remote forested areas. It has one of the highest rates of poverty and the greatest percentage of undernourished children in the country and high population growth. Schools experience very high dropout rates in Chhattisgarh, particularly in rural areas where children are often needed to work on family farms. People living in the more remote areas of the state often have difficulty accessing opportunities to improve wellbeing such as government aid and medical services. Chhattisgarh has also had its share of social unrest. A large part of Chhattisgarh is under the control of a group known as the Naxalites (see Source 4). This conflict has disrupted economic and social progress in the area.



Source 3 A busy market in Kerala. Markets such as this allow people in the city to get fresh food from rural areas quickly and easily.



Source 4 An armed Naxalite rebel rides past a boy carrying a bow and arrow in the Indian state of Chhattisgarh.

Check your learning 4.10

Remember and understand

- 1 Make a list of the various factors affecting wellbeing across India.
- 2 Make a list of the reasons that make it difficult to improve wellbeing in Chhattisgarh.

Apply and analyse

- 3 Examine Source 1. Describe the pattern of wellbeing in India according to the Human Development Index. Use the names of specific states as well as compass directions in your description.

- 4 Why are there large variations in wellbeing within India? Use the examples of Kerala and Chhattisgarh in your response.

Evaluate and create

- 5 Use Source 2 to construct a multiple bar graph contrasting wellbeing in Kerala, Chhattisgarh and India (total). Describe the pattern evident in your completed graph.

4.11 India’s rural–urban divide

India has the largest number of people living in poverty in the world. With almost half a billion people living below the poverty line of US\$1.25 a day, the country is home to one-third of the world’s poor. This poverty is unevenly spread across the country, with significant inequalities in wellbeing between rural and urban areas. People in rural areas are almost twice as likely to be living below the poverty line than people living in urban areas.

As India embarks on a path of economic and social change this gap is narrowing, but there is still some way to go before equality is attained. Source 1 shows some of the key indicators of the rural–urban divide or what some researchers have called ‘A Tale of Two Indias’:

Wellbeing in rural India

India is largely a nation of farmers and rural villagers; well over half of the population lives in settlements of no more than 5000 people. For many of these people, life is hard and standards of living are low when compared to people living in urban areas. Indian rural poverty is the result of a range of factors that differ from place to place. These include low food production levels leading to malnutrition; poor infrastructure such as roads, electricity and communication networks; ineffective safety-net programs such as job schemes; and poor access to financial resources such as bank loans and credit. Farmers are also at the mercy of nature. Droughts, floods and widespread land degradation have all contributed to rural poverty.

Poverty is greatest among minority ethnic groups (particularly in degraded forest areas) and marginalised classes of people such as Dalits (also known as untouchables) who make up the lowest class in Indian society according to the Hindu caste system. In communities where coastal fishing is the main source of food, poverty is increasing because overfishing and marine degradation have greatly reduced fish stocks.

Source 1 Differences in wellbeing between urban and rural India

Key wellbeing indicator	Urban India	Rural India
Population size	402 314 697	818 485 662
Average years of education	7.65	3.94
Total spending per month	1984 rupees	1054 rupees
Improved drinking water access	96%	84%
Improved sanitation access	54%	21%
Skilled medical staff present at birth	76%	44%
Underweight children under 5	33%	46%
Living below poverty line	26%	42%

Wellbeing in urban India

India is home to some of the world’s largest and fastest growing cities. The country has 46 cities of more than 1 million people and three of the world’s megacities (i.e. Kolkata, Mumbai and Delhi). Those living in urban areas have greater access to health care which has led to fewer infant deaths and better health in early childhood. Children in urban areas on average also spend more time at school, and achieve a higher level of education. These cities are home to much of the nation’s wealth as new opportunities in service industries such as banking and information technology have emerged. These opportunities have led to a growing middle class which has in turn led to improved infrastructure in the cities.



Source 2 A young girl collecting dried cow dung to be used as cooking fuel in a rural village in the state of Uttar Pradesh. The state is home to more rural poor than any other in India.



Source 3 New apartments rise above an urban slum in Mumbai, India’s largest city.

keyconcept: place

India’s urban slums

Many people in India respond to the inequalities in wellbeing between rural and urban areas by moving from the countryside to the city. Millions of Indians from rural areas have poured into the country’s booming cities hoping to leave poverty behind as they seek a better life in the city. The reality for many, however, is that they exchange rural poverty for urban poverty (see Source 3).

For geographers this relates to the concept of place as these people establish new homes in new areas. The new arrivals from the countryside often take up residence in slum areas on land that is considered unsuitable for ordinary housing, often because it is swampy or prone to landslides. Indian cities now contain some of the world’s largest slums. Residents build their own homes out of discarded materials and live with the constant fear of eviction as they have no legal right to be there.

Many Indian cities are struggling to provide their citizens with the infrastructure needed for wellbeing such as fresh water, sanitation, reliable access to electricity, schools, roads and hospitals. But it is not all bad news. Packed with people determined to improve their lives and their communities, many slums have become so well established that their infrastructure is often close to the standard in other parts of the city, and usually better than in rural areas.

The biggest struggle for many slum areas, however, is the provision of adequate sanitation. Most homes in the slums do not have a toilet, and the toilets that do exist are often an open pit shared by hundreds of people. While many amenities are often organised and run by the slum dwellers themselves, they rely on city authorities to provide proper sewage disposal. Because the slums are considered to be illegal settlements, authorities are reluctant to invest in sanitation for them.

For more information on the key concept of place, refer to page XX of ‘The geography toolkit’.

Source 4 Access to amenities in slum and non-slum urban households across a selection of Indian cities

City (Percentage of households)	Tap water		Toilet		Electricity		Mobile phone	
	Slum	Non-slum	Slum	Non-slum	Slum	Non-slum	Slum	Non-slum
Ahmedabad	86.2	86.6	61.3	94.6	91.5	98.9	48.8	63.1
Bangalore	84.3	80.2	86.8	97.8	96.6	98.4	71.0	66.5
Chennai	78.2	83.7	91.0	97.4	98.4	99.3	70.0	59.2
Delhi	86.7	89.9	50.6	95.8	97.8	99.6	66.1	63.4
Kolkata	90.8	87.0	92.0	96.2	95.5	96.5	70.1	63.5
Greater Mumbai	96.1	97.3	32.8	75.1	95.6	98.3	76.6	53.5
Pune	98.8	98.4	35.8	90.6	96.2	98.9	73.4	62.0

Source: censusindia.gov.in

Check your learning 4.11

Remember and understand

- Describe the differences in wellbeing between urban and rural areas in India.

Apply and analyse

- Examine Source 4. Do the levels of amenities available in the slum and non-slum areas of these Indian cities surprise you? What health or safety issues might be a concern for residents with limited access to some of these amenities?

Evaluate and create

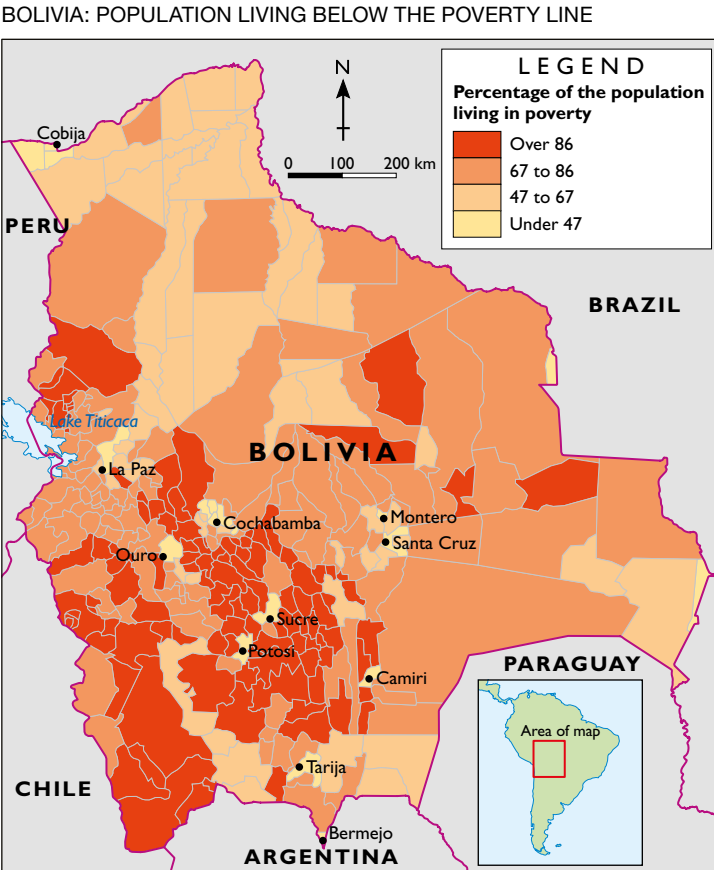
- Conduct further research on the Internet to complete the following tasks.
 - Compare the inequalities in wellbeing between urban non-slum India, urban slum India and rural India. Write a short report on your findings.
 - Complete an annotated sketch of Source 3. On your sketch label any inequalities in wellbeing that you can identify.

4.12 Wellbeing in Bolivia

By most measures, Bolivia has one of the lowest levels of wellbeing in South America. In the 2012 United Nations Human Development Report, Bolivia is ranked at number 108 in the world in terms of the Human Development Index (HDI). This places Bolivia in a group of countries described as having medium human development. Even so, 60 per cent of Bolivians live below the poverty line, and more than half of these people are described as living in extreme poverty.

Patterns of poverty

Taking a more detailed look at Bolivia's poor, it becomes clear that people in some areas are more likely to be living in poverty than in other areas. As in India, poverty tends to be concentrated in rural areas, where two-thirds of the population is in extreme poverty. In these areas people grow just enough food to feed themselves and their families, with little left to sell. Poverty is also higher among the Indigenous population. Source 1 shows the percentage of



Source 1



Source 2 In rural Bolivia there tends to be low levels of technology, poor infrastructure such as roads, a lack of job opportunities, and less access to services such as schools, doctors and sanitation than in the nation's urban centres.

the population in each region of Bolivia living below the poverty line.

This poverty is due to a number of factors, including different levels of employment and availability of resources, varying quality of infrastructure such as roads, schools, hospitals and electricity and high levels of land degradation.

One of the ways in which Bolivians have responded to poverty is to migrate. The most common migration tends to be from rural areas to cities. This has led to a booming urban population and some of South America's largest slums.

Many Bolivians also choose to leave their country and move to other countries, particularly Argentina. About one-quarter of all people born in Bolivia now live in another country. Today, Argentina is home to more than 1 million Bolivians.



Source 3 Around one in five Bolivian children do not complete primary school.

Education

Bolivia spends almost one-quarter of its national income on education. This is one of the highest rates of education spending in Latin America. Despite this, about 1 million Bolivian adults are illiterate and approximately one in five children never complete primary school.

Most of the children who do not attend school live in rural areas where they are needed to work with their parents to help support their families. The result of this is that rural children do not gain the education and skills that could help pull their families out of poverty. Many Indigenous children also drop out of school due to language difficulties. They grow up speaking their Indigenous language but when they attend school all the classes are taught in Spanish.

Health

Many Bolivians face chronic health problems linked to food insecurity. Farm productivity in Bolivia is among the lowest in South America and is still declining in some regions. This is due to a wide range of environmental problems including land degradation, regular flooding and droughts, outdated farming technology and a lack of investment.

Poor harvests have led to widespread malnutrition and almost 5 million people struggle to meet their daily food requirements. Pregnant women and young children are the hardest hit by malnutrition, resulting in underweight children and iron deficiencies. Infant

mortality rates are falling as health care gradually improves but they are still the highest in South America.

Rates of diseases such as tuberculosis, malaria and yellow fever are high. This can further lower farm productivity as ill farmers and workers are less able to work to produce food. HIV/AIDS rates are relatively low but increasing.



Source 4 These two boys are among the lucky few Bolivians in rural areas who have access to an improved water source.

Improvements to wellbeing

The Bolivian people and government are working hard to improve their wellbeing. The country has experienced times of political uncertainty and corrupt government but is now in a period of stability. This has encouraged aid organisations such as the World Bank and UNICEF to support the government in its efforts to implement reforms designed to improve wellbeing.

Helping the disadvantaged

Small **non-government organisations (NGOs)** are also making a difference in Bolivia. One example of this is the Foundation for Sustainable Development (FSD) that works with local community organisations in Cochabamba, a city in central Bolivia. FSD volunteers and interns help these organisations to improve health and education services, particularly for disadvantaged groups such as the rural poor, Indigenous people and women. Some examples of the initiatives supported by FSD include a literature and reading group for children and programs to combat malnutrition by training adults in health and cleanliness, nutrition, agriculture and microfinance.



Source 5 An example of an NGO project in Bolivia aimed at improving wellbeing through access to clean drinking water

skilldrill: data and information

Creating multiple-line graphs

Multiple-line graphs are useful tools because they allow geographers to observe and compare changes in data over time. This enables geographers to more easily identify trends and changes in different sets of data gathered in different locations.

Step 1 Construct a set of axes. The years are placed on the horizontal x-axis. The years must be evenly spaced out; for example 1 centimetre for every five years. The data being graphed is placed on the vertical y-axis and should extend slightly higher than the highest figure being graphed. Once again, the scale must be even; for example 1 centimetre for every 10.

Step 2 Plot the first set of data with a series of small neat dots and join these with a smooth coloured line. Add a label at the end of the line describing the indicator you have graphed.

Step 3 Repeat step 2 for the remaining sets of data. Use a different colour for each line.

Step 4 Add a title and label each axis.

Apply the skill

1 Construct a multiple-line graph to show the changes in wellbeing in Bolivia between 1970 and 2010 using the selected key indicators listed in Source 7.

Source 7 Changes in wellbeing in Bolivia between 1970 and 2010 using selected key indicators

Key indicator	1970	1975	1976	1980	1985	1990	1992	1995	2000	2005	2010
Adult literacy (%)	—	—	63	—	—	—	79	—	86	—	91
Infant mortality rate per 1000 people	141	123	—	108	97	82	—	70	59	49	40
Life expectancy at birth	45	48	—	52	56	59	—	61	63	65	66
Urban population with clean water (%)	—	—	—	—	—	92	—	93	94	95	96
Rural population with clean water (%)	—	—	—	—	—	43	—	48	55	62	69
Urban population with sanitation (%)	—	—	—	—	—	28	—	30	31	33	35
Rural population with sanitation (%)	—	—	—	—	—	6	—	7	8	9	10

Check your learning 4.12

Remember and understand

- 1** Use the data in Source 7 to comment on the level of wellbeing in Bolivia from 1970 to 2010.
- 2** What are NGOs and what role do they play in Bolivia?
- 3** Why do people move from the countryside to the cities of Bolivia? What impact does this migration have on cities?

Apply and analyse

- 4** Examine the multiple-line graph you constructed in the skilldrill.
 - a** What general trend do you observe in this graph?
 - b** Comment on the inequalities in rural and urban wellbeing shown in your graph.
 - c** Comment on the usefulness of a multiple-line graph for showing the links between sets of data.

5 Examine Source 1.

- a** Describe the pattern of poverty at the national scale.
- b** Suggest a reason to explain the pattern you have described.

Evaluate and create

- 6** Use the photographs on these pages to describe inequalities in wellbeing in Bolivia. Which photograph best shows these inequalities? Write a caption for the photo you have chosen that briefly describes the situation.
- 7** Research one indicator, such as education, that contributes to Bolivia’s level of wellbeing. Prepare an infographic that explains how it affects the wellbeing of the Bolivian people.

keyconcept: scale

Life in Bolivia’s cities

Variations in wellbeing can be observed at a range of scales including at the global, national, regional and local scale. An example of a global variation is the classifying of countries according to their level of economic development (see Source 1 on page XX). National and regional variations can be seen in the map of poverty in Bolivia (Source 1). Local variations are those that occur in small areas such as individual suburbs and cities.

La Paz, Bolivia’s capital city, has a population of about 2 364 000. The highest capital in the world, La Paz is a spectacular city sitting within a canyon on the Altiplano (also known as the Andean Plateau). Tall, modern office buildings crowd the city centre, while vast urban slums cling precariously to the mountain slopes on the city’s edges (see Source 6). These slums are home to up to 1 million people, many of them migrants from the poverty-stricken countryside. About 42 per cent of La Paz’s population lives below the poverty line.



Source 6 La Paz valley showing the houses of the poor built on the hillsides and the central business district below

For more information on the key concept of scale, refer to page XX of ‘The geography toolkit’.

4.13 Wellbeing in Australia

Each year, the United Nations releases a ranking of countries around the world in terms of their development. This is known as the Human Development Index (HDI). The HDI gives an indication of whether a country is developed, still developing, or underdeveloped based on a range of factors such as life expectancy, education levels, literacy rates, and income levels per capita. It also is a good indicator of the wellbeing of people in certain countries.

In 2015, Australia was ranked 2 out of 188 countries on the Human Development Index. Norway was the only country in the world that rated higher.

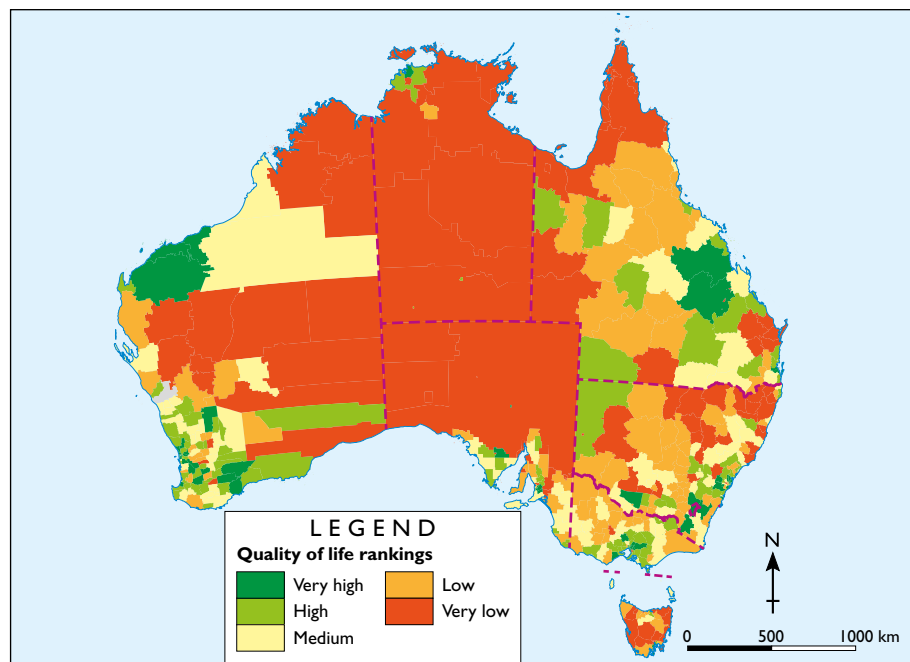
Despite the high levels of wealth and wellbeing in Australia nationally, there are still many variations between specific regions, cities, towns and suburbs across our country. Some places may have excellent access to hospitals, schools and recreation facilities together with low levels of crime and poverty. Other places may have poor access to these services as well as higher levels of crime and poverty. Variations in these types of things can be difficult to measure at a local or regional scale because indicators like life expectancy and literacy rates are almost always measured at the national scale.

There are other sources of information, however, that can help geographers measure wellbeing at the regional and local scale. One of these sources is known as the census. In Australia, a census is carried out every five years. Every Australian citizen is asked to provide answers to a series of questions on a whole range of topics. The census gives us a great deal of information about life across Australia, such as the areas with the highest and lowest quality of life (see Source 1).

A quality of life study

In 2014, the Bankwest Curtin Economics Centre (based at Curtin University in Western Australia) released a study of poverty and disadvantage in Australia. Titled

AUSTRALIA: QUALITY OF LIFE RANKINGS BASED ON CENSUS DATA



Source 1

Source: Oxford University Press

'Falling Through the Cracks', the study used census data and other research to examine levels of poverty across Australia. It also included an analysis of the groups of Australians most likely to be living in poverty and the geographic locations of these groups.

In this study, households and individuals that receive less than half the average Australian yearly income are defined as living in poverty. It is worth noting that this definition is very different from measurements used in other countries. Using this definition, the researchers found that 12.9% of Australians, around 2.8 million people, are living in poverty.

Spatial variations in wellbeing

The study also found that there were significant differences in the rates of poverty and disadvantage across Australia. The highest rates of income poverty were found in Sydney. Here the rate was about fifteen per cent of all residents. The lowest rates of income poverty were in Canberra (see Source 2). Here the rate was around eight per cent of all residents.

When the researchers examined rates of unemployment across Australia, they found other



Source 2 The Bankwest Curtin Economics Centre study found suburbs of Canberra have the lowest rates of poverty and disadvantage in Australia.

spatial variations in wellbeing. Remote communities in the Northern Territory, Queensland and New South Wales had the highest rates of unemployment (see Source 3), while the ACT and the inner suburbs of our large capital cities, like Melbourne and Sydney, had the lowest rates.

The rural-urban divide

The Bankwest Curtin Economics Centre study, and many others like it, found that people living in rural areas in Australia have lower levels of wellbeing than



Source 3 Remote communities in the Northern Territory and Queensland were found to have the highest rates of unemployment and educational disadvantage in Australia.

people living in urban areas. This pattern is repeated in other developed countries around the world. Studies of health statistics in Australia show that the further away from a major city you live, the less healthy you are likely to be. For example, in rural areas:

- rates of hospitalisation for serious injury or illness are higher
- there are fewer doctors for every 1000 people
- smoking rates and alcohol consumption are higher
- rates of death and serious injury from workplace and road accidents are higher.

Check your learning 4.13

Remember and understand

- 1 Why is it more difficult to measure, rank and map variations in wellbeing at the local and regional level?
- 2 List three health concerns that are more serious for Australians living in rural areas than for those living in urban areas.

Apply and analyse

- 3 Examine Source 1.
 - a Which regions of Australia have the highest quality of life?
 - b Which regions of Australia have the lowest quality of life?
 - c In a carefully worded paragraph, describe the distribution of regions in Australia according to their quality of life rankings using the PQE method. For more information on the PQE method, refer to page XX of 'The geography toolkit'. Refer to specific towns, cities, regions and states in your description.

- 4 What barriers do you think exist that make it difficult to improve wellbeing in rural and regional areas of Australia? What could be done to improve wellbeing in these areas?

Evaluate and create

- 5 Access the 'Falling Through the Cracks' study on the Bankwest Curtin Economics Centre website before completing the following tasks. A link is provided on your obook.
 - a Read the section of the report titled 'Geography of disadvantage' and write a short paragraph summarising the findings.
 - b Are the reasons for the inequalities between rural and urban populations in Australia similar or different to those in India? Give some reasons for your answer.

4.14 Wellbeing in Indigenous Australian communities

By most measures there are significant differences in wellbeing between Indigenous and non-Indigenous communities around Australia. Indigenous children are twice as likely to be born underweight and twice as likely to die before their fifth birthday than non-Indigenous children. They are also less likely to attend pre-school and much less likely to reach minimum standards in literacy and numeracy while at school. Although almost nine out of every 10 non-Indigenous young adults complete Year 12, it is closer to five out of 10 for Indigenous young adults. The pattern is similar with employment. Only 46 per cent of Indigenous adults are in employment, compared to 72 per cent of their non-Indigenous counterparts. Perhaps the most alarming statistic is that an Indigenous boy born this year can expect to live 11.5 years less than a non-Indigenous boy. For girls, the figure is 9.7 years.

Closing the gap

In 2008, the Australian Prime Minister, Kevin Rudd, apologised to Aborigines and Torres Strait Islanders affected by the official government policies that separated Indigenous children from their families,

a group known as the Stolen Generation. As part of this apology, Prime Minister Rudd also gave a promise ‘to close the gap between Indigenous and non-Indigenous Australians on life expectancy, educational achievement and employment opportunities.’

The government’s targets were to:

- close the gap in life-expectancy by 2031
- halve the gap in mortality rates for Indigenous children under five by 2018
- ensure access to early childhood education for all Indigenous four-year-olds in remote communities by 2013
- halve the gap in reading, writing and numeracy achievements for Indigenous children by 2018
- halve the gap in Indigenous Year 12 achievement by 2020
- halve the gap in employment outcomes between Indigenous and non-Indigenous Australians by 2018.

By 2013, the early childhood education target had been met and progress had been made in the other areas. However, progress is generally slower than is needed to meet all targets by their set dates. The gap is closing, but slowly.

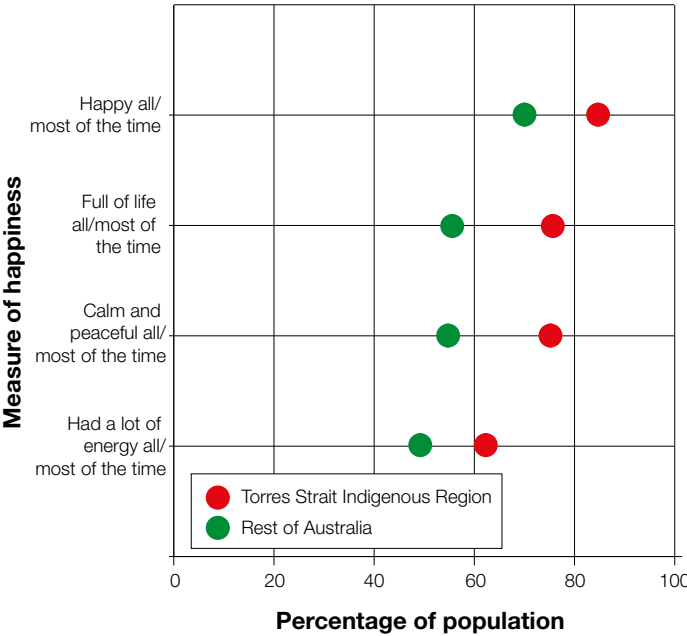


Source 1 Ntaria school in Hermannsburg, outside Alice Springs in the Northern Territory. Increased government funding has allowed remote schools to offer longer pre-school programs. This has resulted in improved literacy and numeracy as well as improved health as the children are also given healthy lunches.

Measuring happiness

Although statistical indicators such as life expectancy and literacy rates paint a grim picture of low levels of wellbeing among Indigenous Australians, other measures tell a different story. The Australian Bureau of Statistics (ABS) has begun to ask people to assess their own wellbeing by asking questions about their levels of happiness and satisfaction with life in the National Aboriginal and Torres Strait Islander Social Survey (NATISS). The data collected reveals some interesting trends. Torres Strait Islanders, for example, are much more likely to report feeling happy, full of life, calm and peaceful and having lots of energy than individuals in the broader Australian community (see Source 2).

The NATISS revealed variations in levels of happiness between different regions. The NATISS results showed that 79 per cent of Indigenous adults living in these remote areas reported feeling happy some or most of the time. This compares with only 68 per cent of Indigenous adults living in Australia’s major cities reporting feeling happy. However, in virtually all other measures, such as school attendance, literacy, health, disease and employment, the most disadvantaged Indigenous communities were those in remote areas. Access to health care, education and employment opportunities are often more limited in remote areas than they are in regional centres and major cities.



Source 2 Results from the National Aboriginal and Torres Strait Islander Social Survey (NATISS), 2008



Source 3 Happiness amongst Indigenous Australians in remote areas is higher for those involved in cultural activities than for those who rarely or never attend cultural events.

Check your learning 4.14

Remember and understand

- 1 Summarise life expectancy rates between Indigenous and non-Indigenous Australians.

Apply and analyse

- 2 Examine Source 2. Write a short paragraph contrasting the levels of happiness between Torres Strait Islanders and the rest of Australia.
- 3 The ‘closing the gap’ targets rely on quantitative measures to measure their progress. Why do you think these measures are used rather than qualitative measures (such as levels of happiness and satisfaction)?

Evaluate and create

- 4 Conduct some further reading on the Internet and complete these tasks.
 - a Why do you think people are happier if they are engaged in cultural and community activities?
 - b Design and conduct a survey that questions people about their level of happiness and the factors that affect their happiness. Include questions about their involvement in cultural and community activities. Write a report on your results in which you outline what makes people happy.

4B rich task

Investigating wellbeing at the local scale

Most studies of wellbeing focus on differences and variations between nations. But there are also variations at the local scale. In this broadsheet you will learn how to use census data to collect and map information about wellbeing in your local area. Based on your completed research and maps, you will then explore some possible reasons for the variations in wellbeing at the local scale.

skilldrill: data and information

Collecting and mapping census data

A census is held in Australia every five years and the results are processed and published by the Australian Bureau of Statistics (ABS). Geographers often use this information to map data and trends across an area. You can collect data about your local area and map it by following these steps.



Source 1 There are significant variations in wellbeing in Central Sydney.

- Step 1** Access the ABS website at www.abs.gov.au. Click on the 'Census' tab at the top of the home page. Then select the 'Data & Analysis' tab on the left, then 'Community Profiles'.
- Step 2** This page allows you to access the census data at a wide range of scales, including at the local level. A useful way of working at the local scale for this study is by using postcodes. To access the data for your suburb, enter your four-digit postcode in the 'Community Profiles Search' tool. If more than one option is displayed, choose POA. Click 'Go'.
- Step 3** This should open a map of your postcode and allow you to choose one of two spreadsheets. Select 'Basic Community Profile' and open or save this spreadsheet.
- Step 4** Use the tabs at the bottom of the spreadsheet to access the 'List of Tables'. This will give you a breakdown of the kind of information available. Select a category you would like to map.



Source 2 A screenshot of the postcode map on the Australian Bureau of Statistics Census website

- Step 5** Click on the category you have decided and record the data for your suburb. Access the same data for your neighbouring postcodes by typing the area or postcode in the field above the map. You can find out what your neighbouring postcodes are by using the interactive map at the Australian Postcode Finder website (see Source 3). Simply enter your four digit postcode into the search tool at the top of the page and it will zoom into this area. Click on the neighbouring postal areas to find their postcodes and then use the ABS website to access and record data for these postcodes.



Source 3 A screenshot from the Postcode Finder website

- Step 6** Once you have collected the data you can map it by constructing a choropleth map. Print out a map of your area. You can use one you have or print the one from the ABS site. Trace a copy showing only the postcode boundaries.
- Step 7** Use the data collected from the census to construct a choropleth legend for your map. Divide your data into four or five categories. Use darker shades of a colour for higher values and lighter shades for lower values. For example, your suburb might have fewer people per household (if that was what you chose to map) than the neighbouring suburb. So, you would colour your suburb a lighter shade and your neighbouring suburb a darker shade.
- Step 8** Shade your map according to the legend you created in Step 7.
- Step 9** Complete your map with BOLTSS.

Apply the skill

- 1 Complete a choropleth map of variations in median household income in your local area (include at least

6 suburbs) by collecting information from the ABS website. You can find this data under table B02, *Median Household Income*. Follow the steps to gather your data and map the information.

- 2 Describe the pattern shown on your completed map.

Extend your understanding

- 1 Explore and evaluate possible reasons for the variations shown on your map. These will vary from place to place, but here are some possibilities:
- distance from the centre of a large city
 - presence of employment opportunities such as factories and shopping centres
 - presence of higher educational opportunities such as universities
 - presence of transport networks such as railway stations and major roads
 - presence of large, shared accommodation areas such as aged-care facilities or school hostels
 - presence of geographic features such as a coastline or large park.

Use your knowledge of the local area and street directory maps to evaluate these possible reasons.

- 1 Collect information from the ABS site and analyse variations in another indicator of wellbeing. Do this for the same suburbs you investigated earlier. You could choose to analyse the number of motor vehicles per dwelling, highest year of schooling completed or percentage of people unemployed.
- 2 You can also use the census data to explore levels of wellbeing in communities that are not located close to each other. Follow Step 1 in the skilldrill to access the census data and then enter the names of communities in the 'Communities Profiles Search' tool. There may be a few options given as the ABS collects data at a range of scales. The Local Government Area (LGA) is a useful scale when comparing suburbs or country towns but you can compare wellbeing at many scales.
- a Use the Quick Stats to compare wellbeing in Halls Creek, Ku-ring-gai and the LGA in which you live.
- b What have you learnt about variations in wellbeing within Australia?
- c What are the advantages and disadvantages in using census data to describe and compare wellbeing?