2 Risks and hazards

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

a Look at the course reading list below and cross out any publications which you think are unlikely to be relevant for your essay.

b Decide the order in which you will look at the remaining publications.

c In pairs or small groups, compare your answers to a and b.

Module 211: Natural hazards Reading list

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

<table>
<thead>
<tr>
<th>article in a journal</th>
<th>official report on a website</th>
<th>textbook</th>
</tr>
</thead>
<tbody>
<tr>
<td>official report published as a book</td>
<td>paper in an edited collection</td>
<td></td>
</tr>
</tbody>
</table>

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...
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 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 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 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.

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.
1 Tropical cyclones are defined as intense cyclonic storms that originate over warm tropical
seas.
2 High-wind velocities can directly constitute the main agent for crop destruction.
3 Surprisingly, strong winds can also exacerbate the spread of fires in urban and forested
areas ...
4 Pressure can vary dramatically in a matter of hours ...
5 The passage of a cyclone along a coast can induce a change in load on the Earth’s
crust of 10 million tonnes 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 constitute an offence a threat a problem
2 considerably greatly enormously
3 competition pressure interest
4 evidence information detail
5 a change a response growth
6 increase improve 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.

<table>
<thead>
<tr>
<th>cause</th>
<th>effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>storm surge</td>
<td>loss of life through drowning</td>
</tr>
<tr>
<td>high wind velocities</td>
<td>substantial property damage</td>
</tr>
<tr>
<td>strong winds</td>
<td>the spread of fires</td>
</tr>
<tr>
<td>rainfall</td>
<td>loss of life</td>
</tr>
<tr>
<td>contamination of water supplies</td>
<td>serious disease outbreaks</td>
</tr>
<tr>
<td>heavy rain in hilly areas</td>
<td>landslides</td>
</tr>
<tr>
<td>the destruction of crops</td>
<td>famine</td>
</tr>
</tbody>
</table>

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 5.1a 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  Sequencing phrases
earthquake  fires made worse by strong winds  first of all ...
gas caught fire  gas lines broke  after that ...
people died in fires  typhoon  next ...

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 (✗).

1 Use bullet points rather than continuous text. ✓
2 Use different fonts within a slide. ✗
3 Use a simple font like Times New Roman or Arial. ✗
4 Use a font size of at least 24 points. ✗
5 Use phrases and key words instead of sentences. ✓
6 Use as many illustrations as possible. ✗
7 Use a light text on a dark background. ✗
8 Use a font colour that contrasts with the background. ✗
9 Use underlining or italics for emphasis rather than bold. ✗
10 Use different font sizes for main and secondary points. ✓
11 Use capital letters for all your text. ✗
12 Use three to five points per slide. ✗
7.2 Identify the positive and negative features of the following slides using the advice in 7.1.

A Main classes of volcano
- Active: regularly erupt
- Extinct: now quiet
- Dormant: haven’t erupted in historical times

B Main classes of volcano
There are three main classes of volcano that are referred to as active, extinct, and dormant. **Active volcanoes** are ones that regularly erupt (e.g. Mount St Helens in the US). **Extinct volcanoes** are now quiet, although they have erupted in historical times (e.g. Kilimanjaro in Tanzania). **Dormant volcanoes** are ones that haven’t erupted in historical times (e.g. Nisyros in Greece).

8 Choosing the right type of chart for a slide

8.1 In pairs, discuss which of the charts (A–F) would be particularly useful for the following purposes (1–5). There may be more than one answer.

1. Showing trends
2. Showing the steps in a process
3. Showing percentages
4. Comparing different amounts
5. Comparing multiple sets of numbers

- A pie chart
- B line graph / chart
- C table
- D flow chart / diagram
- E vertical bar graph / chart
- F horizontal bar graph / chart
9  Presenting charts

9.1 a You are going to hear an extract from a lecture on natural hazards, where the lecturer talks about the following chart. Before you listen, in pairs discuss which three pieces of information in the chart you think the lecturer will highlight.

![Figure 2: U.S. annual death rate (in no. deaths per 100 000)]

- Major disease
- Motor vehicle accidents
- AIDS
- Suicide
- Homicide
- Falls
- Poisonings
- Drownings
- Fires
- Airline accidents
- Floods
- Lightning
- Landslides
- Earthquakes
- Tsunami
- Volcanoes

**Death rate**

0 5 10 15 20 25 30 35 40 45 50


b (9.2.1) Listen and check your ideas.

9.2 a (9.2.2) When speakers talk about charts in their presentations they often follow the four stages shown below. Listen and complete the following extracts.

1. Tell the audience what to look for

   **Figure 2 on the second page of your handout?**

2. Explain what the chart shows

   Ok, ______________________ the causes of death in the United States.

3. Highlight the main information

   Although there’s a lot here of interest, ______________________ three pieces of information. The first is that by far the major cause of death is disease.

4. Explain how the information relates to the rest of the talk

   So, ______________________ is that while the risks of natural hazards can sometimes seem very serious ...

b Here are some more phrases that might be used to introduce these four stages. Which stage (1–4) are they most likely to introduce?

- a The chart gives information about ... ______
- b What’s of particular relevance here is that ... ______
- c Could you turn to Figure 2.3? ______
- d There are a couple of things of particular note. ______
Unit 2 | Risks and hazards

9.3 a Prepare to present the chart below as part of a longer presentation comparing the health risks faced by males and females. Organise your talk using the four stages from 9.2a and use the phrases in 9.2a and b to introduce each stage.
b Give your talk to a partner.

Figure 4 Distribution of deaths by leading cause groups, males and females, world, 2004


10 Pronunciation 1: numbers

When you give a presentation with charts, it is likely that you will have to use a variety of numbers.

10.1 a Decide how these groups of numbers should be pronounced.

1 Cardinal numbers
   a 0; 101; 466
   b 1200; 1201; 12,245
   c 111,456; 1,222,567

2 Ordinal numbers
   a 1st; 2nd; 3rd
   b 14th; 21st; 32nd
   c 100th; 1000th

3 Dates
   a 1234; 1954; 1987
   b 2008; 2012; 2020
   c 21st May 1956; 2/9/1989

4 Decimals and fractions
   a 0.1; 0.02; 0.009
   b 3.4; 56.78; 39.197
   c $\frac{1}{2}$; $\frac{3}{4}$

b Listen and check your answers, then in pairs practise saying the numbers.

11 Pronunciation 2: inserts

In presentations, we often use inserts (extra, non-essential information added to sentences). In writing, we often put dashes [–] or brackets ([ ]) before and after inserts. In speech, we usually pause before and after the insert. We use a fall-rising tone on the main stress in short inserts; in longer inserts there is more variety.

11.1 a Listen to the inserts in these extracts from the presentation you heard in 9.2a. Match each extract (1–3) to the explanation of the use (a–c).

1 So, for example, the death rate from homicide – that's the fifth figure down – was 9.9 per 100,000.
2 The second is that, apart from car accidents, which kill large numbers of people, death from accidents – in falls, drowning, airline crashes, and so on – are relatively small in number.
3 And the third – and of particular relevance to this talk – is that natural hazards kill a relatively tiny number of people.
   a The insert adds an example. _______
   b The speaker inserts an opinion. _______
   c The speaker inserts a guide, telling the audience where to look on the chart. _______

b In pairs, practise saying the extracts (1–3) to each other.
11.2 a Add the inserts in brackets to the following sentences in an appropriate position.

1 Levels of unemployment rose rapidly during the 1970s. (– that’s the blue line – )
2 A number of grain crops need huge amounts of water to grow. (– rice, for example – )
3 Managers need to be motivated to carry out their activities, and so compensation has to be linked to performance. (– and this is key – )
4 In a number of European countries over 80 per cent of the population now lives in urban areas. (– Sweden, for instance – )
5 The results showed a considerable amount of disagreement between participants in the study. (– and this was unexpected – )

b In pairs, say the extracts using a fall-rising tone for the insert, and pausing before and after it.

c Write down three pieces of information that you might present on a topic from your subject, and then add extra information to each in the form of an insert. In pairs, say the sentences.

12 Using claims to plan essays

12.1 a You have been asked to write an essay with the title Natural disasters have a greater impact on less economically developed countries (LEDCs) than more economically developed countries (MEDCs). How far do you agree with this statement? What type of essay is it: describe, discuss, or defend?

b After some initial reading, you listed the following claims made by writers. Which claims support the statement in the essay (√) and which ones don’t (✘)?

1 Healthcare facilities in LEDCs are often less able to cope with demand after a natural disaster. (√)
2 Poorer people may have to risk living in disaster-prone areas, where land is cheap, in order to make a living. (√)
3 Factors other than the level of national development influence how severe the impact of a natural disaster on a country is. (√)
4 Disasters have a greater social impact on poorer people than better-off people. (√)
5 Infrastructure (e.g. roads, airports, electricity and gas supply) in LEDCs is often of poorer quality, and can easily be damaged or destroyed in natural disasters. (√)
6 While MEDCs may be better placed than LEDCs to face natural disasters, there may be variation within MEDCs. (√)
7 In some LEDCs there are only basic water and sewage facilities, which can easily be damaged by natural disasters. (√)
8 Most people who die as a result of natural disasters are in LEDCs. (√)
9 Tourism, which is an important part of the economy in many LEDCs, can be particularly badly hit by damage to infrastructure. (√)
10 MEDCs have more developed infrastructure, which is very expensive to replace or repair if it is damaged. (√)
11 Fewer people in LEDCs have insurance against property damage. (√)

12.2 Match the claims you ticked in 12.1 to the types of impact they relate to.

Number of lives lost       2       2
Social impact            4       3
Economic impact       6       2
Health impact           1       4
Study tip: As you do research for an essay, note down general points (or claims) that you want to make. Then try to organise these claims as the skeleton of the body of the essay in a way that is relevant to the question.

12.3 Complete the following skeleton of the body of an essay using the claims in 12.1. Two of the answers have been written for you.

Natural disasters have a greater impact on LEDCs than MEDCs in a number of different ways. In terms of the number of lives lost, most people who die as a result of natural disasters are in LEDCs.

In addition, 

As far as economic impact is concerned, 

In particular, tourism, 

With respect to social impact, 

It is also the case that 

From the point of view of health, 

This can be made worse by the fact that 

However, in some respects natural disasters may have a greater impact on MEDCs. For example, MEDCs have more developed infrastructure, which is very expensive to replace or repair if it is damaged.

It may also be that 

Finally, 

most people who die as a result of natural disasters are in LEDCs.
13. Supporting claims with evidence

Study tip Unless they are ‘common knowledge’ (see Unit 1, section 11), most claims that you make in your writing should be supported with evidence.

13.1 a As you read more on the topic, you find evidence to support some of the claims in 12.1. Match the pieces of evidence (1–5) to the claims (a–e).

1. Research has shown that the United States and Japan suffered the most economic damage from natural disasters between 1991 and 2005 (Wills, 2009).

   a. Most people who die as a result of natural disasters are in LEDCs.

2. Between 1991 and 2005, 630,000 people were killed by natural disasters in LEDCs compared with 72,000 in MEDCs (International Strategy for Disaster Reduction, 2010).

   b. Disasters have a greater social impact on poorer people than better-off people.

3. When I did voluntary work in Haiti after the 2010 earthquake, the medical services there were clearly unable to deal with the huge number injured.

   c. MEDCs have more developed infrastructure, which is very expensive to replace or repair if it is damaged.

4. For example, most of the farming population of Bangladesh live in low-lying parts of the country where severe floods occur regularly.

   d. Healthcare facilities in LEDCs are often less able to cope with demand after a natural disaster.

5. “Although a household on a lower income may spend less in total terms than a wealthier household, they are likely to spend a higher proportion of their income on recovery” (Adams, 2008).

   e. Poorer people may have to risk living in disaster-prone areas in order to make a living.

b Match the pieces of evidence (1–5) to the following types of evidence (a–e).

A quotation _______ An example _______ Statistics _______

Personal experience _______ Research findings _______

Some useful phrases for introducing supporting evidence are:

[Author] ([date]) has argued/claimed that ...

In my personal experience ...

Research shows that in the written academic corpus the most common verb that goes in the structure It has been + reporting verb + that is suggested.

What do you think are the next most common verbs?

1. suggested
2. sh________
3. ar________
4. pr________
5. re________
6. de________
7. fo________
8. es________
9. ob________
10. as________

13.2 Revise the first draft that you wrote in 12.3. Write a second draft, adding the evidence from 13.1 and using the structure It has been + verb + that where possible. Try to find evidence to support other claims made, and include this in your new draft.

Example

In terms of the number of lives lost, most people who die as a result of natural disasters are in LEDCs. It has been reported, for example, that between 1991 and 2005, 630,000 people were killed by natural disasters in LEDCs compared with 72,000 in MEDCs (International Strategy for Disaster Reduction, 2010).
1 Complex noun phrases

Academic texts contain many examples of complex noun phrases. Often these take the form of a noun followed by a prepositional phrase beginning with of. Compare the following two sentences, where the second one uses a complex noun phrase with of to express the idea more efficiently.

Hansen (2008) focuses on the way in which second-language pronunciation is acquired.


Notice how the structure of the sentence changes.

• The verb becomes a noun:
  is acquired ➔ the acquisition of

• Some words are now not necessary:
  the way in which

1.1 Rewrite the underlined parts of the following sentences using a noun phrase with of. Find the main verb in the underlined part of each sentence and replace it with a related noun. Make any other changes necessary.

1 It has been argued that if wealth is distributed unequally, this can cause social unrest in any country (Johnson, 2010).

2 The next section will consider the ways in which foreign languages are assessed in schools.

3 Water supplies can be contaminated, and this can lead to serious disease outbreaks weeks after the cyclone.

4 If a woman consumes alcohol during pregnancy, this can affect the developing baby.

5 It has been found that a positive emotional state can reduce the pain that someone experiences.

6 When it was announced that the top rate of tax would increase to 80 percent, this led to multinational companies moving their offices out of the country.

2 Countable and uncountable nouns

2.1 a In pairs, write the following nouns in the correct column in the table. Use a dictionary to check your answers.

<table>
<thead>
<tr>
<th>coincidence</th>
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<th>damage</th>
<th>decrease</th>
<th>disease</th>
<th>erosion</th>
<th>evidence</th>
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<tbody>
<tr>
<td>countable</td>
<td>uncountable</td>
<td>countable and uncountable</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>

b The words that you have written in the third column come from the text in 2.1 on pages 27–28. Are they used countably or uncountably in that text?

• As research is an uncountable noun, it is only very rarely used as a plural and does not follow a number, or a quantifier used with countable nouns. For example:
  • a recent piece of research NOT a recent researches
  • two research studies NOT two researches
  • much research NOT many researches

Study tip When you record a new verb, make sure you also make a note of any related nouns e.g. distribute (v), distribution (n). This will help you when you try to write complex noun phrases. (See also Unit 1, G&V 2.3, p 24.)

Study tip Some nouns can be used either countably or uncountably. A good dictionary will tell you if a word can be used in both ways. When you come across a new noun, make a note of whether it is countable, uncountable, or both, and indicate this in your notes. e.g. requirement (C), research (U), analysis (C/U)

2.2 Look at a piece of writing that you have done recently. Can you find any places where you could express yourself more efficiently using a noun phrase with of?

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1.2 Look at a piece of writing that you have done recently. Can you find any places where you could express yourself more efficiently using a noun phrase with of?
3 Adjectives meaning large or important

Research shows that the following nouns occur frequently after the adjectives considerable, serious, significant, and substantial.

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>considerable</td>
<td>amount, attention, consideration</td>
</tr>
<tr>
<td>serious</td>
<td>implications, consequences</td>
</tr>
<tr>
<td>significant</td>
<td>effect, number</td>
</tr>
<tr>
<td>substantial</td>
<td>amount, increase, change, part</td>
</tr>
</tbody>
</table>

3.1 Write four sentences related to your subject using the adjective + noun combinations in the corpus research box. For example (from Business Studies):

- In the past few years there has been considerable interest in Total Quality Management (TQM).
- Recruitment of CEOs can present a serious challenge to large firms.
- A reduction in labour costs can lead to a significant increase in a company’s profits.
- Improvements in IT can save a company substantial amounts of money.

4 Prefixes

4.1 a Match the prefixes (1–10), which are commonly used in academic vocabulary, to the definitions (a–j).

1 sub- e.g. subheading, subsonic  c before
2 intra- e.g. intrafamily, intracompany  d too much / more than / on / above / on top of
3 pro- e.g. pro-American, pro-life  e within / into
4 post- e.g. postgraduate, post-industrial  f supporting / approving
5 under- e.g. underfunded, underrate  g under / below / less important / smaller part
6 super- e.g. super-virus, superabundance  h more than usual / over / above
7 extra- e.g. extra-tropical, extraordinary  i after / later than
8 anti- e.g. anti-racist, anticlockwise  j not enough / below / less important
9 pre- e.g. prerequisite, prerecord  k opposed to / against / opposite of / preventing
10 over- e.g. over-ambitious, overheat  l outside / in addition to / beyond

b Find pairs of prefixes with opposite meanings, e.g. over/under.

4.2 a Read the definitions and complete the words using the prefixes (1–10) in 4.1.

1 pro-European (adj) in favour of European unification
2 _______pay (v) to pay someone too little for their work
3 _______section (n) one of the smaller parts into which a text is divided
4 _______-terrestrial (adj) outside of planet Earth
5 _______operative (adj) the time after a medical operation

b Read the definitions and add word endings to the following prefixes.

1 over_________ (v) to extend beyond a safe or reasonable limit
2 intra_________ (adj) within the same culture
3 pre_________ (v) to have existed before another thing
4 super_________ (n) a country with great political and military strength
5 anti_________ (n) a medicine that can kill harmful bacteria

Focus on your subject: Can you find terms commonly used in your own subject that use these prefixes? If you are unsure of their meaning, check them in a dictionary or (if available) an online glossary.