

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel  
Level 3 GCE**

Centre Number

Candidate Number

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**Tuesday 14 May 2019**

Afternoon (Time: 1 hour 45 minutes)

Paper Reference **8GE0/01**

**Geography**

**Advanced Subsidiary**

**Paper 1: Dynamic Landscapes**

**You must have:**

Resource Booklet (enclosed)  
Calculator, ruler

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer Question 1 in Section A **and EITHER** Section B **OR** Section C.
- Answer the questions in the spaces provided
  - *there may be more space than you need.*
- Calculators may be used.
- Any **calculations** must show **all** stages of **working out** and a **clear answer**.

### Information

- The total mark for this paper is 90.
- The marks for **each** question are shown in brackets
  - *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

*Turn over* ►

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Pearson

**Answer Section A and EITHER Section B OR Section C.**

**SECTION A: TECTONIC PROCESSES AND HAZARDS**

**Answer Question 1. Write your answers in the spaces provided.**

**You must use the Resource Booklet provided.**

**1 (a) State which type of earthquake wave travels fastest.**

**(1)**

**(b) Study Figure 1a in the Resource Booklet.**

**(i) Compare the distribution of reported ground shaking between the February and November earthquakes.**

**(2)**

**(ii) Suggest **one** reason for the pattern of reported ground shaking in the February earthquake.**

**(3)**



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(c) Explain **two** strategies used to modify tectonic hazard events.

(4)

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(d) Explain how plate tectonic theory is used to explain plate movements.

(6)

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(e) Study Figure 1b in the Resource Booklet.

Assess whether areal extent is the most important factor that determines the impact of volcanic eruptions.

(12)



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**(Total for Question 1 = 28 marks)**

**TOTAL FOR SECTION A = 28 MARKS**



## SECTION B: GLACIATED LANDSCAPES AND CHANGE

**Do not answer Section B (Glaciated Landscapes and Change) if you have answered Section C (Coastal Landscapes and Change).**

**Some questions must be answered with a cross in a box . If you change your mind about an answer, put a line through the box  and then mark your new answer with a cross .**

**If you answer Section B put a cross in the box  .**

**You must use the Resource Booklet provided.**

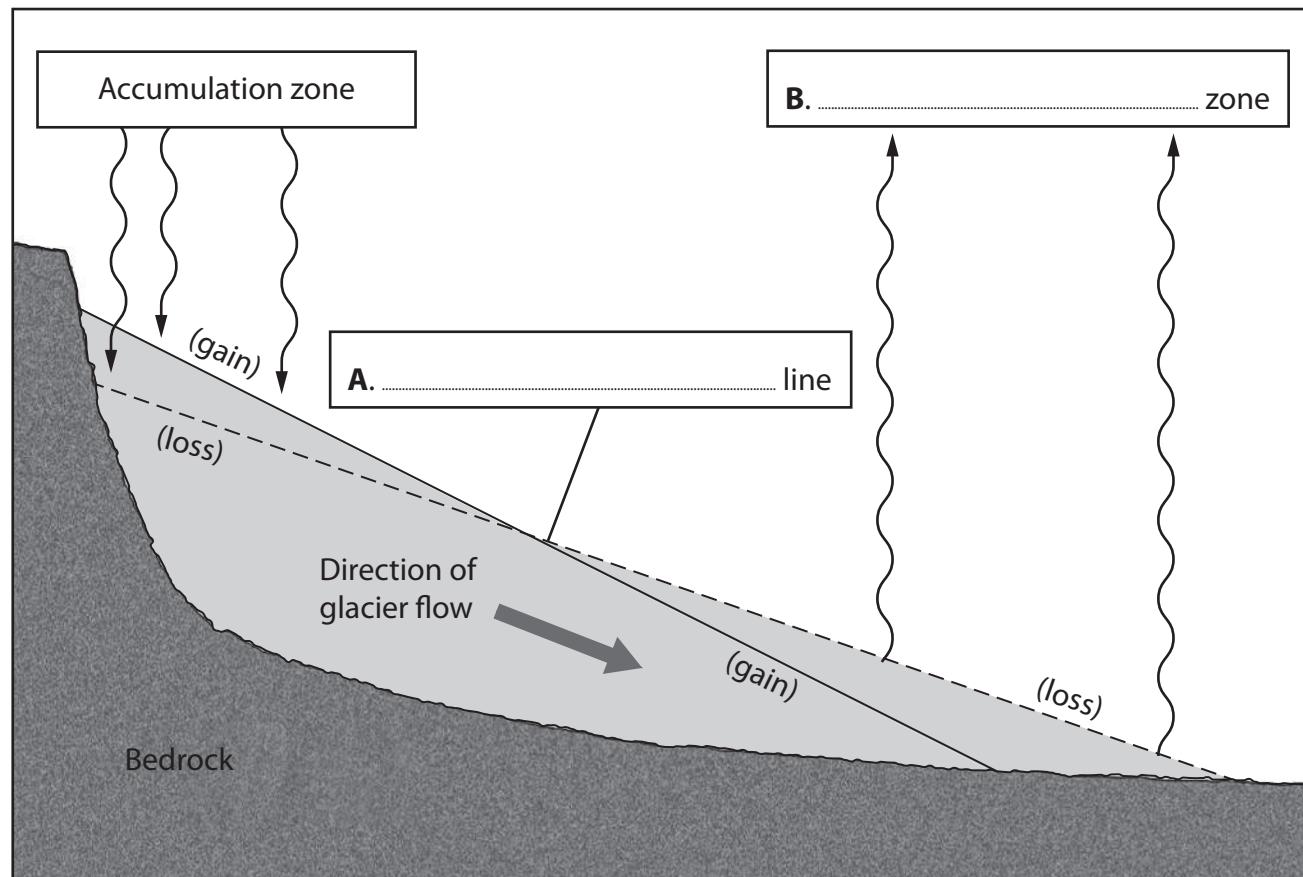
2 (a) Identify the process of accumulation.

(1)

<input type="checkbox"/>	A Ice calving
<input type="checkbox"/>	B Water evaporation
<input type="checkbox"/>	C Snow melting
<input type="checkbox"/>	D Snowfall

(b) Complete A and B in Figure 2a below.

(2)



**Figure 2a**

**Glacial mass balance system**



(c) Study Figure 2b in the Resource Booklet.

Suggest **one** reason for the avalanche.

(3)

(d) Explain **two** processes of water movement within glaciers.

(4)

1

2



(e) Explain how the characteristics of glacial and fluvioglacial deposits differ.

(6)



(f) Assess the importance of long-term climate change in explaining the distribution of glacial landscapes.

(12)

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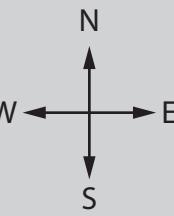
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**(Total for Question 2 = 28 marks)**



3 (a) Study Figure 3a below.

A group of students used secondary data about cirque/corrie orientation in Snowdonia, North Wales, as part of an investigation about ice flow direction.

	Orientation $0^\circ$ – $89^\circ$	Orientation $90^\circ$ – $179^\circ$	Orientation $180^\circ$ – $269^\circ$	Orientation $270^\circ$ – $360^\circ$
Number of cirques/corries	24	6	5	13

**Figure 3a**

(i) State **one** reason for studying cirque/corrie orientation.

(1)



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Study Figure 3b below

The students carried out a  $\text{Chi}^2$  test to determine if there was any pattern in the distribution of corrie orientation.

The formula for  $\text{Chi}^2$  ( $\chi^2$ ) is:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

$\sum$  = sum of

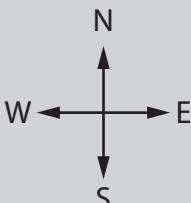
	Orientation $0^\circ - 89^\circ$	Orientation $90^\circ - 179^\circ$	Orientation $180^\circ - 269^\circ$	Orientation $270^\circ - 360^\circ$
Observed (O)	24	6	5	13
Expected (E)	12	12	12	12
$(O - E)^2$	144	36		1
$(O - E)^2/E$	12	3	4.1	0.08

Figure 3b

(ii) Complete the table above by calculating the missing number in the Orientation  $180^\circ - 269^\circ$  column.

(1)

(iii) Calculate the value of  $\text{Chi}^2$  ( $\chi^2$ ) from the data given.

(1)

$\text{Chi}^2$  ( $\chi^2$ ) = .....



(iv) Suggest **one** reason for carrying out a Chi<sup>2</sup> ( $\chi^2$ ) test on this data set.

(2)

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(v) Explain **two** primary fieldwork methods that might have been used to extend this investigation on ice flow direction.

(4)

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(b) You have carried out **primary fieldwork** to investigate glacial landscapes and change.

Assess how the sampling procedures and sample size affected your results.

(9)

## Geographical enquiry question:



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**(Total for Question 3 = 18 marks)**



**Use your knowledge and understanding from across the course of study, along with the information in Figure 4, to answer this question.**

#### 4 Study Figure 4a and Figure 4b in the Resource Booklet.

The Swiss Alps glaciated landscape faces many threats.

Evaluate the effectiveness of the management strategies shown.

(16)



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**(Total for Question 4 = 16 marks)**

**TOTAL FOR SECTION B = 62 MARKS**



## SECTION C: COASTAL LANDSCAPES AND CHANGE

**Do not answer Section C (Coastal Landscapes and Change) if you have answered Section B (Glaciated Landscapes and Change).**

**Some questions must be answered with a cross in a box . If you change your mind about an answer, put a line through the box  and then mark your new answer with a cross .**

**If you answer Section C put a cross in the box  .**

**You must use the Resource Booklet provided.**

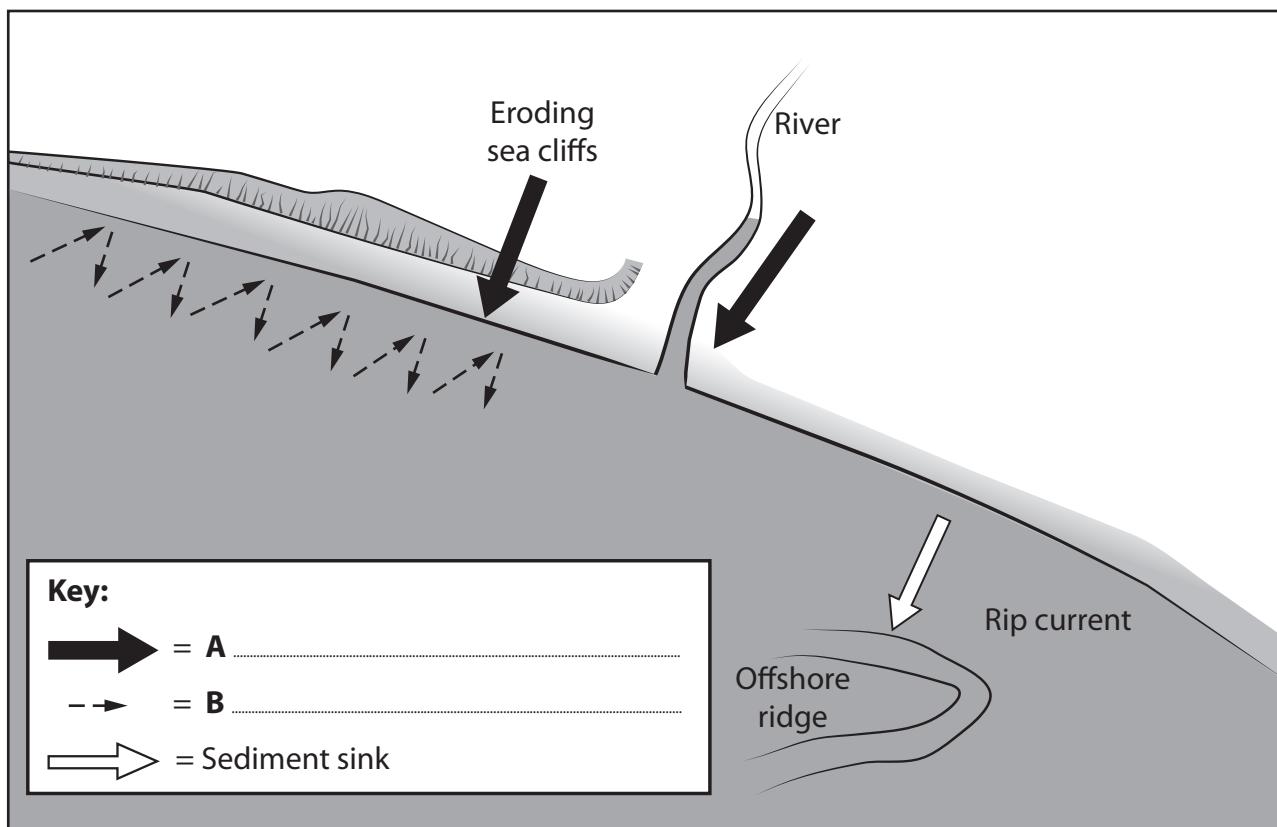
5 (a) Identify the factor which affects the direction of coastal sediment movement.

(1)

<input type="checkbox"/>	A Wave type
<input type="checkbox"/>	B Longshore drift
<input type="checkbox"/>	C Sediment cell
<input type="checkbox"/>	D Sediment shape

(b) Complete A and B in Figure 5a below.

(2)



**Figure 5a**

**Coastal sediment system**



Study Figure 5b in the Resource Booklet.

(c) Suggest **one** reason for the cliff collapse.

(3)

(d) Explain **two** processes of weathering on a coastline.

(4)

1

2



(e) Explain how the characteristics of coastal plains and rocky coasts differ.

(6)

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(f) Assess the importance of longer term sea-level change in explaining the risks at different coastlines.

(12)



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**(Total for Question 5 = 28 marks)**



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6 (a) Study Figure 6a below.

A group of students used data about sediment size, from samples taken from four sites along the south coast of England, as part of an investigation about spit formation.

Beach site	Site 1	Site 2	Site 3	Site 4
Number of pebbles > 5mm	27	20	12	5

**Figure 6a**

(i) State **one** reason for studying sediment size.

(1)



Study Figure 6b below.

The students carried out a  $\text{Chi}^2$  test to determine if there was any pattern in the distribution of pebble sizes  $> 5\text{mm}$ .

The formula for  $\text{Chi}^2 (\chi^2)$  is:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

$\sum = \text{sum of}$

Beach site	Site 1	Site 2	Site 3	Site 4
<b>Observed (O)</b>	28	20	11	5
<b>Expected (E)</b>	16	16	16	16
<b><math>(O - E)^2</math></b>	144	16		121
<b><math>(O - E)^2/E</math></b>	9	1	1.6	7.6

**Figure 6b**

(ii) Complete the table above by calculating the missing number in the Site 3 column.

(1)

(iii) Calculate the value of  $\text{Chi}^2 (\chi^2)$  for the data given.

(1)

$\text{Chi}^2 (\chi^2) = \dots$



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(iv) Suggest **one** reason for carrying out a Chi<sup>2</sup> ( $\chi^2$ ) test on this data set.

(2)

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(v) Explain **two** primary fieldwork methods that might have been used to extend this investigation on spit formation.

(4)

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(b) You have carried out **primary fieldwork** to investigate coastal landscapes and change.

Assess how the sampling procedures and sample size affected your results.

(9)

## Geographical enquiry question:



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**(Total for Question 6 = 18 marks)**



**Use your knowledge and understanding from across the course of study, along with the information in Figure 7, to answer this question.**

## 7 Study Figure 7a and Figure 7b in the Resource Booklet.

The coastal landscape of Aqaba, Jordan, faces many threats.

Evaluate the effectiveness of the management strategies shown.

(16)

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**(Total for Question 7 = 16 marks)**

**TOTAL FOR SECTION C = 62 MARKS**  
**TOTAL FOR PAPER = 90 MARKS**



**Pearson Edexcel Level 3 GCE**

**Tuesday 14 May 2019**

Afternoon (Time: 1 hour 45 minutes)

Paper Reference **8GE0/01**

**Geography**

**Advanced Subsidiary**

**Paper 1: Dynamic Landscape**

**Resource Booklet**

**Do not return this Resource Booklet with the question paper.**

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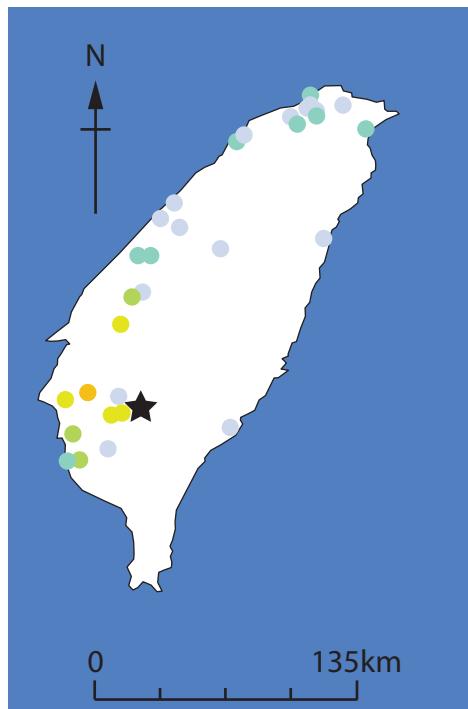
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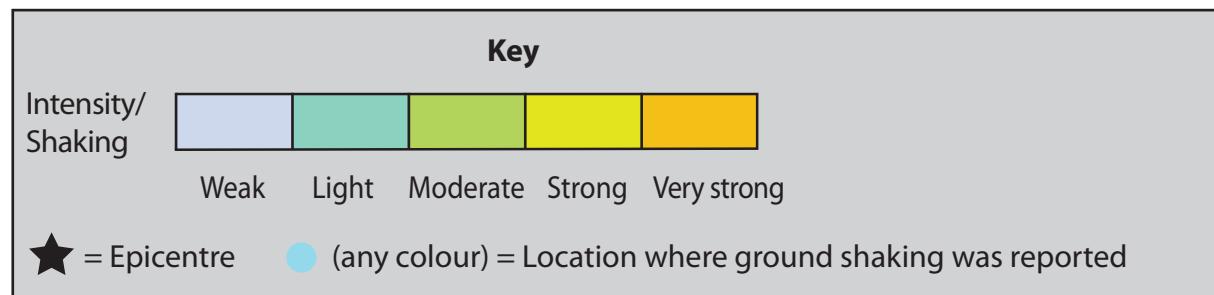
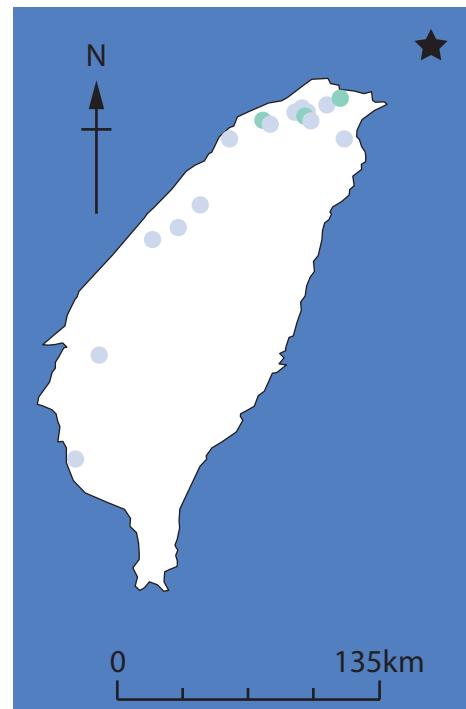
## SECTION A

The following resources relate to Question 1.

6 February 2016  
Magnitude 6.4

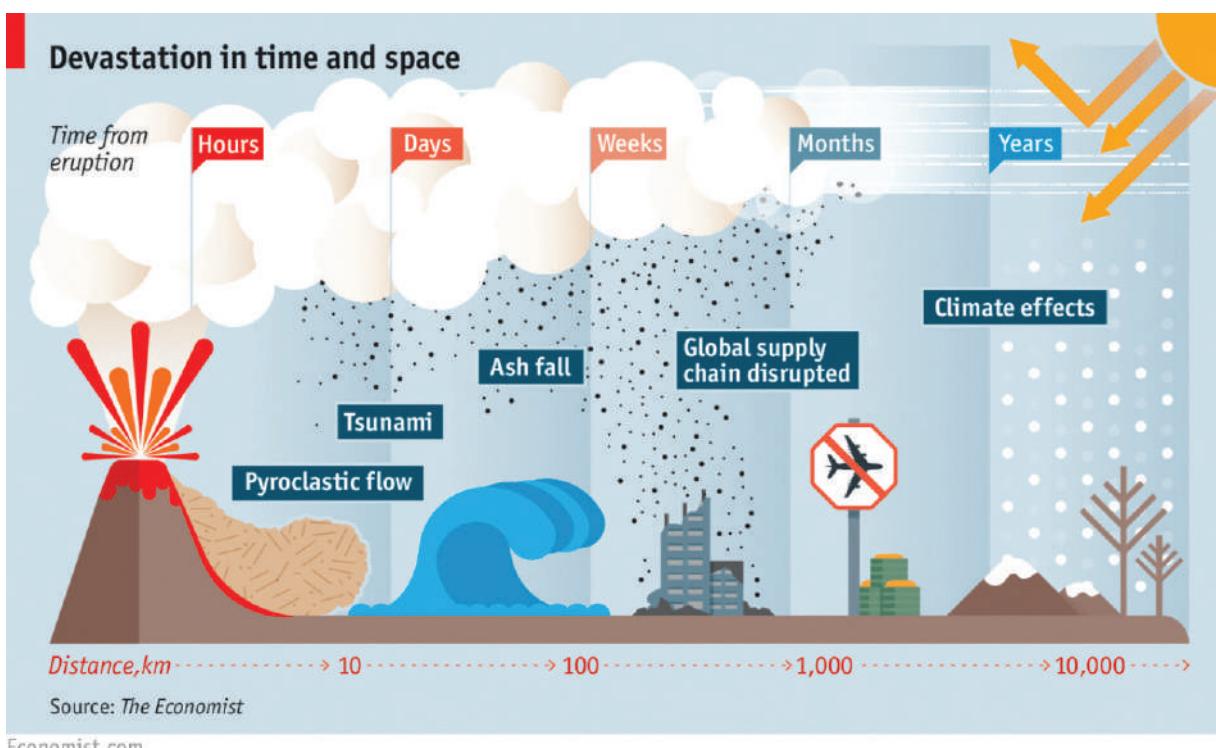


13 November 2016  
Magnitude 6.4



**Figure 1a**

**Reported ground shaking after two earthquakes in Taiwan in the Pacific Ocean**



### Mount Tambora, Indonesia 1815 (VEI 7)

- Tsunami wave travelled 500 km
- Global temperatures reduced by 1–2 °C
- 60,000–120,000 estimated deaths from effects of the eruption

### Mount Pinatubo, Philippines 1991 (VEI 6)

- 300–800 deaths and 96,000 hectares of land damaged by ash fall
- \$250m of damage to farmland and forestry due to pyroclastic flows
- 0 deaths from climate effects of 0.5 °C temperature reduction

### Eyjafjallajökull, Iceland 2010 (VEI 4)

- 100,000 flight cancellations affected international trade and tourism
- Airline losses of >\$1.4bn
- Kenyan economy losses of > \$3.8m as flowers and vegetables could not be exported by air

### Soufrière Hills, Montserrat 1997 (VEI 4)

- 19 deaths by pyroclastic flows
- Capital city, Plymouth, destroyed by lava flows and ash
- 60% of the island's residents left for nearby islands or UK

**Figure 1b**

**A simplified interpretation of the areal extent of volcanic eruptions, and actual data on 4 volcanic disasters**

## SECTION B

The following resources relate to Questions 2–4.

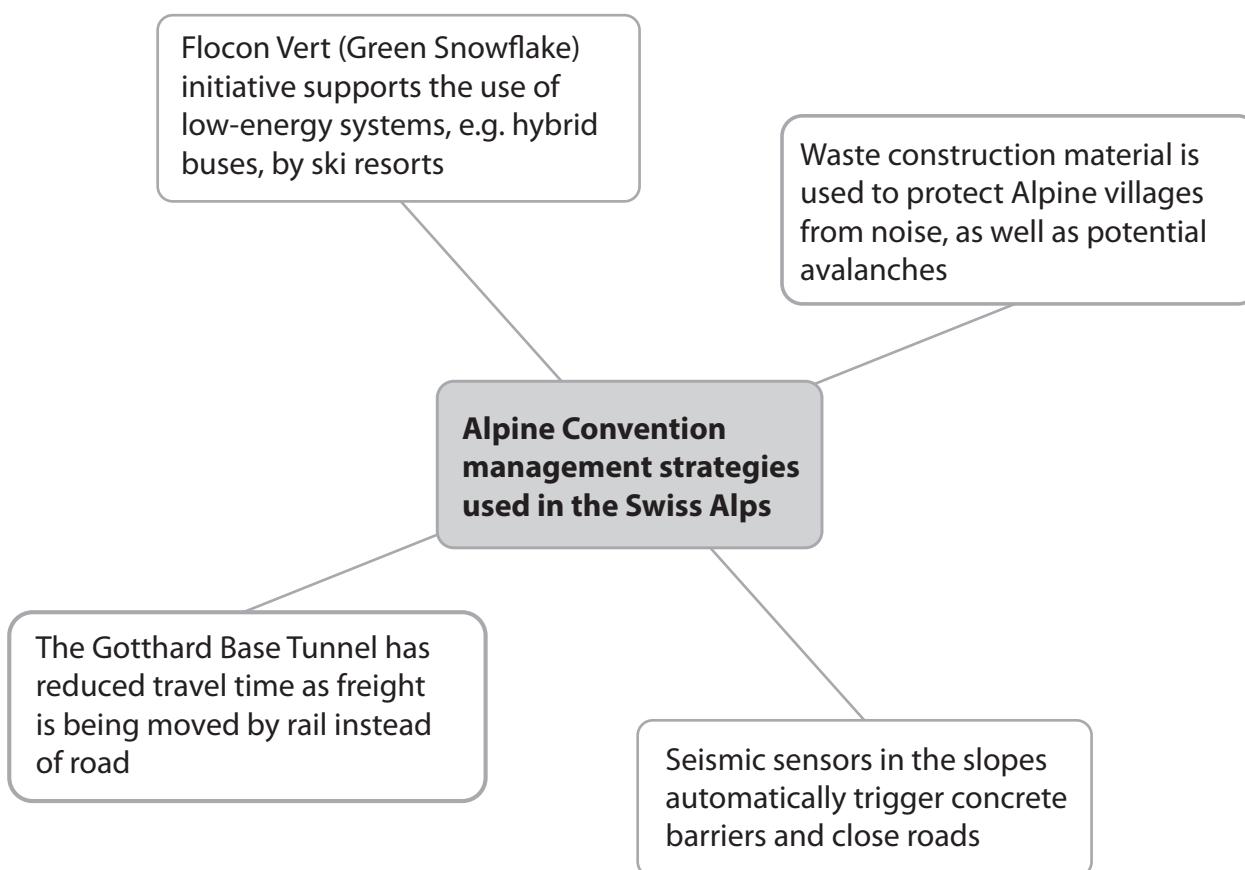


**Figure 2b**  
**An avalanche in the French Alps**

**The following resources relate to Question 4.**

**Figure 4: Information about the Swiss Alps, Europe**

- The Swiss Alps are fold-mountains formed by uplift along a collision plate boundary separating the European and Adriatic plates. There are 500–800 earthquakes a year, but most are too small to be reported.
- The Swiss Alps are a multi-use location. A number of glaciated valleys have hydro-electric power (HEP) dams and reservoirs. Tourism, especially skiing, is highly important economically and dependent on a modern transport infrastructure.
- The high Alpine environment is still glaciated after the main advance of 18,000 years ago, which left a dramatic landscape dominated by 63 glaciers, most of which are retreating.
- The environment is very dynamic with both tectonic activity and climate change contributing to mudflows, glacial retreat and an increase in the number of avalanches, all of which threaten the tourist industry.



**Figure 4a**  
**Management strategies used in the Swiss Alps**

## First Cliff Walk in Grindelwald

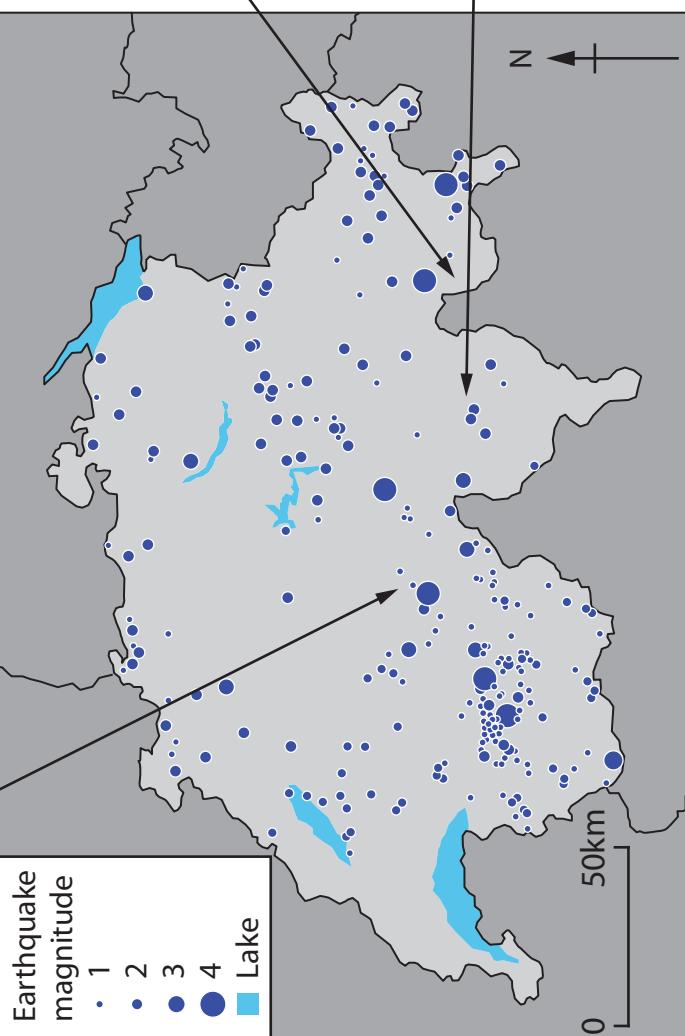
- A unique, scenic attraction that helps tourists appreciate the valleys and waterfalls of the Alps.
- Cliff walks help connect Swiss Alpine villages on remote mountain sides.
- Locals are concerned that the landscape, used to inspire many films, now features a Chinese buffet restaurant.



Earthquake magnitude

- 1
- 2
- 3
- 4

Lake



## Bondo village mudflow

- In 2017, mudflows swept 8 people away.
- Melting ice is causing glacial lakes to overflow.
- Melting snow and ice fields threaten the tourist industry.
- 120 million people visit Switzerland annually.



## The Gotthard Base Tunnel

- CO<sub>2</sub> emissions from road freight and passenger transport caused air pollution.
- World's deepest tunnel opened in 2016 to reduce this.
- Steel and reinforced concrete used to protect workers and safeguard the tunnel from seismic movement.



Figure 4b

Threats to Swiss Alpine landscapes

## SECTION C

The following resources relate to Questions 5–7.



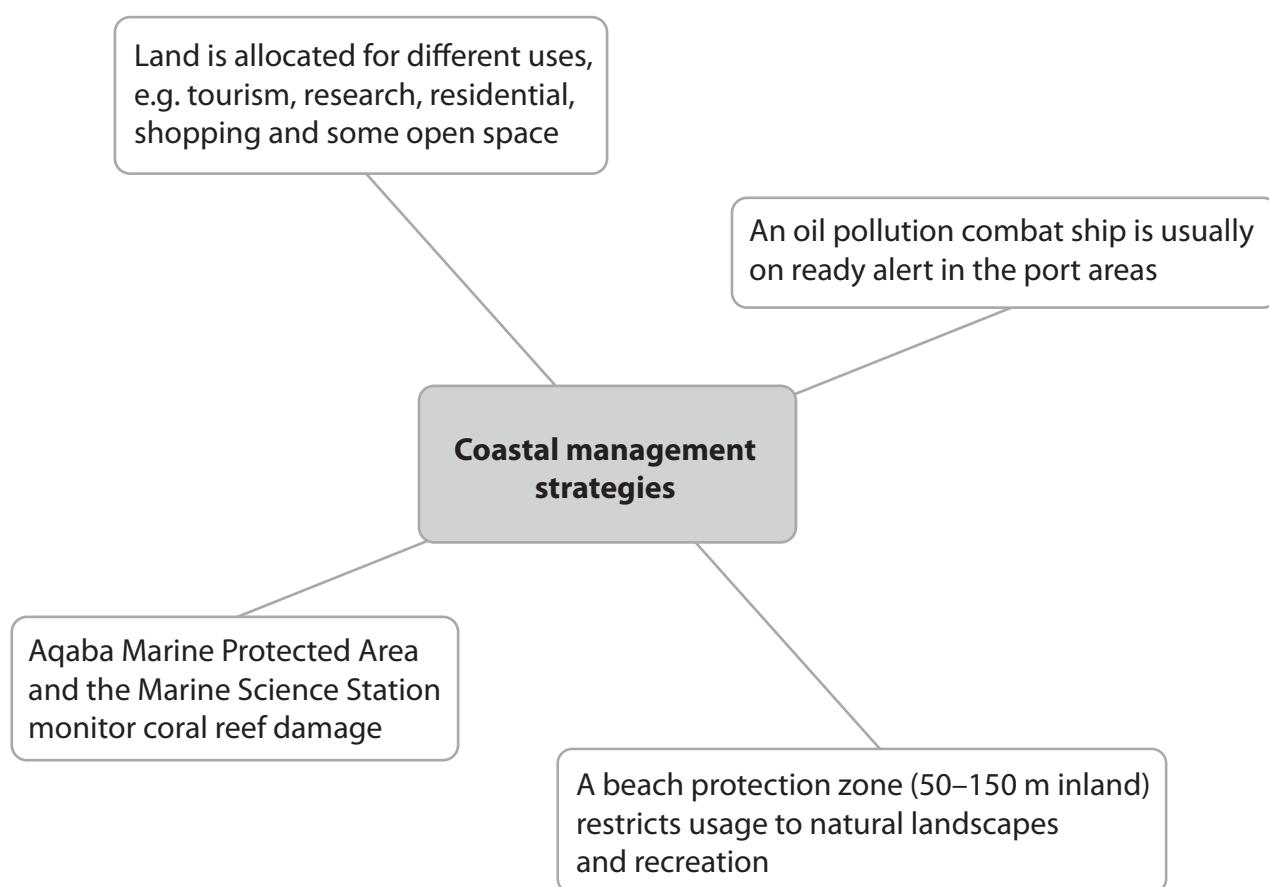
**Figure 5b**

**Recent cliff collapse on the South East coastline of the United Kingdom**

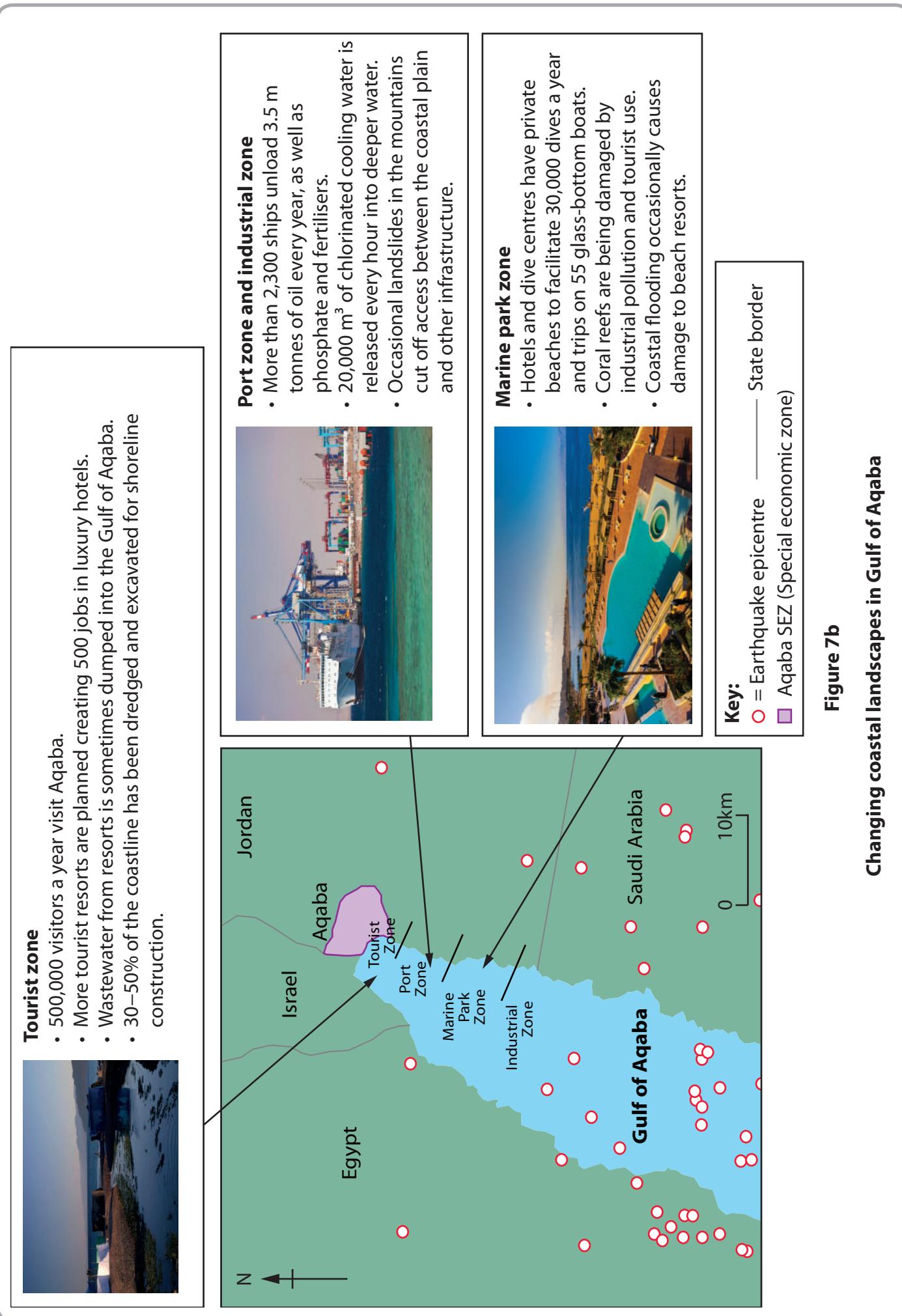
**The following resources relate to Question 7.**

**Figure 7: Information about Aqaba, Jordan, Middle East.**

- The Gulf of Aqaba is at the northern end of the Dead Sea Transform fault, part of an active constructive plate boundary separating the Arabian and African plates.
- Plate movement formed a coastal plain and a basin now filled by warm sea water, an ideal habitat for coral reefs.
- Aqaba is a small coastal city ideally located for trade and more recently tourism. Its special economic zone (SEZ) offers tax-incentives to encourage tourist resorts and dive centres, as well as container ports.
- This is a dynamic coastal landscape. Earthquakes create landslides in the surrounding mountains and coastal flooding is also a hazard. The 1995 Aqaba earthquake killed 8 people and injured 30.



**Figure 7a**  
**Management strategies used in Aqaba**



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Figure 2b: © StockShot/Alamy

Figure 4b: First Cliff Walk, Grindelwald, Switzerland

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