

CHAPTER

# 1

# OUR CHANGING WORLD

Sample pages

**A**s adults you will inherit a world even more crowded than it is today. The biophysical environment will be more threatened and the global economy will be even more competitive and interconnected. Change is something that we must all embrace. We cannot ignore it. As geographers you have the knowledge and skills required to understand the nature, causes and consequences of these changes. You can also shape the process of change if you choose to be informed and active global citizens. You can make a difference. You can help make the world more socially just and our collective relationship with the environment more sustainable.

In this chapter we explore some of the main themes addressed in Year 9 Geography. These are 'ecosystems and biomes', 'food security', 'sustainability', 'transforming technologies' and 'global interconnections'.

## KEY IDEAS

- To develop a knowledge and understanding of the key concepts central to the study of Geography in Year 9
- To develop an understanding of biomes and ecosystems, and the concept of sustainability
- To appreciate the challenge of meeting the food needs of a growing world population
- To develop an appreciation of the role technology plays in enhancing interconnectedness

## GLOSSARY

<b>aquatic ecosystem</b>	a water-based community of plants and animals
<b>biosphere</b>	the global sum of all ecosystems; can also be called the zone of life on earth
<b>cross-section</b>	a side view or profile of a landscape; a visual impression of the shape of the land
<b>culture</b>	the shared attitudes, values, goals and practices characteristic of a group; their customs, art, literature, religion, philosophy and so on; the pattern of learnt and shared behaviour among the members of a group
<b>e-commerce</b>	the buying and selling of goods or services conducted over electronic systems such as the internet or other computer networks
<b>ecologically sustainable development</b>	an approach to environmental management that involves using, conserving and enhancing the resources available to people. It ensures that the ecological processes on which all life depends are maintained and the quality of life improved for both present and future generations
<b>ecosystem</b>	a community of interacting plants and animals and their physical surroundings
<b>food security</b>	the availability of food and a person's access to it
<b>global village</b>	a view of the world as having contracted into a village by the speed and reach of information and communication-based technologies
<b>globalisation</b>	the increasing economic, political and cultural interconnectedness of countries through the mass consumption of mainly Western culture, technology and trade
<b>infrastructure</b>	the basic facilities that are necessary for a community to operate; these include transportation and communication networks, power and sewerage systems, schools and hospitals
<b>location</b>	the position of a feature or place on the earth's surface; geographers refer to absolute location (latitude and longitude) and relative location (where the site is in relation to other things, for example, a hilltop or another place)
<b>relief</b>	the shape of the land
<b>species</b>	a group of organisms capable of interbreeding and producing fertile offspring
<b>terrestrial ecosystem</b>	a community of organisms and their environment that is found on the landmasses of continents and islands
<b>transect</b>	a straight line or narrow section through an object or natural feature or across the earth's surface, along which observations are made

# 1.2

## Key theme: Food security

Like other species, humans eat to live. While it is fundamental to life, securing enough food is also considered a fundamental human right. There are concerns that the struggle for food could well become the next battleground and that global food security lies at the heart of both political and social stability right across the world.

### Defining food security

The United Nations Food and Agriculture Organization's 2009 Food Summit defined food security as a situation in which:

... all people, at all times, have physical, social and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Food security means that the following conditions are met.

- Enough good-quality food is available. Food supplies can be affected by adverse weather (hailstorms, heatwaves), natural hazards (droughts, floods, tropical cyclones and tsunamis), conflict (civil unrest, wars), population growth, unsuitable agricultural practices, environmental degradation, trade barriers and inequalities within societies.



- 1.3 Somali refugees arrive at the Dagaley refugee camp in Dadaab, Kenya, 2011. Hundreds of thousands of people fled the hardship and civil war in Somalia to Dadaab. A severe drought added to the misery and hardship. Some refugees walked for up to 30 days to reach the camp, and some children died on the way, due to lack of food and water.

- Food is affordable and within the reach of all. When food supplies are interrupted and become expensive, wealthy people can still afford to buy them, but poorer people do not have the means to do so.
- The food available is the right sort of food. A variety of food types is essential for a balanced diet that ensures normal growth and development and good health. Such food needs to be stored safely and prepared hygienically.

### Australia's food plan

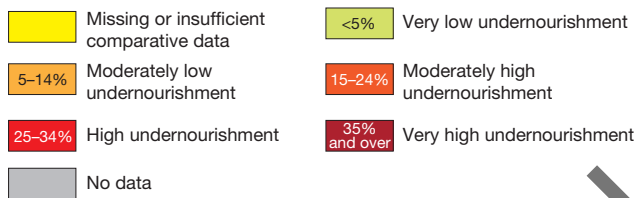
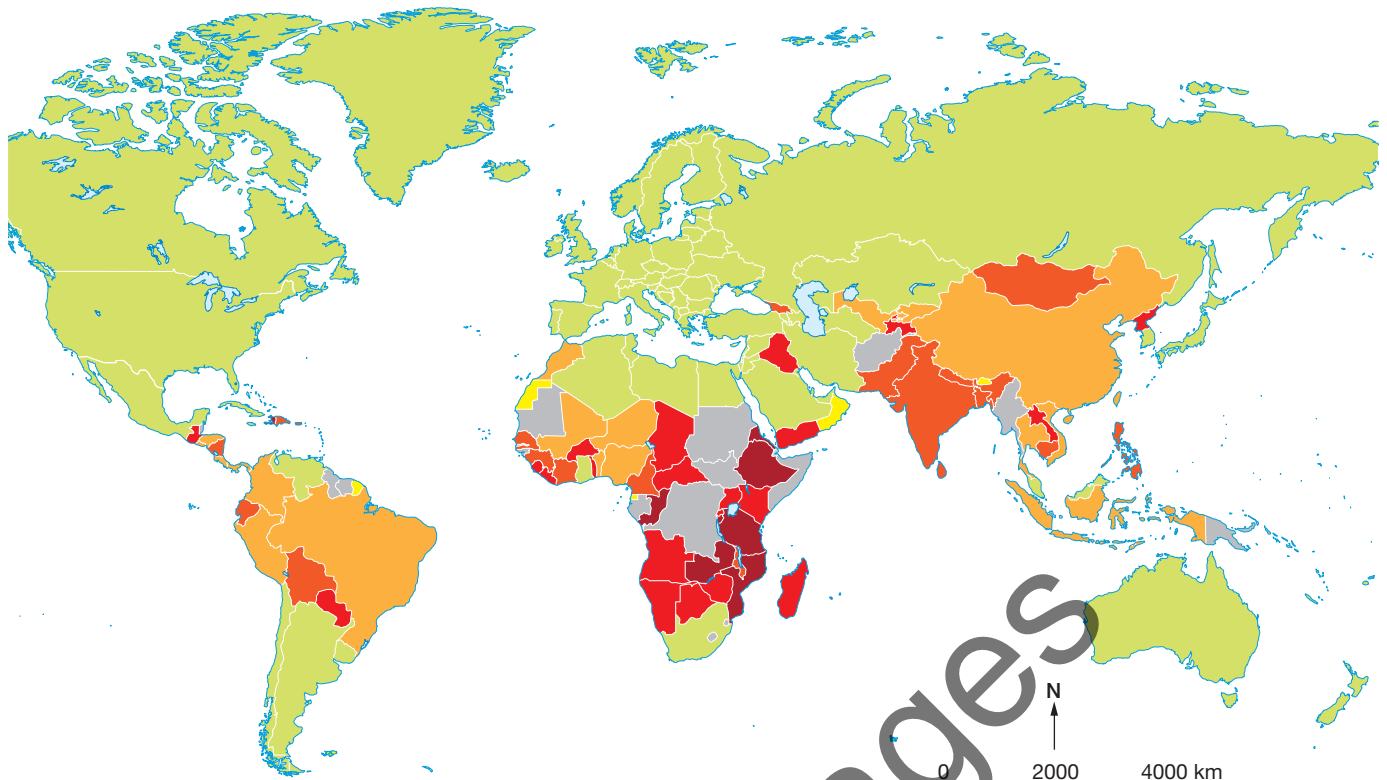
When developing a national food plan in 2011, the Australian Government identified a number of levels within which the discussion of food security operates:

- the global level, at which the issue is the capacity of the world as a whole to produce and effectively and fairly distribute sufficient supplies of food
- the national level, at which the issue is the capacity of each country to secure sufficient food to meet the needs of its population in general
- the community level, at which the issue is the difficulty that communities, for geographical or other reasons, may have in accessing food in a country that has sufficient access to food overall
- at the individual level, at which personal income is one factor that affects food security.

### Global food security

In 2011, the countries of Somalia, Djibouti, Ethiopia and Kenya were hit by the worst drought in 60 years. This caused a severe food crisis as famine took hold in the worst-affected areas and thousands of people, including the woman and children shown in Figure 1.3, fled in search of food and water.

While there have been significant advances in global food production, many people still suffer chronic hunger because of the inequalities that exist. There is actually enough food in the world for all, but it is not reaching everyone.



**1.4** From Africa and Asia to Latin America and the Near East, there are 870 million people in the world who do not get enough food to lead a normal, active life.

Over half of the world's population live in low-income, food-deficit countries that are incapable of producing enough food for their people and cannot afford to import food. The inequitable distribution of hunger is shown in Figure 1.4.

## Challenges in securing global food security

The world is rapidly changing and there is an obvious need to increase food production and provide access to food for everyone. The world's food supply is being put under pressure from:

- population growth, especially in Asia and Africa
- increased demands on land and water resources
- conflict between competing landuses, such as food crops and biofuels
- possible impact of climate change, with shifting climate belts and extreme weather events
- changing consumption patterns as nations become more economically developed.

## ACTIVITIES

**1.2**

### Knowledge and understanding

- 1 Define food security.
- 2 Explain what is necessary for food to be 'secure'.
- 3 Assess current global food security.
- 4 Identify the challenges in securing global food security.

### Applying and understanding

- 5 Evaluate the Australian Government's national food plan.

### Geographical skills

- 6 Study Figure 1.4.
  - a Name the continent that is experiencing very high undernourishment in some parts.
  - b List the continents not experiencing very low undernourishment.
  - c Name the continent experiencing the greatest differentiation, from very high undernourishment to very low undernourishment.
  - d Describe the spatial distribution of undernourishment on this continent.
  - e Can you suggest reasons why there is great differentiation?

# 1.3

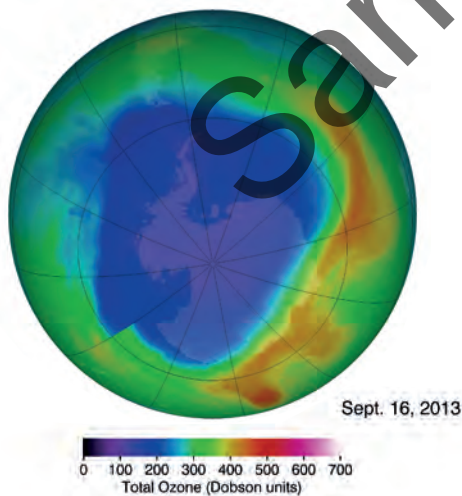
## Key theme: Sustainability

Sustainable ways of living are those that meet the needs of the present without affecting the ability of future generations to meet their needs. Examples of this include not cutting down forests at a rate faster than they can regrow and using farming methods that maintain and improve the fertility of the soil.

### Ecologically sustainable development

Ecologically sustainable development involves the application of the idea of sustainability to economic development. It requires us to develop economic activities (for example agriculture) in ways that safeguard the interactions of organisms and the environment. The aim of sustainable development is to achieve improvements in people's quality of life while protecting the environment.

Sustainability is a future-focused concept. It involves protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable ways of living require a knowledge of the ways environmental, social, cultural and economic systems interact. This is at the heart of geography.



**1.5** The ozone hole over Antarctica. It was slightly smaller in 2013 than the average over recent decades, according to data from the Ozone Monitoring Instrument (OMI). The average size of the hole in September–October 2013 was 21.0 million square kilometres. The average size since the mid-1990s has been 22.5 million square kilometres.

### Environmental development

Sustainable development and good environmental management go hand in hand. If we are to put sustainable development into practice we must:

- protect earth's life-supporting systems and its biodiversity
- improve people's quality of life. Experience has shown that as people's quality of life (especially their access to healthcare, education and clean water) improves they have fewer children. This, in turn, reduces the demands placed on the earth's resources
- use the earth's renewable resources (especially its fresh water, soil, forests and fisheries) in ways that do not reduce their usefulness for future generations
- avoid making decisions that limit the prospects for maintaining or improving future living standards
- involve people in making the decisions that affect their lives, their children's lives and their environment
- develop technologies that are cleaner, use less energy and require fewer natural resources
- make products that last longer and are easy to recycle and repair
- reduce the waste we produce and the amount of energy we use
- encourage the development and use of renewable energy from the sun, wind and flowing water
- take steps to prevent further environmental damage
- share the benefits of economic growth evenly
- promote international understanding and support the alliances needed to address the challenges facing humanity.

### The ozone hole

It is very difficult for governments to achieve good environmental management and successful promotion of sustainable development. Countries have their own needs and agendas; however, there have been some successful initiatives.

In 1989, the Montreal Protocol came into law. It was signed by the majority of countries around the world and set out a mandatory timeline for the phasing out of ozone-depleting substances (see Figure 1.5).

## Definitions of sustainable development

- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (*Brundtland Report for the World Commission on Environment and Development, 1992*)
- In essence sustainable development is about five key principles: quality of life; fairness and equity; participation and partnership; care for our environment and respect for ecological constraints—recognising there are ‘environmental limits’; and thought for the future and the precautionary principle. (*Making London Work by Forum for the Future’s Sustainable Wealth London project*)
- The environment must be protected ... to preserve essential ecosystem functions and to provide for the wellbeing of future generations; environmental and economic policy must be integrated; the goal of policy should be an improvement in the overall quality of life, not just income growth; poverty must be ended and resources distributed more equally; and all sections of society must be involved in decision making. (*The Real World Coalition 1996, a definition based on the work of the World Commission on Environment and Development*)
- A sustainable future is one in which a healthy environment, economic prosperity and social justice are pursued simultaneously to ensure the well-being and quality of life of present and future generations. Education is crucial to attaining that future. (*Learning for a Sustainable Future—Teacher Centre*)
- A process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. (*The World Commission on Environment and Development*)
- Sustainable development is a dynamic process which enables people to realise their potential and improve their quality of life in ways which simultaneously protect and enhance the earth’s life support systems. (*Forum for the Future*)



### 1.6 Definitions of sustainable development

## ACTIVITIES

### Knowledge and understanding

- 1 Define the term ‘sustainability’.
- 2 Explain what sustainable development is.
- 3 Outline the things we must do in order to achieve a more sustainable way of living.

### Applying and analysing

- 4 Identify the ways in which you and your family contribute to a more sustainable future. Share your thoughts with others in the class. Are there any changes that you and your family could adopt to live more sustainably?

- 5 Study the definitions of sustainable development in Figure 1.6. Identify the words, ideas or themes that these definitions have in common.
- 6 Write your own definition of sustainable development.

### Investigating

- 7 Undertake internet research to find definitions of ‘social justice’, ‘intra-generation equity’ and ‘inter-generational equity’.
- 8 Undertake internet research about the Montreal Protocol. Find out why the Protocol has been regarded as the most successful environmental protection agreement.

# 1.4

## Key theme: Transforming technologies

Recent developments in communications and transport technologies have transformed the way that economies operate and cultures interact. These developments have helped to break down many of the barriers that once divided the world, due to the great distances between countries and the high cost of communications.

### Global village

New transport and communication technologies, has created a more closely linked world, or what some geographers now refer to as a **global village**. People in developed countries travel more than ever before, communicate with others more often and use the internet to purchase goods and services from suppliers on the other side of the globe. In this unit we look at some of the technological developments that have made these changes possible.

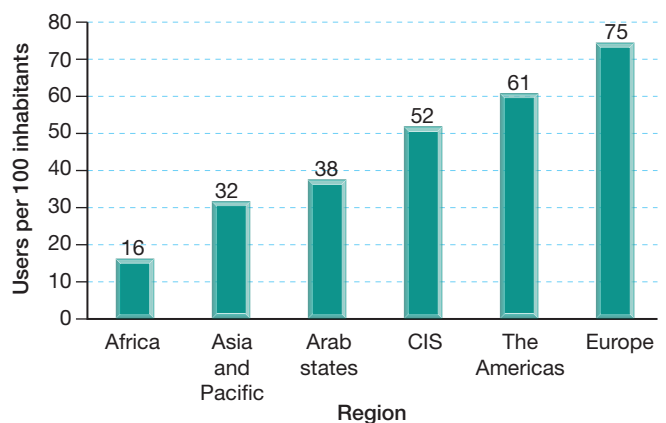
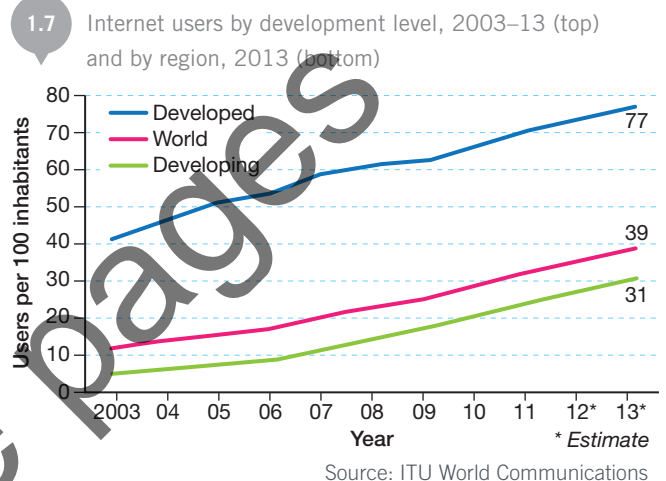
### Advances in technologies

#### The microprocessor

In 1997, *Time Magazine* named Andrew Grove its Man of the Year. You may not have heard of Andrew Grove but the company he helped establish and later led—Intel—helped transform the way we live. Intel developed the microprocessor (or microchip)—a small electronic device, made up of millions of electronic components on a single thin rectangular piece of silicon. These microprocessors are capable of storing all the world's information and entertainment in digital form: processing it, and then transmitting it around the globe. The invention of the microprocessor revolutionised international communications by making technology much smaller, faster and less expensive.

#### The internet

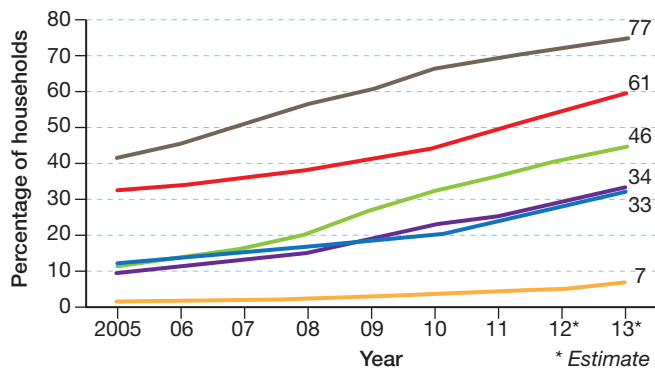
Networked computers make it possible for individuals to transfer large amounts of information around the world 24 hours a day, at high speed and for a low cost. The number of internet users worldwide is expected to increase from 242 million in the year 2000 to more than 3 billion by 2015 (over 40 per cent of the world's population). Recent worldwide growth in internet usage and access is shown in Figures 1.7 and 1.8. The internet is an important tool promoting the **globalisation** of trade, investment and culture.



#### Satellite technology

Today we are dependent on satellites for many aspects of our daily lives. They relay and transmit much of the information we use every day, for example through television transmission, telephone calls, weather data collection and military intelligence. Until the early 1990s most satellites launched into orbit were used for military purposes. Since then, however, the number of satellites orbiting the earth has increased significantly and the cost of using them has decreased.

1.8 Households with internet, by region, 2005–13



— Europe  
— The Americas  
— CIS  
— Arab states  
— Asia and Pacific  
— Africa

CIS = Commonwealth of Independent States (Russia and former Eastern European states)

Source: ITU World Communications

## Advances in transport

### Air transport

Developments in aviation technology, especially the introduction of the Boeing 747, have led to lower travel costs and increased volumes of international tourism and business activity. In addition to cost savings, coordination between different types of transportation (air, road, rail and shipping) has helped to reduce the time lost in the movement of people and cargo. The result has been a rapid increase in world trade and international tourism. These, in turn, have had an impact on our cultural identity. When we are exposed to new customs and traditions, we often integrate aspects of these into our own way of life.

## ACTIVITIES

### Knowledge and understanding

- 1 What is a 'global village'?
- 2 Explain how recent changes in technology helped to create a global village.
- 3 What is a microprocessor? Explain how have microprocessors changed international communications.
- 4 How have the availability and cost of satellite communications changed over time?
- 5 Describe the impact of recent developments in air, sea and land transport on the cost of transporting both freight and passengers.

### Applying and analysing

- 6 What do you think international transport and communications will be like in 2050? Prepare a talk, poster or comic strip outlining your vision.

## SPOTLIGHT

### The Monsterbus

The aviation industry has taken a technological leap forward with the introduction of the giant Airbus A380. The double-decked aircraft is capable of carrying 550 passengers—25 per cent more than the Boeing 747.



Source: Qantas

1.9 Airbus A380

### Land transport

Increased levels of investment in rail and road infrastructure have made land transport faster and more competitive over longer distances. The introduction of high-speed rail systems and new cargo handling equipment has, for example, cut delivery times and increased efficiency. Likewise, the development of refrigerated road and rail transport has enabled fresh produce to be transferred over long distances.

### Sea transport

Technological developments in shipping and cargo handling have been central to the expansion of international trade. As ships have increased in size, the cost of transporting goods has declined. Specialised bulk carriers, oil tankers and container ships lower costs and reduce the amount of time that ships spend in port being loaded and unloaded. Containerisation has revolutionised the way cargo is handled. Containers are capable of being carried by road, rail or ship, eliminating the need for multiple handling of goods.



### Geographical skills

- 7 Study Figure 1.7. Name the region with the greatest percentage of internet growth per 100 inhabitants between 2003 and 2013. Can you suggest reasons for this growth pattern?
- 8 Study Figure 1.8. Rank the regions from the highest to lowest percentage growth of households with internet access between 2005 and 2013.

### Investigating

- 9 Interview three older people to find out what you can about changes in transport and communications technology over time. In small groups, create a timeline to illustrate your results.



# Key theme: Global interconnections

Today, because of technologies such as the internet, everything is connected to everything. We are now interdependent. We are linked as nations, and as individuals, as never before. These developments have helped to bring about, and reinforce, the process of globalisation.

## Globalisation

Globalisation is the term given to the process by which the economies and cultures of countries (and peoples) are becoming more integrated or independent. It involves the global spread of products, ideas and other aspects of culture. Globalisation can either erode or make universal the characteristics of local cultures. For example, local cultural traditions might be lost while distant traditions are embraced. Traditional Australian slang terms such as 'cobber', 'grouse', 'galah', 'jumper' and 'ridgy-didge' are falling into disuse, while we increasingly use US slang terms such as 'guys', 'sweater', 'bling', '24/7' and 'hoodie'—terms that we have become familiar with as a result of our television viewing.

While globalisation is not new, advances in transport and telecommunications technologies, including the rise of the internet, are major factors in its acceleration. Each new advance increases the interdependence of economic and cultural activities. It strengthens the connections between people and places.

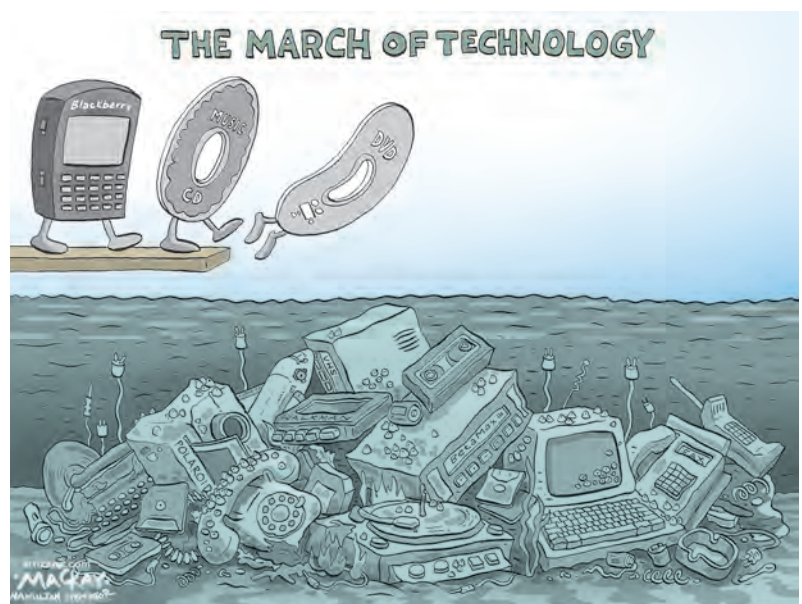
## Connections between producers and consumers

Advances in transport and communications technologies have transformed global patterns of production and consumption. In recent decades, labour-intensive manufacturing has moved to those parts of the world where the labour costs are lowest, especially the countries of East and South Asia and South and Central America. These manufactured goods are then shipped to a worldwide market in which consumption habits are shaped by media-based, global advertising campaigns. It is now possible to make a product almost anywhere in the world, using resources from anywhere, by a company located anywhere, to be sold anywhere. This has put businesses in one country in direct competition with businesses in others, and results in workers in different parts of the world competing against each other for jobs, wages and working conditions.

As a result of labour-intensive manufacturing abandoning the high-cost countries of the developed world, new forms of wealth generation have emerged. In the developed world the main focus is now on high value-added manufactured goods and service industries. High value-added manufactured goods include pharmaceuticals, aircraft and wine—goods that cannot be easily made without the necessary expertise and infrastructure. Service industries include financial management, education and healthcare.

## e-commerce

Electronic commerce or **e-commerce** is the buying of goods and services using the internet or other electronic systems. Fewer people are using cash to purchase goods and services. In 2012, the value of e-commerce exceeded a trillion US dollars in a single year for the first time. Australia's share of this was US\$36.2 billion.



1.10 Technology is continuously evolving.



1.11

Changing communications technology

More than 10 million Australians, or almost half the population, bought something online in 2012, spending an average of \$3547 per person. This average expenditure per online consumer is 54 per cent higher than expenditure in the United States of America and the highest in the world, except for the United Kingdom, which came in at number one.

## Technological innovation

As the world moves towards a global economic marketplace the same process is occurring in telecommunications. A single worldwide network of information networks with everything linked to everything else is being developed. Technological innovation continues at an ever-accelerating rate, with each technological advance compounding the speed and capabilities of advances that came before, as illustrated in Figure 1.10. The sum of all human knowledge is doubling every four years.

## Connections between people

Our online networks allow us to send and receive messages to and from people spread across the planet. As we become more connected, information circulates more efficiently, we interact more easily, and we manage more and different kinds of social connections. Figure 1.11 provides a satirical depiction of the evolution of communication.

## Social media

Online political activism through blogs, Facebook, Twitter and other forms of social media has allowed people to engage in a public sphere that would have otherwise been unreachable to them due to repression in the countries in which they live. In Tunisia and Egypt, social media were used to coordinate and disseminate information quickly, enabling protests to begin and expand. The new information and communication tools have been influential in accelerating the revolutionary processes across the Arab world.

## Cultural change

**Cultures** have evolved as a result of contact with other cultures for thousands of years, but the pace today has changed. In the past the influences of distant cultures spread slowly, delayed by long journeys. Today, because of television, the internet, telecommunications satellites, migration, world trade and long-distance travel, cultural influences can spread from one place to another as fast as the click of a mouse. No culture is, therefore, resistant to change. When ideas, technologies, products and people move from one place to another they influence each other. Sometimes, say critics of globalisation, one culture can invade another like a fast-growing weed.

## ACTIVITIES

### Knowledge and understanding

- 1 Explain what the term 'globalisation' means and identify the two main areas of growing interdependence.
- 2 **a** Outline how the global pattern of production and consumption has changed in recent decades.  
**b** What impact has this had on the distribution of manufacturing and labour-intensive employment?
- 3 Outline the role of technological innovation in promoting interconnectedness.
- 4 Outline the nature of cultural change.

### Applying and analysing

- 5 Study Figures 1.10 and 1.11. Write a sentence or two outlining the point the cartoonist is seeking to make in each cartoon.

# 1.6

## Geoskills: Analysing topographic maps

A topographic map is a detailed, large-scale representation of part of the earth's surface. Topographic maps show selected features of the biophysical, managed and constructed environments: the height, relief and slope of the land; drainage patterns and vegetation; and a range of human features including agricultural land uses, settlements and transport linkages.

### Analysing maps

Interpreting and analysing **topographic maps** allows you to:

- locate and describe the biophysical environment
- recognise, describe and explain elements of the managed and constructed environments, for example settlement patterns, patterns of transport infrastructure, and the distribution of agricultural and industrial landuses
- identify, describe and explain the relationship between biophysical features and the managed and constructed elements of environments
- determine the distance between places, and the area of features such as lakes, using a linear scale.

### 'Reading' the landscape

**Relief** is a general term describing the shape of the land, including height and steepness. The main techniques used to show relief are spot heights and contour lines and patterns. Layer colouring and landform shading are also used.

The elevation of a prominent landform feature is often shown using a spot height—a black dot or cross with the height written next to it. Spot heights give the exact height above sea level of the particular **location** or feature.

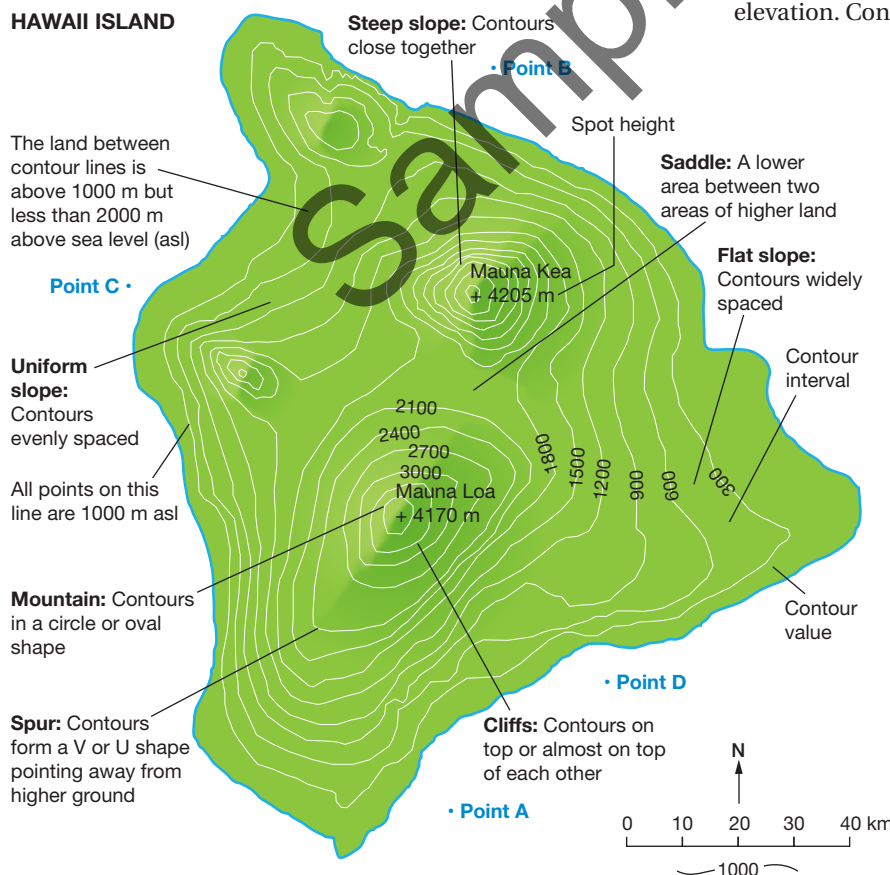
Contour lines are lines joining points of equal height above sea level. Every point along the line has the same elevation. Contour lines provide geographers with

information about the shape and slope of the land and the height of features above sea level. The contour interval, or vertical interval, is the difference in height between two adjacent contour lines. This interval is normally stated in the map's legend or near the edge of the map.

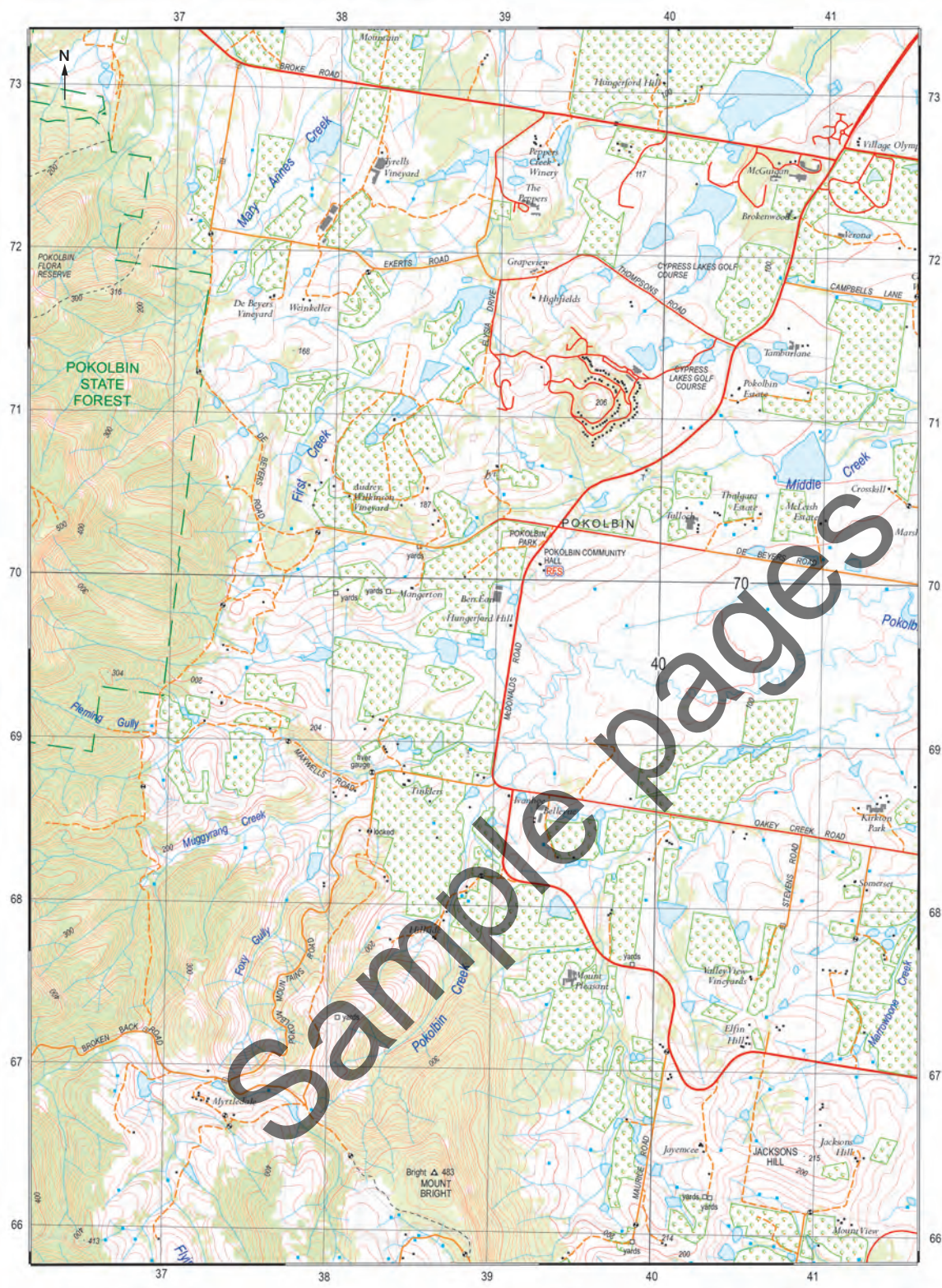
Each type of topographic feature is represented by its own distinctive contour pattern, such as the shield volcano depicted in Figure 1.12. Figure 1.13 is an example of a topographic map.

When the spacing of contour lines, reading from high to low, decreases, the slope is convex; that is, curved like the outside shape of a circle. When the spacing of contour lines, reading from high to low, increases, the slope is concave; that is, like the inside shape of a circle.

#### HAWAII ISLAND



1.12 Reading contour lines can tell us a lot about the nature of landforms.



0 km 0.5 1 2 km

- Secondary road: paved, unpaved
- Minor road: paved, unpaved
- - - Vehicular track: Stock grid.
- - - Four-wheel drive track: Gate
- - - Walking track
- silo □ yards ✕ Landmark feature. Stockyards. Mine
- Water tank or reservoir. Ground tank or dam
- 123 Ancillary contour. Spot height
- 1000 Contours. Depression contour
- Closed forest: 80-100% crown cover. Open forest: 50-80% crown cover
- Woodland: 20-50% crown cover. Pine forest
- Orchard, plantation or vineyard. Mangrove

1.13 Pokolbin topographic map extract

- Perennial lake. Intermittent lake. Mainly dry lake
  - Intermittent stream, with waterfall
  - Mainly dry stream. Perennial stream
  - Large dam or weir
  - ■ ■ Lauren
  - ■ ■ Building, small. Building, large. Homestead
  - ■ ■ Wind generator. Windpump. Rural fire station
- BOUNDARIES**
- - - State Forest

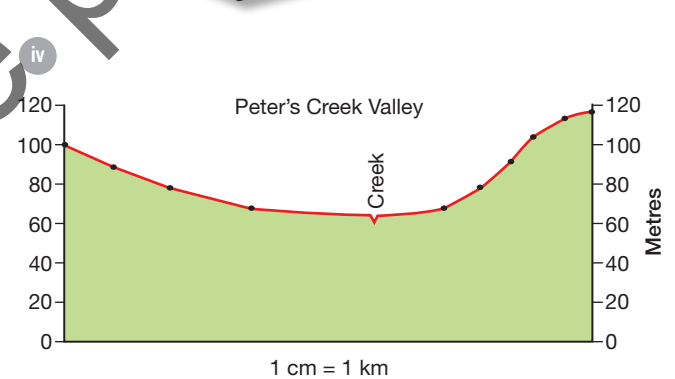
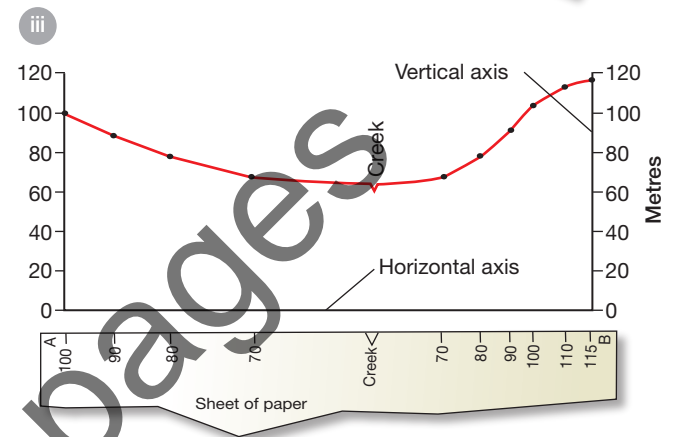
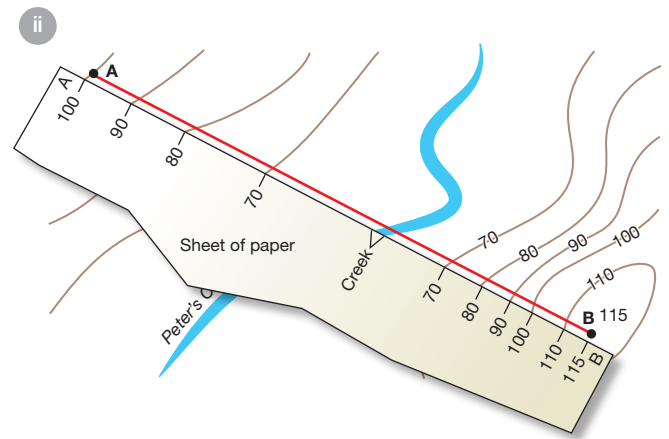
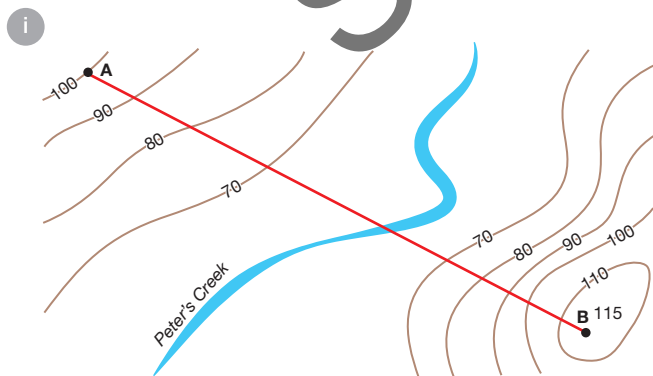
## Cross-sections

A **cross-section** is a side view, or profile, of a landscape and provides a visual impression of the shape of the land. Information about landuse, settlement, drainage and vegetation can be added to cross-sections. This provides a means of seeing how the shape of the land influences these features.

## Drawing a cross-section

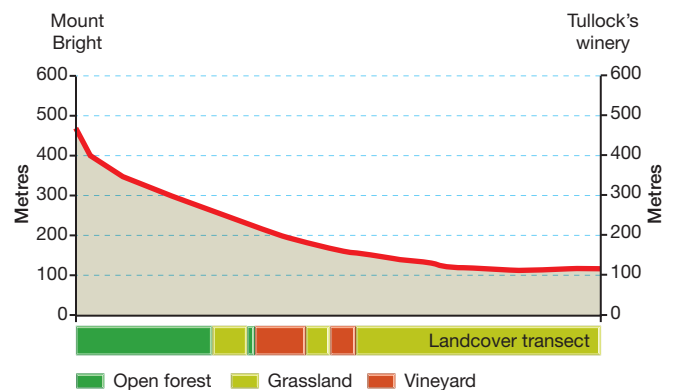
To draw a cross-section, follow the steps below and refer to Figure 1.14.

- 1 Locate the two points on the map between which the cross-section is to be made. Label these points 'A' and 'B' (see drawing i).
- 2 Place the straight edge of a piece of paper along an imaginary line joining points A and B. Mark points A and B on your paper (see drawing ii).
- 3 Mark the position where your paper crosses each contour line. Write the value of each contour line on your piece of paper (see drawing ii).
- 4 On graph or squared paper, draw the horizontal and vertical axes for your cross-section (see drawing iii). The length of the horizontal axis should equal the distance between A and B. The vertical axis should use a scale that does not over-exaggerate your vertical scale.
- 5 Place your piece of paper along your horizontal axis. Lightly plot, in pencil, the contour points and heights as if you were drawing a line graph (see drawing iii).
- 6 Join the dots with a fine, single, smooth curved line.
- 7 Label any features intersected by your cross-section.
- 8 Finish off your cross-section by:
  - a shading in the area below the landform
  - b labelling the scale on the horizontal and vertical axes
  - c giving it a title.



1.14 Steps involved in constructing cross-sections and an associated transect

1.15 A cross-section from Mount Bright to Tullock's winery (GR402704) and an associated land cover transect



## Transects

**Transects** are used to demonstrate the relationship between different features of the biophysical, managed and constructed environments along a cross-section or line of latitude (see Figure 1.15).

### Drawing a transect

To draw a transect, follow these steps:

- 1 Identify the two points between which you will use to construct your transect. It may be along a cross-section.
- 2 Decide on the element of the biophysical, managed or constructed environments you wish to highlight on your transect.
- 3 Place the edge of a piece of paper along the line of the proposed transect on the topographic map. Mark on the spread of the selected element.
- 4 Draw in the distribution of the feature along your transect.
- 5 Label each area or construct a legend that identifies the features numbered or shaded on your transect.
- 6 Give your transect an appropriate title.

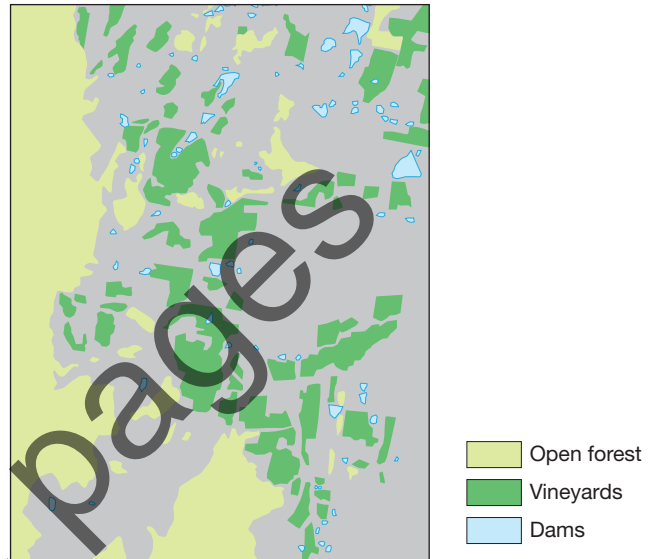
### Précis maps

A précis map (see Figure 1.16) shows the main features of a topographic map. By comparing précis maps it is often possible to identify the relationship between two features, for example between landform and settlement patterns. Précis maps are sometimes referred to as single-feature maps.

### Drawing a précis map

To draw a précis map, follow these steps.

- 1 Identify the feature or pattern to be studied, e.g. landforms, drainage, vegetation, settlement, transport or landuse.
- 2 Examine the distribution of the features on the map and the pattern created.
- 3 Draw in the distribution of the feature.
- 4 Label each area or construct a legend that identifies the features numbered or shaded on the map.



1.16 Sample précis map showing the drainage pattern on the Pokolbin topographic map extract (drawn from Figure 1.13)

## ACTIVITIES

### Geographical skills

- 1 Study Figure 1.12. Construct the cross-sections A–B and C–D.
- 2 Study Figure 1.13 then answer the following questions.
  - a What is the scale of the map?
  - b What is the contour interval used?
  - c Identify the feature of the biophysical environment located at:
    - GR387664
    - GR409665
  - d Identify the feature of the managed environment located at:
    - GR400715
    - GR404677
  - e Identify the features of the constructed environment at:
    - GR400715
    - GR382725
  - f Name the drainage feature found in AR3768.
  - g Name the type of vegetation found in AR3670.
  - h What is the direction of Mount Bright (GR387664) from the Brokenwood Estate (AR4072)?
  - i In what direction is First Creek flowing in AR3871?
  - j What is the aspect of the slope in AR3770?
  - k What is the bearing of Jacksons Hill (GR409665) from Mount Bright (GR387665)?
  - l What is the bearing of Mount Bright from Tullock's winery (GR402704)?
  - m What is the straight-line distance between Mount Bright and the summit of Jacksons Hill?
  - n Identify the main agricultural landuse in the area covered by the Pokolbin topographic map extract.
  - o In what ways have people modified the water cycle in the area covered by the Pokolbin topographic map extract?
  - p What evidence is there that Pokolbin is also an important tourist destination in addition to being a centre of wine production?
  - q What is the relationship between topography and agricultural landuses?

# 1.7

## Geoskills: Photograph interpretation: Agriculture

Agriculture is the world's most important industry. It provides humans with essential supplies of food and many other raw materials. Agriculture accounts for more land than any other human activity and has a great impact on the biophysical environment. Soils, water, plants and other natural elements are important factors affecting the operation of a farming system.

### Types of agriculture

Figures 1.17 to 1.22 provide examples of different types of agriculture. The type of agriculture depends on physical, human and economic factors. Agriculture is often classified as either commercial or traditional, and intensive or extensive.

Commercial agriculture uses energy (mainly fuel oil for machinery), water and chemicals to produce huge amounts of food and other agricultural products, including fibres (such as cotton).

Traditional agriculture consists of two types: subsistence and intensive.

- Traditional subsistence agriculture involves people producing just enough food to meet their family's needs. Subsistence farmers rely on human labour and animal power. Examples are shifting agriculture in tropical forests and nomadic herding.
- Traditional intensive agriculture involves farmers using increased amounts of human and draught (animal) labour, fertiliser and water to increase the amount of food produced. If there is more food produced than can be used by the family, some may be sold at market. The intensive production of rice is an example of this type of agriculture. Traditional subsistence agriculture is practised by almost half the people on earth.

Extensive agriculture involves the farming of a large area with limited use of labour and capital, or with limited labour and high investment of capital and technology.

Intensive agriculture is the farming of a small amount of land by a large labour supply with limited technology and investment (for example rice growing in Bali) or a large amount of capital, labour and technology used in a relatively small area, as in horticulture.



1.17 Nomads grazing their livestock in the African Sahel: an example of traditional subsistence agriculture



1.18 Rubber plantations are an example of commercial agriculture. Most plantation crops are found in the tropics. Other plantation crops are cacao, copra, coffee, tea, pineapples and bananas.



**1.19** The cultivation of rice is an example of traditional subsistence agriculture. It involves farmers using human and draught labour, fertiliser and water to maximise the amount of food produced.



**1.21** Grain production is an example of extensive commercial agriculture using high levels of capital investment and technology.



**1.20** Cattle grazing in the United States of America is an example of extensive commercial livestock production.



**1.22** Grape growing is an example of intensive commercial agriculture. High levels of capital investment and technology are used to produce wine.

## ACTIVITIES

### Knowledge and understanding

- 1** Explain why agriculture is considered to be the world's most important industry.
- 2** List the elements that are important for farming.
- 3** Explain what is meant by the term 'commercial agriculture'.
- 4** Distinguish between traditional subsistence agriculture and traditional intensive agriculture.

### Applying and analysing

- 5** Create a Venn diagram comparing extensive and intensive agriculture.
- 6** Classify each of the following types of agriculture:
  - a** the growing of rice in terraced paddy fields
  - b** the combination of wheat and sheep production in Australia
  - c** battery hen production
  - d** dairying in Western Europe

- e** shifting agriculture in the Amazon Basin
- f** rubber plantations in Malaysia
- g** viticulture (the growing of grapes for wine production)
- h** cotton growing in north-west New South Wales.
- 7** Analyse Figures 1.17 to 1.22 then copy and complete the following table.

Image	Type of agriculture	Scale of production
1.17		
1.18		
1.19		
1.20		
1.21		
1.22		





# Review and reflect 1

## Activity 1

### Investigating the news

Access the Newsmap website. Newsmap is a news aggregation tool that organises news stories, by popularity and volume of reporting, as a treemap—making it easy to see what's going on and how much coverage stories are receiving.

- List the areas the news stories are divided into.
- What are the main stories featured?
- Identify the nature of news stories published in Australia.
- What other countries get a mention?
- Select one of the new stories in Australia and compare its popularity around the world.
- What do you notice about the popularity of the news story?

## Activity 2

### Industrial Revolution

During the Industrial Revolution, a group of protestors called 'Luddites' formed in Britain. They resented the replacement of human labour and manual skills with machines. In a number of factories they smashed machinery. Write a paragraph for a political pamphlet on behalf of the Luddites, putting forward their point of view. Then write a letter to a newspaper, putting forward the point of view of a factory owner.

## Activity 3

### Information technology

In 2013, United States President, Barak Obama, pledged \$7 billion over 5 years to improve and expand electricity supplies in Africa. What infrastructure and knowledge do you think are necessary to ensure the spread of information technology across Africa and South America. (Hint: think about things such as batteries and IT support, which we take for granted.)

## Activity 4

### Wetland topographic map

Study Figure R&R1.1.

- What type of wetland ecosystem lines Saltwater Lagoon in the north-west quadrant of the topographic map extract?
- Name two vegetation types found in AR0680.
- Into what waterway does Saltwater Lagoon drain?
- Identify the feature of the biophysical environment found at each of the following grid references.
  - 069797
  - 043835
  - 040835
  - 074818
  - 045817
  - 077813
- Identify the feature of the constructed environment found at each of the following grid references.
  - 042831
  - 072828
  - 047818
  - 062824
- What is the direction of South West Rocks (AR 0483) from the summit of Big Smoky (AR0679)?
- In what direction is Saltwater Creek flowing in AR0582?
- What is the bearing of the summit of Big Smoky from South West Rocks (AR0483)?
- What is the straight-line distance between the bridge at GR042831 and the bridge at GR053826?
- What is the elevation of Little Smoky (AR0781)?
- What is the difference in elevation between Big Smoky (AR0679) and Little Smoky (AR0781)?
- Using information from the map, account for the existence of wetlands in the area covered by the topographic map extract.

R&R  
1.1

Source: Land and Property Information NSW, 2002