

# 2 Risks and hazards

## Reading

- Selecting and prioritising what you read
- Thinking about what you already know
- Inferring the meaning of words
- Vocabulary building 1: collocations;
- 2: cause-effect markers
- Retelling what you have read

## Listening and speaking

- Preparing slides and presenting charts
- Pronunciation 1: numbers;
- 2: inserts

## Writing

- Using claims to plan essays
- Supporting claims with evidence

## Reading

### 1 Selecting and prioritising what you read



Study tip Most of the academic reading you do will be for a particular task (e.g. preparing for a written assignment, background reading before a lecture or tutorial, finding particular information to help you solve a problem). You should carefully select and prioritise your reading for each task.

- 1.1 As part of a course on natural hazards, such as earthquakes and tsunamis, you have been given the essay title *Discuss the risks and impacts of weather-related natural disasters*. You have drafted an outline for your essay, which is shown below.

*The risks*

- weather-related natural disasters
- what are they?
- their distribution, frequency and destructive power

*The impacts*

- social      • economic      • environmental      • political

- Look at the course reading list below and cross out any publications which you think are unlikely to be relevant for your essay.
- Decide the order in which you will look at the remaining publications.
- In pairs or small groups, compare your answers to a and b.

#### Module 211: Natural hazards      Reading list

- Alexander, D E (1985). Death and injury in earthquakes. *Disasters* 9: 57-60.
- Benson, C and Clay, E J (2004). *Understanding the economic and financial impacts of natural disasters*. Disaster Risk Management Series No. 4. Washington, DC: World Bank Publications.
- Bryant, E A (2005). *Natural Hazards* (2nd edn.). Cambridge: Cambridge University Press.
- Burton, I, Kates, R W and White, G F (1978). *The Environment as Hazard*. Oxford: Oxford University Press.
- Handmer, J W (2000). Flood hazard and sustainable development, in D Parker (ed) *Floods* (pp. 276-286). London: Routledge.
- Health and Safety Executive. (1989). *Risk criteria for land-use planning in the vicinity of major industrial hazards*. London: HMSO.
- Intergovernmental Panel on Climate Change. (2011). *Managing the risks of extreme events and disasters to advance climate change adaptation*. [http://www.ipcc.ch/popup-managing-risks-extreme-events\\_sp.htm](http://www.ipcc.ch/popup-managing-risks-extreme-events_sp.htm)
- Jacoby, H and Skoufias, E (1997). Risk, financial markets, and human capital in a developing country. *Review of Economic Studies* 64: 311-335.
- Jovel, J R (1989). Natural disasters and their economic and social impact. *CEPAL Review*, 38: 133-45.
- Kates, R W (1980). Climate and society: lessons from recent events. *Weather* 35: 17-25.
- Takada, J (2004). *Nuclear Hazards in the World: Field studies on affected population and environments*. Berlin: Springer.

- 1.2 Match the publications on the reading list in 1.1 to the text types in the box.

article in a journal    official report on a website    textbook  
official report published as a book    paper in an edited collection

## 2 Thinking about what you already know



**Study tip** Before you read a text, it is useful to consider how much you already know about the topic. This helps you to decide what you want to learn from the text, so that you can read selectively and more efficiently.

- 2.1 a As you prepare your essay on the topic of weather-related natural hazards, you find a text on tropical cyclones. Before you read it, think about how much you already know about the topic. Work in pairs and answer these questions.
- 1 What is the difference between a cyclone and a tropical cyclone?
  - 2 What other terms have a similar meaning?
  - 3 What are the main effects of tropical cyclones?
  - 4 Do tropical cyclones have any positive effects?
  - 5 Can you give any examples of notable tropical cyclones?
- b Scan the text to find the answers to questions 1-5.

### Tropical cyclones

#### Introduction

Tropical cyclones are defined as intense cyclonic storms that originate over warm tropical seas. In North America, the term 'hurricane' is used because cyclone refers to an intense, counterclockwise rotating, extra-tropical storm. In Japan and south-east Asia tropical cyclones are called 'typhoons'. The hazards relating to tropical cyclones can be grouped under three headings: storm surge, wind and rain effects. Storm surge is a phenomenon whereby water is physically piled up along a coastline by low pressure and strong winds. This leads to loss of life through drowning, inundation of low-lying coastal areas, erosion of coastline, loss of soil fertility due to intrusion by ocean salt-water and damage to buildings and transport networks. High-wind velocities can directly cause substantial property damage and loss of life, and constitute the main agent for crop destruction. Surprisingly, strong winds – simply because they are so strong – can also exacerbate the spread of fires in urban and forested areas, even under heavy rainfall. Rainfall is responsible for loss of life, property damage and crop destruction from flooding, especially on densely populated floodplains. Contamination of water supplies can lead to serious disease outbreaks weeks after the cyclone. Heavy rain in hilly or mountainous areas is also responsible for landslides or mud flows as floodwaters in stream and river channels mix with excess sediment brought down slopes. The destruction of crops and saline intrusion can also result in famine that can kill more people than the actual cyclone event. This was especially true on the Indian subcontinent during the latter part of the nineteenth century.

Earthquakes are not an obvious consequence of cyclones; however, there is substantial evidence for their occurrence during cyclones. Pressure can vary dramatically in a matter

Extra-tropical

W 4, p37

Loss of life; erosion of coastline

W 1, p36

Serious disease outbreaks; substantial damage

W 3, p37

Occurrence

W 2, p36

of hours with the passage of a cyclone, bringing about a consequentially large decrease in the weight of air above the Earth's surface. The deloading can be as much as 2-3 million tonnes  $\text{km}^2$  over a matter of hours. In addition, tidal waves or surges in the order of 10-12 m in height can occur in shallow seas with a resulting increase in pressure on the Earth's surface of 7 million tonnes  $\text{km}^2$ . In total the passage of a cyclone along a coast can induce a change in load on the Earth's crust of 10 million tonnes  $\text{km}^2$ . In areas where the Earth's crust is already under strain, this pressure change may be sufficient to trigger an earthquake. The classic example of a cyclone-induced earthquake occurred with the Tokyo Earthquake of 1923. A typhoon swept through the Tokyo area on 1 September, and was followed by an earthquake that evening. The earthquake caused the rupture of gas lines, setting off fires that were fanned by cyclone-force winds through the city on 2 September. In all, 143,000 people lost their lives, mainly through incineration. There is also evidence that tropical cyclones have triggered earthquakes in other places along the western margin of the Pacific plate and along plate boundaries in the Caribbean Sea. In Central America the coincidence of earthquakes and cyclones has a higher probability of occurrence than the joint probability of each event separately.

Bryant, E (1991). *Natural Hazards*. Cambridge: Cambridge University Press.

- 2.2 Read the text in more detail and underline descriptions of any risks or impacts of tropical cyclones to use in your essay.

### 3 Inferring the meaning of words

- 3.1 Try to infer the meaning of the words in bold from context using the strategy introduced in Unit 1, 5.1. Use a dictionary to check your answers.

- Tropical cyclones are defined as intense cyclonic storms that **originate** over warm tropical seas.
- High-wind velocities can directly **constitute** the main agent for crop destruction.
- Surprisingly, strong winds can also **exacerbate** the spread of fires in urban and forested areas ...
- Pressure can **vary dramatically** in a matter of hours ...
- The passage of a cyclone along a coast can induce a change in load on the Earth's crust of 10 million tonnes  $\text{km}^2$ . This pressure change may be **sufficient to trigger** an earthquake.

### 4 Vocabulary building 1: collocations

- 4.1 Complete the expressions using the words in bold from 3.1.

- |   |   |
|---|---|
| 1 <u>constitute</u> an offence<br>a threat<br>a problem | 4 _____ evidence<br>information<br>detail |
| 2 _____ considerably<br>greatly<br>enormously           | 5 _____ a change<br>a response<br>growth  |
| 3 _____ competition<br>pressure<br>interest             | 6 _____ increase<br>improve<br>reduce     |

## 5 Vocabulary building 2: cause-effect markers

- 5.1 a Read the first paragraph of the text in 2.1 again. Find the phrases used to link the causes and effects and write them in the table.

cause	→	effect
storm surge high wind velocities strong winds rainfall contamination of water supplies heavy rain in hilly areas the destruction of crops	leads to	loss of life through drowning substantial property damage the spread of fires loss of life serious disease outbreaks landslides famine

- b Read the second paragraph again and underline other phrases that link cause and effect.

 **Focus on your subject** Using some of the phrases from 5.1 a and b, write three new sentences linking cause and effect relevant to your subject. For example:  
*Management is responsible for establishing effective communication in a company.*

## 6 Retelling what you have read



**Study tip** Retelling in your own words something that you have read can be a useful way of checking your understanding of what you have read and helping you to remember it.

- 6.1 Read the report in the text of the Tokyo Earthquake of 1923 (lines 30–34) again. In pairs, retell the story of the earthquake using the events and the sequencing phrases in the boxes.

Events

earthquake fires made worse by strong winds  
gas caught fire gas lines broke  
people died in fires typhoon

Sequencing phrases

first of all ... after that ...  
next ... then ...  
at the same time ...

## 7 Preparing slides for presentations



**Study tip** When you give presentations you may be expected to use slides. It is worth learning how to prepare slides on a computer, both for your academic studies and for your future career.

- 7.1 In pairs, decide whether the following pieces of advice on preparing slides are things you should do (✓) or things you shouldn't do (X).

- Use bullet points rather than continuous text. ✓
- Use different fonts within a slide. \_\_\_\_\_
- Use a simple font like Times New Roman or Arial. \_\_\_\_\_
- Use a font size of at least 24 points. \_\_\_\_\_
- Use phrases and key words instead of sentences. \_\_\_\_\_
- Use as many illustrations as possible. \_\_\_\_\_
- Use a light text on a dark background. \_\_\_\_\_
- Use a font colour that contrasts with the background. \_\_\_\_\_
- Use underlining or italics for emphasis rather than bold. \_\_\_\_\_
- Use different font sizes for main and secondary points. \_\_\_\_\_
- Use capital letters for all your text. \_\_\_\_\_
- Use three to five points per slide. \_\_\_\_\_