1.1 Geographical concepts

Geographers use seven concepts to help investigate and understand the world. The seven key concepts in geography are:

- **place**
- **space**
- **environment**
- **interconnection**
- **sustainability**
- **scale**
- **change.**

Place

Places are parts of the Earth's surface that are identified and given meaning by people. A place can be as small as your bedroom or as large as the entire planet!

Places can be natural (that is, shaped by the environment and largely unchanged by humans) or built (that is, constructed by humans).

The life of every person and animal on Earth is influenced by place. Places determine our relationships with one another. Our closest relationships are likely to be with people in the same place. The environmental and social qualities of a place all influence the way we live. Climate, landscapes, types of plants and **resources**, transport networks, entertainment venues and workplaces all have a major impact on place and on the way we live.

For Indigenous Australians, place also has a deeper spiritual meaning. Their sense of identity comes from their relationship with place. Aboriginal people have lived in the Kakadu region of the Northern Territory for over 50000 years. The region contains approximately 5000 rock art sites, some of which are over 20000 years old. They represent the longest historical records of any group in the world.

Geographers use the concept of place when conducting any **geographical inquiry**. For example, a geographer studying Perth (Source 1) would use the concept of place to help understand why people originally settled there, how the city was built and how it has changed over time.

They would also use place to investigate the important role the city plays in the lives of people from Perth, Australians, and people all over the world.

Source 1 Perth – an example of a built environment

Just as place influences people, people also influence place. The ways in which we live, and the actions we take, change the places in which we live. Geographers investigate the outcomes of these changes. For example, by investigating the way in which human actions have altered the Brazilian rainforest, geographers can learn how to better manage and care for our natural resources.

Space

To most people space means the empty universe but to a geographer it has a different meaning. Geographers investigate the way that things are mapped and arranged on the Earth's surface. They look for patterns and try to explain them. The concept of space helps them to do this. It has three main elements:

- location – where things are located on the Earth's surface
- spatial **distribution** – the shapes and patterns in which things are arranged on the Earth's surface
- organisation – how and why things are arranged and managed on the Earth's surface by people.

Geographers investigate the way that people use and change the space in which they live. They recognise that different groups of people use space in different ways and that this changes over time.

The city of Shimabara in the south of Japan (Source 2) illustrates the concept of space well. The city has been built on a flat coastal area at the foot of an active volcano, Mount Unzen. Houses, schools and office buildings in Shimabara are linked by roads leading to nearby farms closer to Mount Unzen. The volcano clearly presents a danger to people living in the town. As Source 2 shows, the flow of superheated ash and rock from the volcano has buried part of the city as it makes its way to the sea. At first glance it may not be clear why anyone would risk living this close to a volcano, but the fertile volcanic soil in the area makes it ideal for growing crops.

The concepts of place and space can be difficult to separate, but it will help if you remember that places can be divided into spaces. For example, a place, such as your school, has different spaces for learning (such as classrooms), playing (such as playgrounds), eating (such as the cafeteria or canteen) and running the school (such as staffrooms).

Larger places (such as your suburb, town or city) are also organised into different spaces. There are spaces for housing, businesses, industry, entertainment, and sport and recreation.

Our understanding of the location, patterns and planning of spaces helps geographers to make sense of our world.

Source 2 An **aerial photograph** showing the path of the hot ash and rock that flowed to the sea from Mount Unzen, an active volcano on the island of Kyushu in Japan. Part of the city of Shimabara (shown in the foreground) has been buried by the eruption.

Environment

The world in which we live is made up of many different environments. Some environments are natural (or physical) such as deserts, grasslands, mountains, coral reefs, forests, oceans and ice caps. In order for an environment to be considered natural, its soils, rocks, climate, plants and animals must remain largely untouched by humans. Today, there are very few truly natural environments left on Earth.

Other environments have been so altered by humans that very few natural features remain. These environments are known as built (or human) environments and include large cities, towns, suburbs and vast areas of farmland. Human environments not only affect the natural features (such as soil, plants and animals); they also affect the climate. A large city, such as New York, has its own microclimate. It will often be a few degrees hotter than the surrounding areas because concrete in the buildings traps the Sun's heat.

Most environments on Earth are now a combination of natural and human features. For example, Antarctica, the harshest environment on the planet, is considered a natural environment despite humans having altered some areas of it. These changes have included the building of a number of permanent research bases and the carrying out of various scientific studies both on land and at sea. The McMurdo research base, for example, operated by the United States (Source 3), has three airfields, a harbour and more than 100 buildings. In addition to these built structures, other human influences have affected this environment. The warming of the planet has contributed to the increased melting of ice shelves and pollution of our oceans has had an impact on sea and land animals in Antarctica.

The study of different environments helps geographers to analyse the changes humans make to natural environments and better appreciate their impact so that they can be managed more wisely.

Source 3 A scientist looking out over McMurdo Station at Observation Hill in Antarctica. The line between the natural and built environment is clearly illustrated in this photograph.

Interconnection

Geographers use the concept of interconnection to better understand the complex links between natural and human processes that shape our Earth. Places and people can be linked in many different ways that can be categorised as:

- natural processes, such as the water cycle and the food chain
- human activities, such as the movement of people, the production and trade of goods and the flow of investment and money within and between different countries.

It helps to think of the Earth as a single living organism, much like your body. The Earth's living systems (such as climate, plants, animals, oceans, soils, atmosphere and energy) all function together and are interconnected. Even a slight rise in the Earth's temperature, for example, will affect the oceans (such as damaging coral reefs), the land (such as failure of crops and drought) and the polar ice caps (such as increasing sea levels and forcing

millions of people to relocate). Source 4 shows a slum in Bangladesh, the most densely populated country in the world. Bangladesh is home to 150 million people. Its coastal zone has a very low elevation above sea level, making it one of the countries most vulnerable to **climate change** through rising sea levels.

Source 4 Bangladesh is one of the countries most vulnerable to climate change because of a number of interconnected processes that are causing sea levels to rise. It is estimated that 15 million of the poorest people living in Bangladesh, like those living in this slum, will be affected by a 1-metre rise in sea levels.

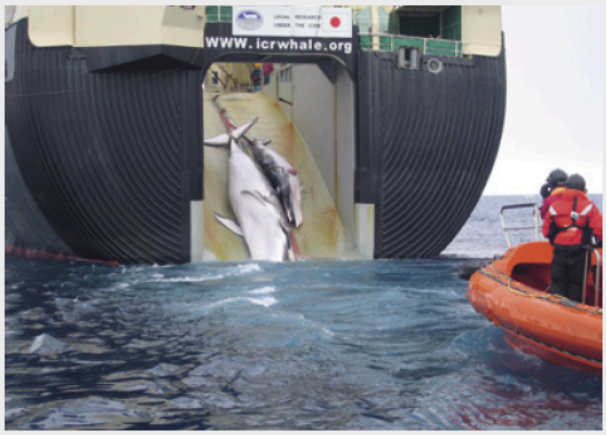
Sustainability

The concept of sustainability relates to the ongoing capacity of Earth to maintain all life. This means developing ways to ensure that all resources on Earth are used and managed responsibly so they are there for future generations.

Many of the world's resources (such as oil, coal and natural gas) are non-renewable. This means that if we continue to use them they will one day run out. Other resources (such as wind, forests, sunlight and water) are renewable. This means that they replace themselves naturally, or can be replaced to meet the needs of society. Sustainability encourages us to think about these different types of resources and take greater care of the Earth. Actions to improve sustainability can operate at a number of levels:

- Local – Recycling of paper by individuals, schools and households reduces the amount of trees that need to be cut down.
- National – In Australia the government has begun to encourage sustainable use of energy through the establishment of wind farms and hydroelectric power plants and the use of solar panels.
- International – Efforts to protect endangered whale species around the world have attracted media attention and focused public opinion on maintaining breeding grounds free of large whaling vessels (Source 5).

Sustainability is an important concept for geographers. They use it to investigate how natural and human systems work, and understand how resources can be managed in such a way that they will be sustained into the future.



Source 5 A minke whale and her one-year-old calf are being dragged on board the Japanese factory ship *Nisshin Maru*. Anti-whaling activists argue that the number of whales hunted by the Japanese each year is **unsustainable**.

Change

The Earth is constantly changing. Some changes occur very rapidly and are easy to see, while others take place over millions of years and are almost undetectable to us. The concept of change is important in geography because it helps us to understand what is happening around us. Changes can be caused by natural processess, such as climate or natural disasters, or by human processes.

Changes take place on many different levels, from personal and local right through to national and global. Small local changes that happen quickly, such as a creek flooding, are often easy to observe and explain. Larger regional or national changes, such as an earthquake or **tsunami**, can happen quickly and their effects can be widespread and have devastating impacts on places and people (see Source 6). Changes that take place on a global scale can take much longer to occur. Global warming, for example, is a long-term change that happens slowly. Global warming has widespread effects that are not easily explained.

Geographers need to look at different types of changes, why they have occurred, over what time period they have occurred and what further changes may take place as a result. Sometimes changes can be positive, such as the conservation of plants and animals in national parks, while other changes can have negative consequences, such as the deforestation of native rainforests in Indonesia. Geographers play an important role in ensuring that change is managed in a sustainable way.

Source 6 The changes that took place in a Japanese coastal suburb of Rikuzentakata as a result of a tsunami in March 2011 were devastating and very rapid. The top image shows the area before the tsunami and the bottom image shows the same area after it had struck.

Scale

Scale is an additional concept used to guide geographical inquiries. Geographers study things that take place on many different spatial levels – meaning from small areas (such as a local park) to very large areas (such as the use of oil and coal all over the world). A geographic inquiry of the ways in which people use parks, for example, may be carried out at a range of scales (from smallest to largest):

- local – such as an inquiry into the daily visitors to a neighbourhood skate park, and whether its facilities meet the needs of visitors
- regional – such as an inquiry into the types of visitors staying at campsites and tourist parks in Western Australia
- national – such as an inquiry into the yearly tourist numbers visiting national parks in Australia (such as Nambung National Park), including the impact these visitors have on our national parks and the way in which these parks are managed.
- international – such as an inquiry into animal poaching in national parks and wild game reserves in different countries across Africa
- global – such as an inquiry into the use of all marine parks around the world and how well they protect endangered species.

Source 7 Geographical inquiries can be carried out on a number of different spatial levels: local (e.g. at a nearby skate park); regional (e.g. at a campsite in the Grampians region of Victoria); national (e.g. at national parks across Australia); international (e.g. in different countries across Africa) and global (e.g. at marine parks all over the planet).

Check your learning 1.1

Remember and understand

1 Examine the photo of the Bungle Bungles (Source 1 on pages 4 and 5). Is this a natural or built environment? Give reasons for your answer.

2 Perth (shown in Source 1 on page 6) is one of the Australia's largest cities. List five ways in which this built environment would affect how people live and work.

Apply and analyse

3 Here are some examples of changes that may be occurring on Earth at any given time:
- A new freeway is being built through the city.
- The Earth's climate is warming.
- An earthquake is destroying a town in Turkey.

a Which of these changes are caused by human activities and which are caused by natural processes?

b Identify the scale at which each of the above changes takes place; that is, local, regional, national, international or global.

4 List three ways in which your school or household is addressing the concept of sustainability. Which of these do you believe is most successful? Why?

5 Study Source 6 Identify the major changes to the Japanese coastal suburb as a result of the tsunami. How might an understanding of the concept of change be useful in guiding the rebuilding or relocation of the suburb?

6 Your class is undertaking research on the Great Barrier Reef. Develop one question for each of the seven geographical concepts discussed in the text.

Evaluate and create

7 Create a diagram, such as a flow chart, to show the interconnection between the natural and built environment at Antarctica's McMurdo Station (Source 3). Include information on such aspects as climate, landforms, wildlife and human settlement.

8 Choose one of the key concepts that has been discussed. Design a poster for your geography classroom to help you and your classmates remember this concept and use it in geography.