

Paper Reference 4GE1/01
Pearson Edexcel
IGCSE (9–1)

Geography

Paper 1: Physical Geography

Tuesday 21 May 2019 – Afternoon

Resource Book

Do not return this Resource Book with the Question Paper.

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For some Figures there is a modified colour and modified black and white diagram. You may use whichever version is easier for you to view. Some diagrams are only in modified colour but you are then provided with a description of the diagram.

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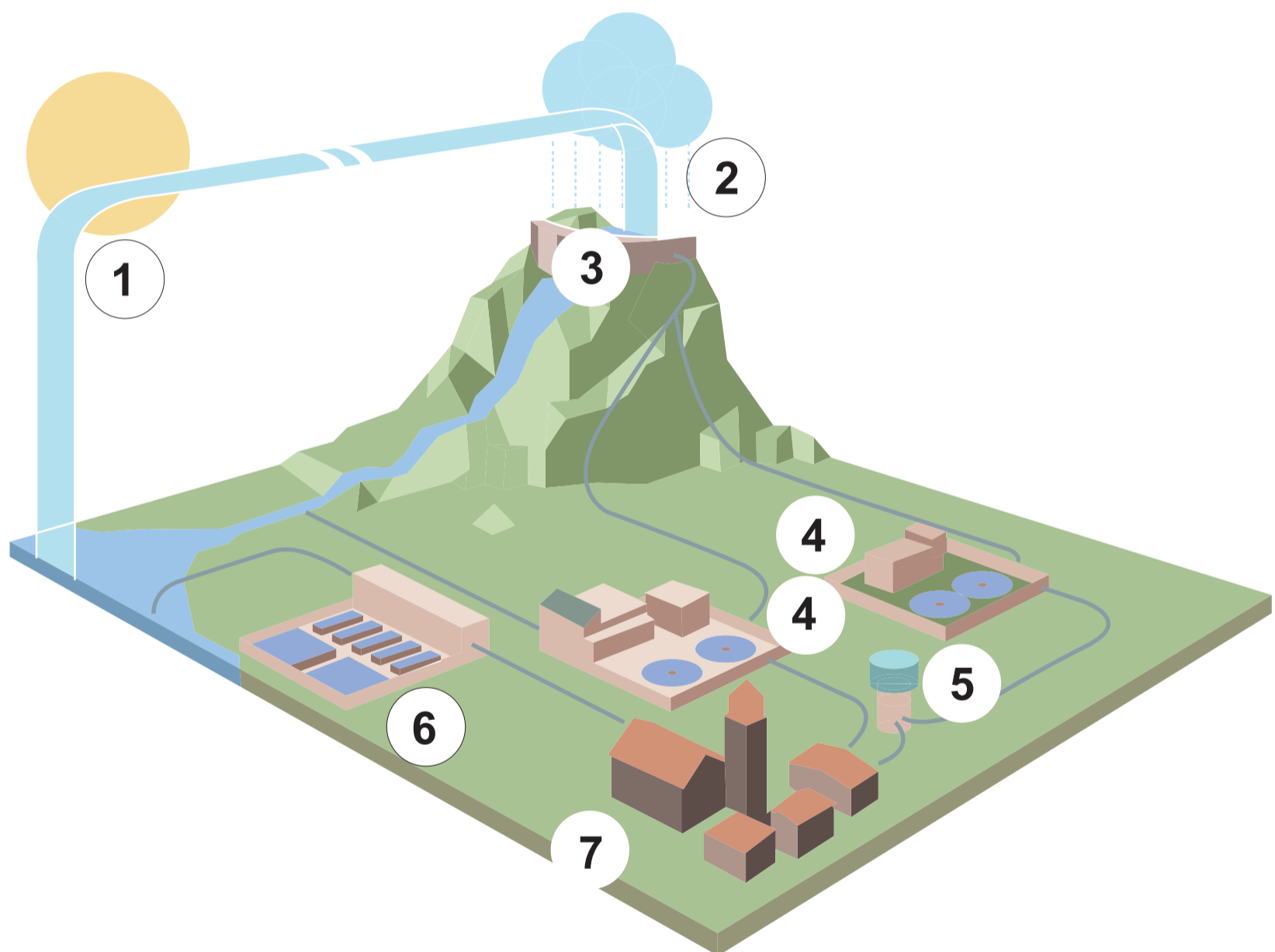
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Figure 1a
Water management in India

Water cycle management

1. Evaporation
2. Precipitation
3. Reservoirs, lakes or rivers
4. Water treatment plant
5. Water tanks
6. Water desalination plant
7. Domestic use



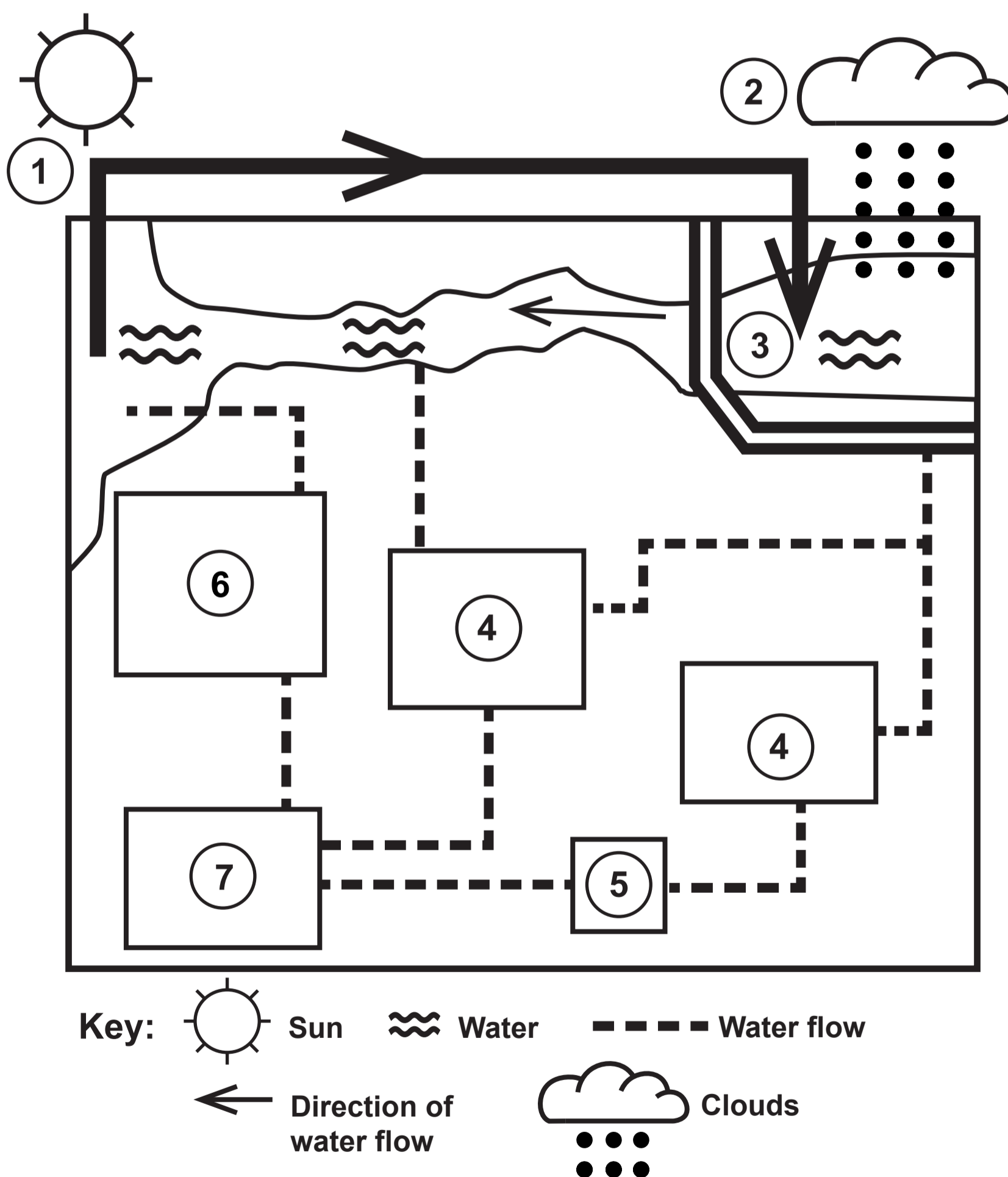
(Source: <http://www.sociocosmo.com/2015/05/india-water-management-Indian-agriculture-IMD-Skymet-ICAR.html>)

Figure 1a

Water management in India – Top View

Water cycle management

1. Evaporation
2. Precipitation
3. Reservoirs, lakes or rivers
4. Water treatment plant
5. Water tanks
6. Water desalination plant
7. Domestic use



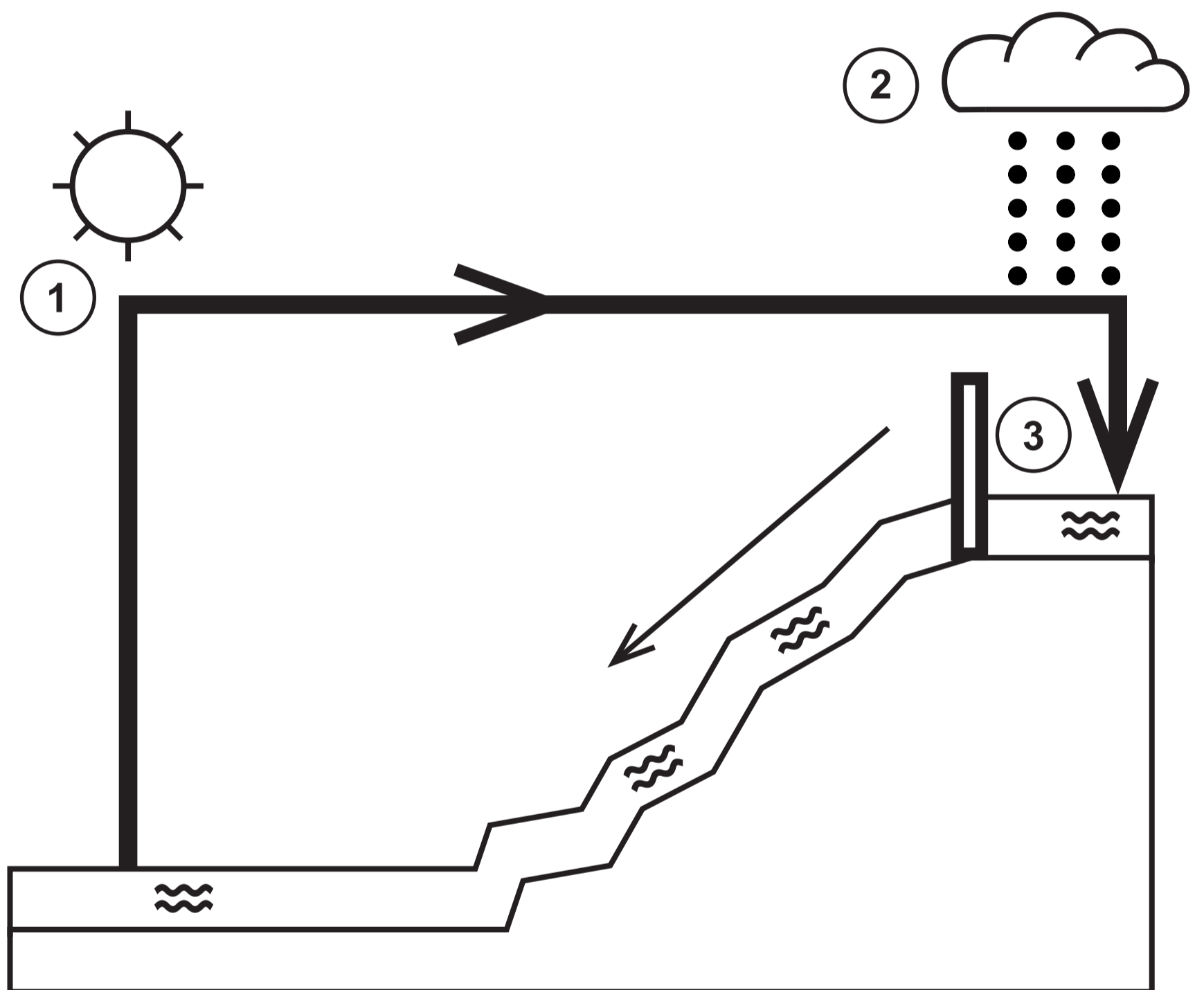
Adapted from: (Source: <http://www.sociocosmo.com/2015/05/india-water-management-Indian-agriculture-IMD-Skymet-ICAR.html>)

Figure 1a

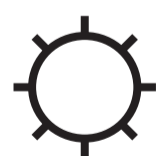
Water management in India – Side View

Water cycle management

1. Evaporation
2. Precipitation
3. Reservoirs, lakes or rivers



Key:



Sun



Water



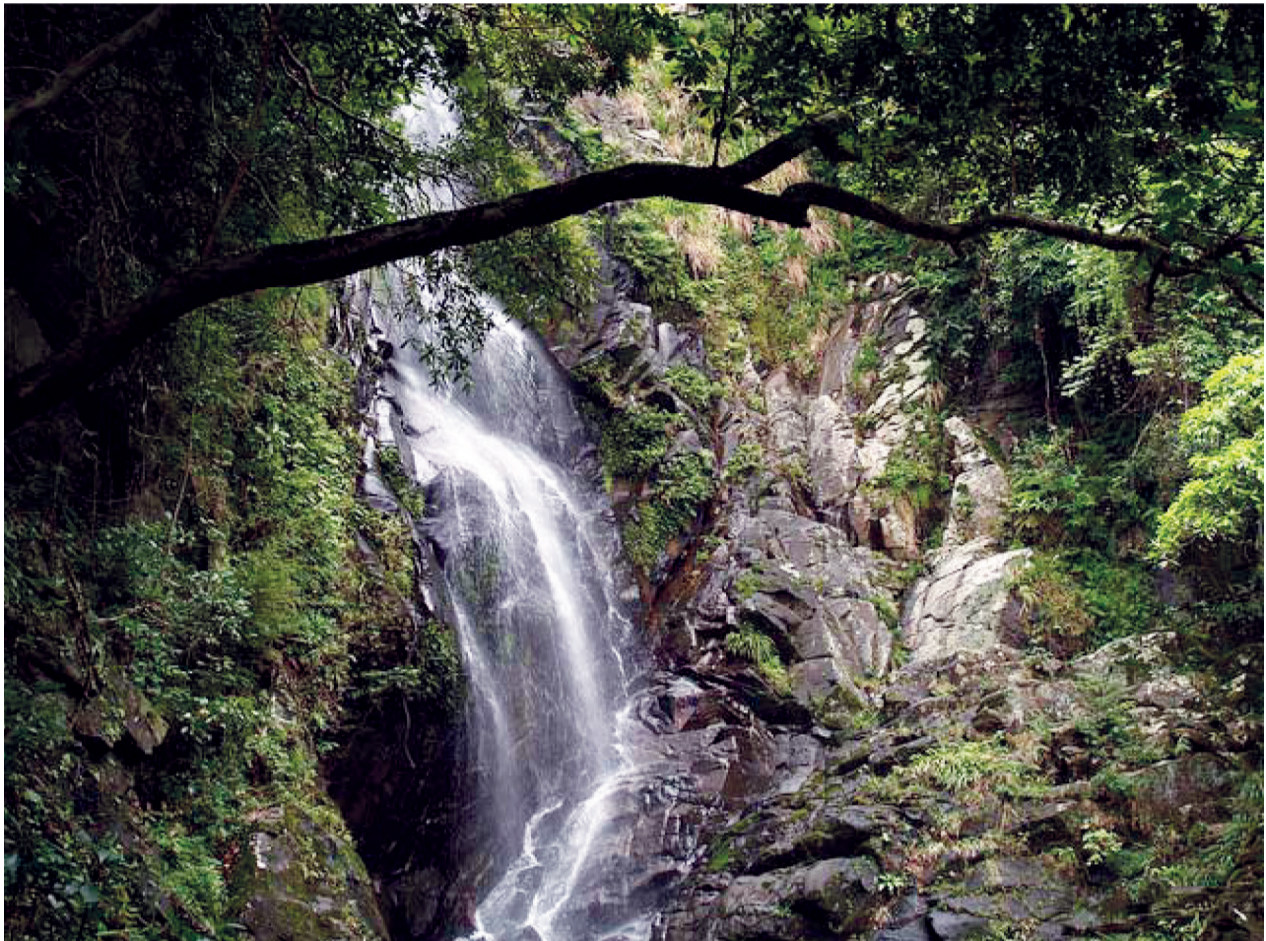
Clouds

Direction of
water flow

Adapted from: (Source: <http://www.sociocosmo.com/2015/05/india-water-management-Indian-agriculture-IMD-Skymet-ICAR.html>)

Figure 1b

A river landform in Hong Kong



Key:

 Vegetation	 Water	 Rock face
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(Source: © David Holmes)

Figure 1c

Factors affecting water quality

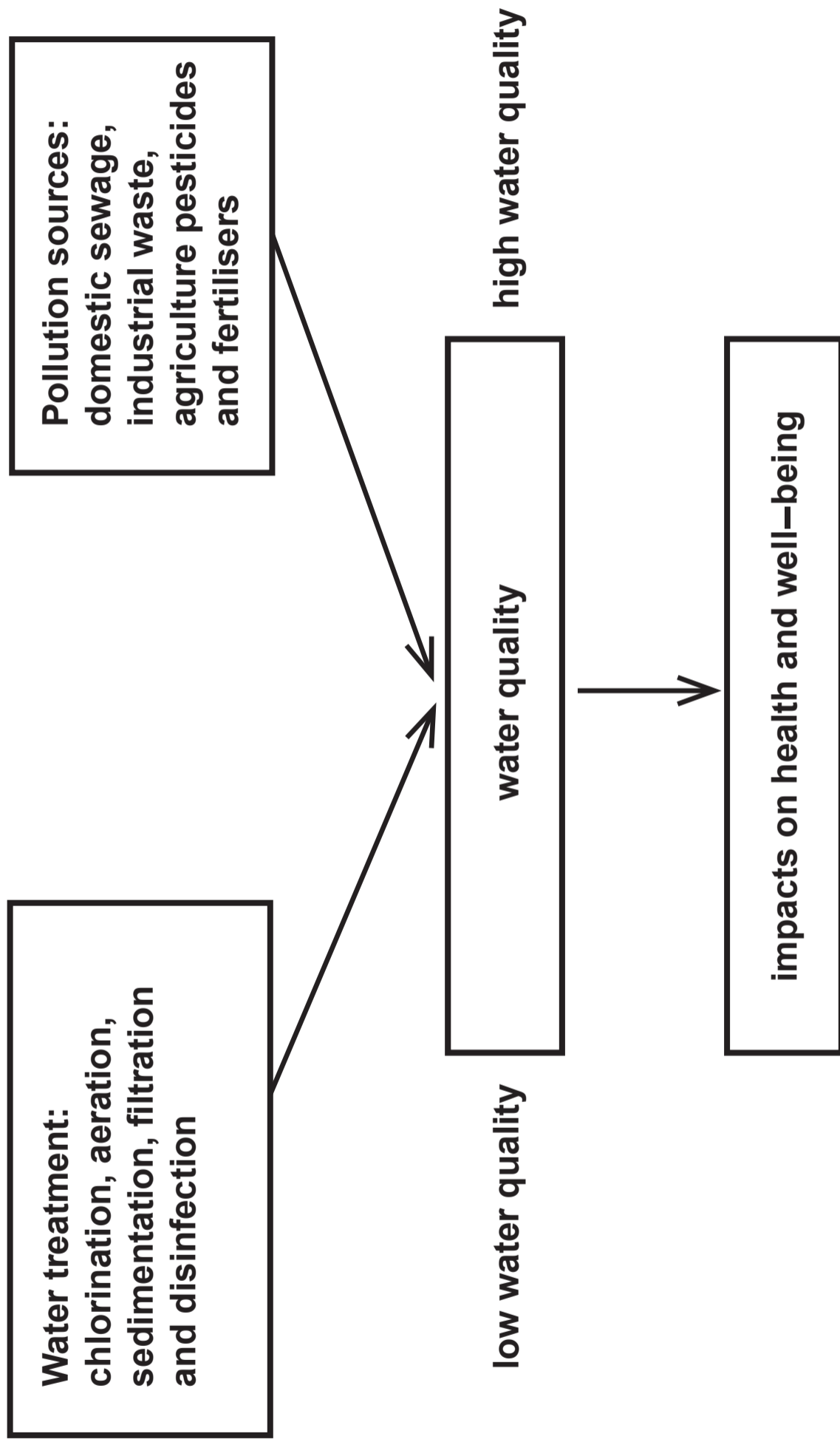
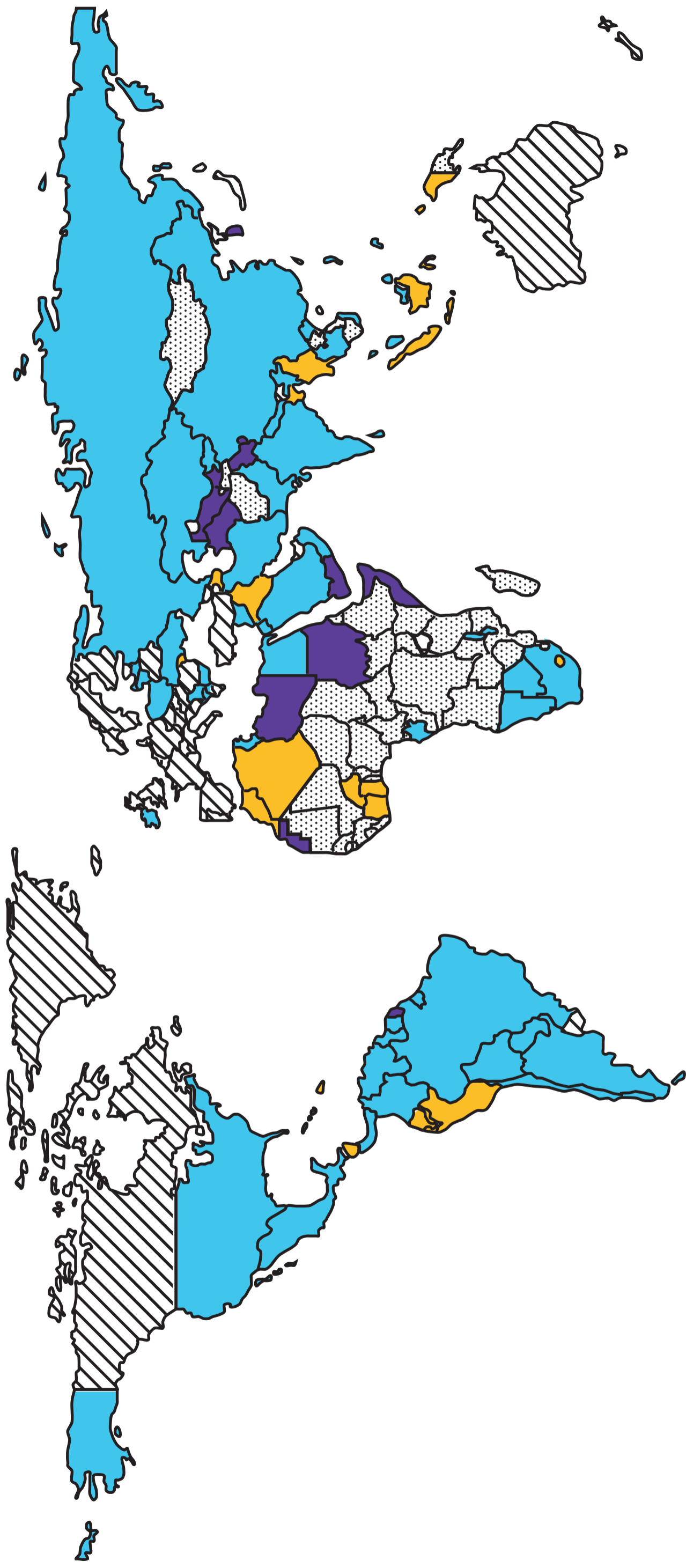
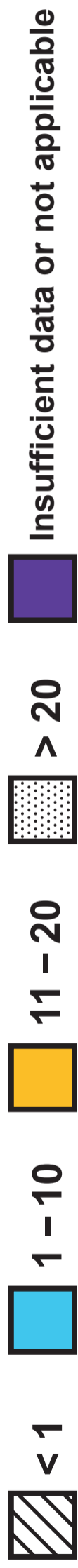


Figure 1d – Colour

Percentage of people using untreated drinking water



(Source: <https://www.theguardian.com/global-development-professionals-network/2017/mar/17/access-to-drinking-water-world-six-infographics#img-2>)

Figure 1d – Black and White

Percentage of people using untreated drinking water



(Source: <https://www.theguardian.com/global-development-professionals-network/2017/mar/17/access-to-drinking-water-world-six-infographics#img-2>)

Figure 2a

An example of a coastal landscape in
south west England

Raised beaches

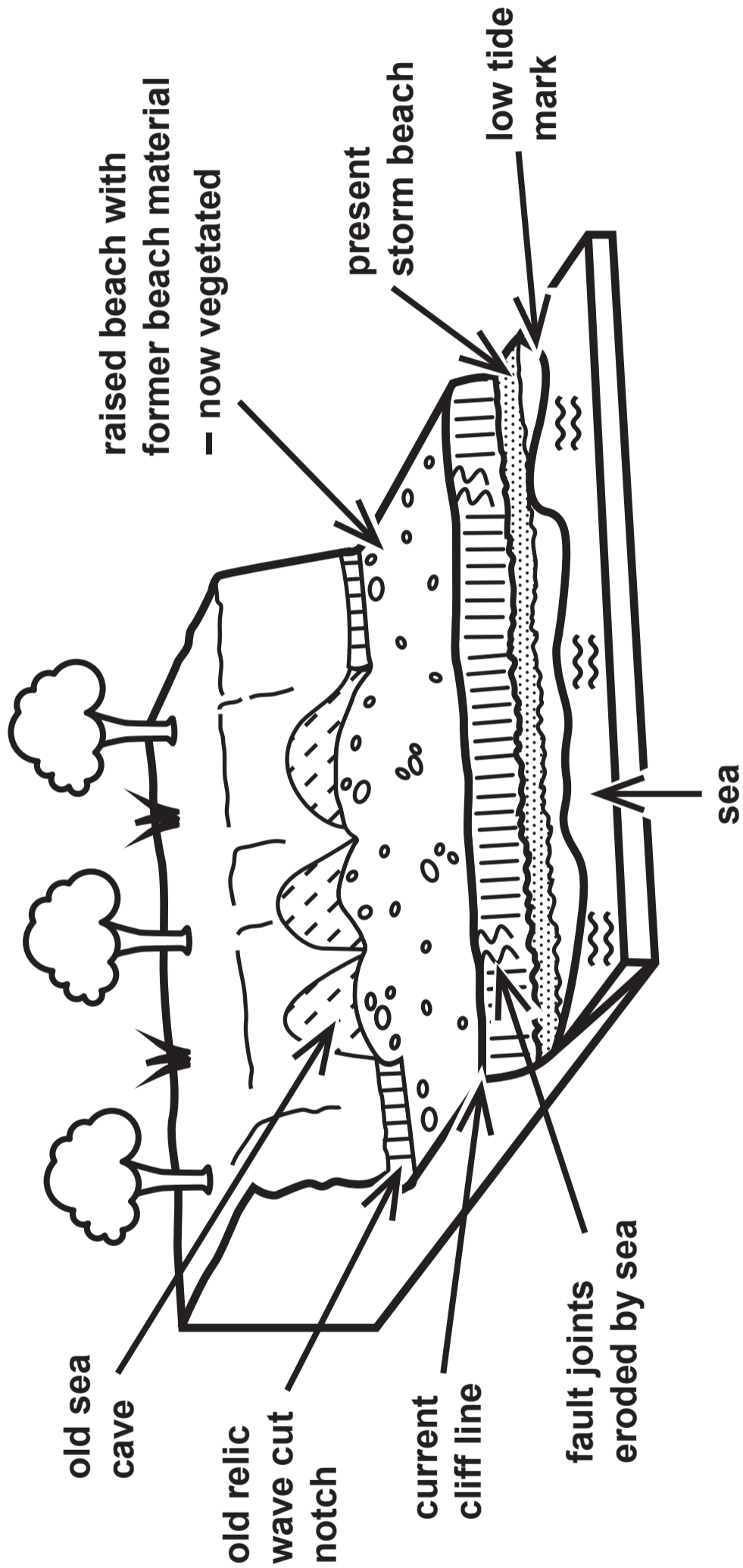


Figure 2a – Top and Side View

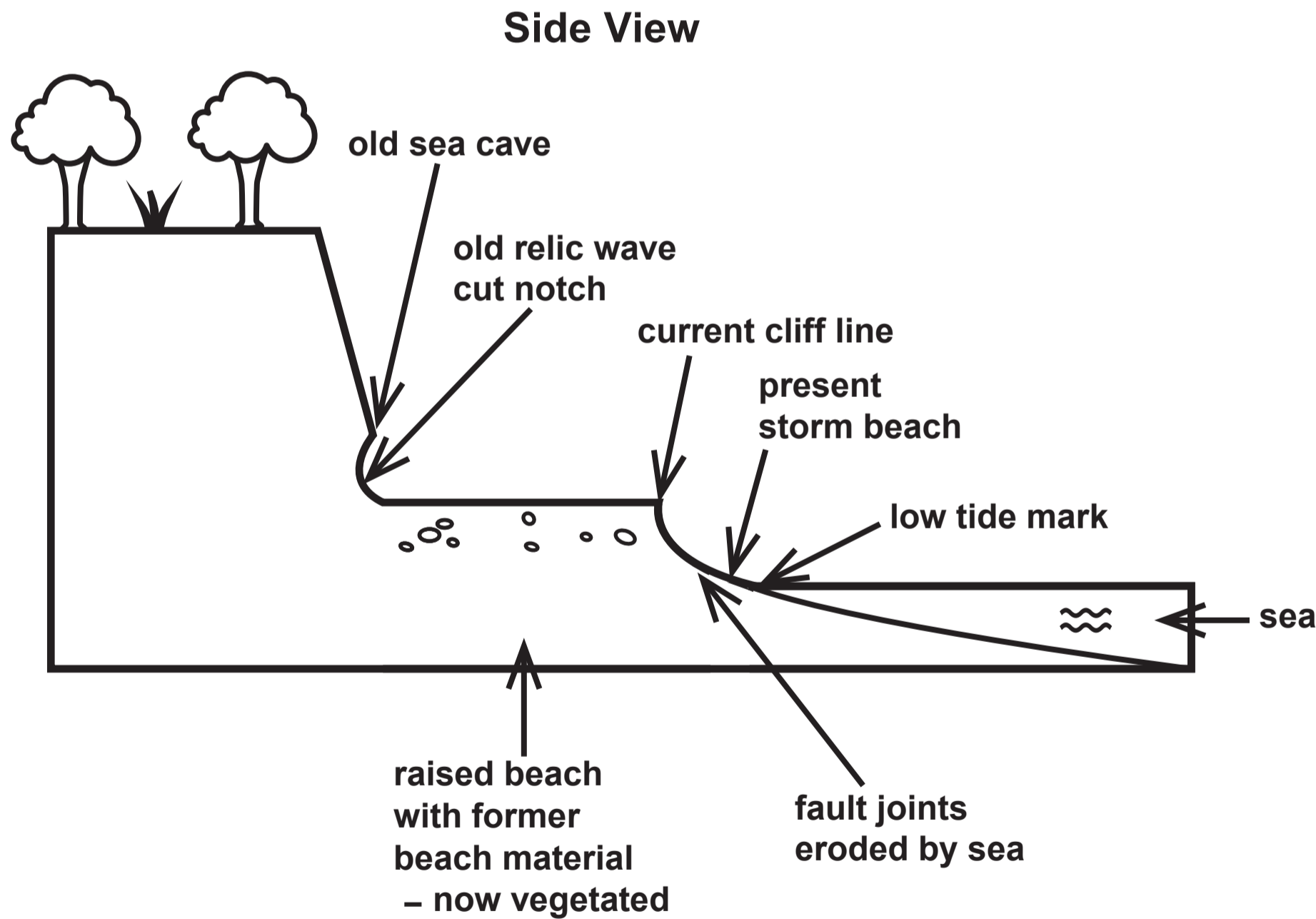
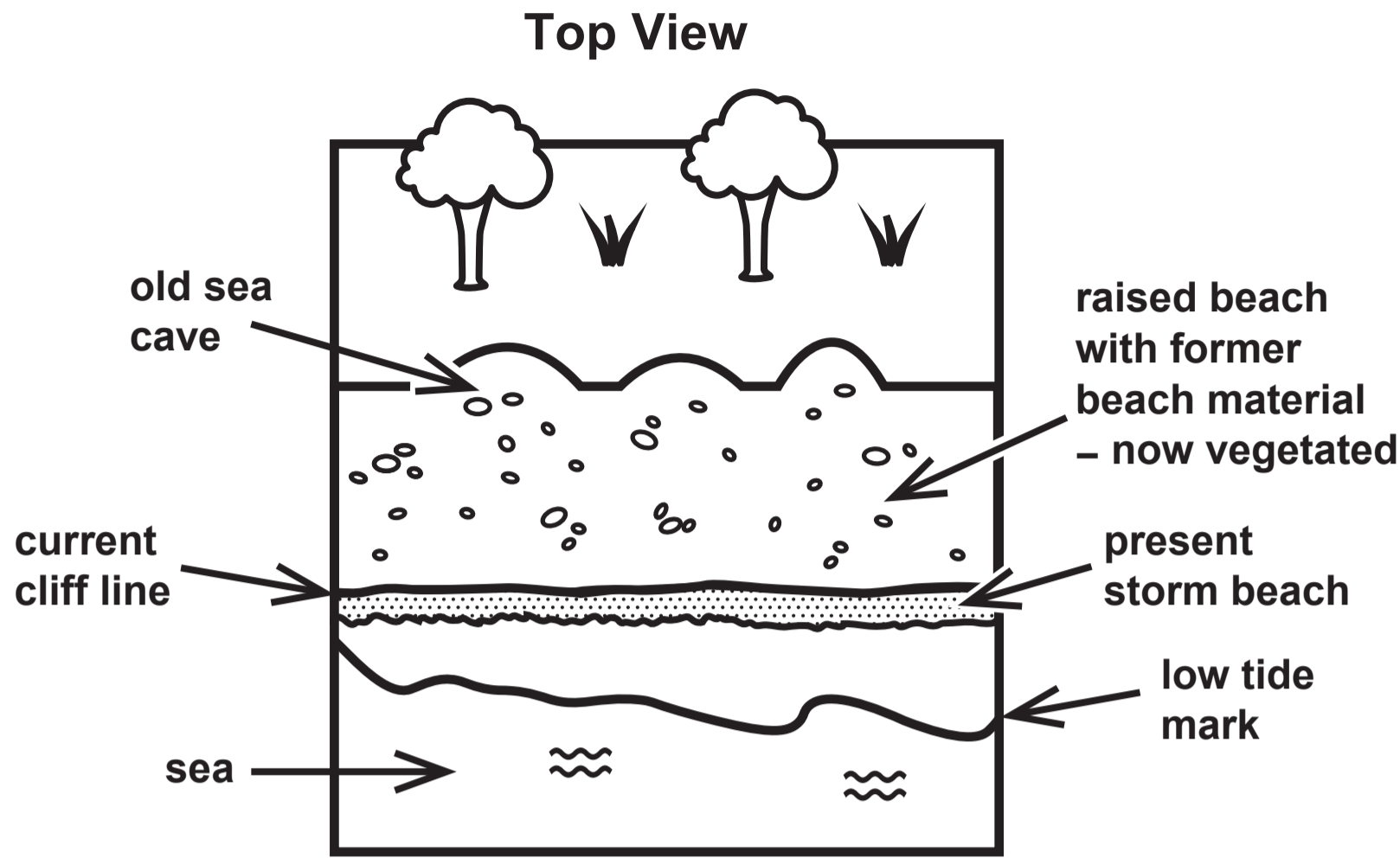
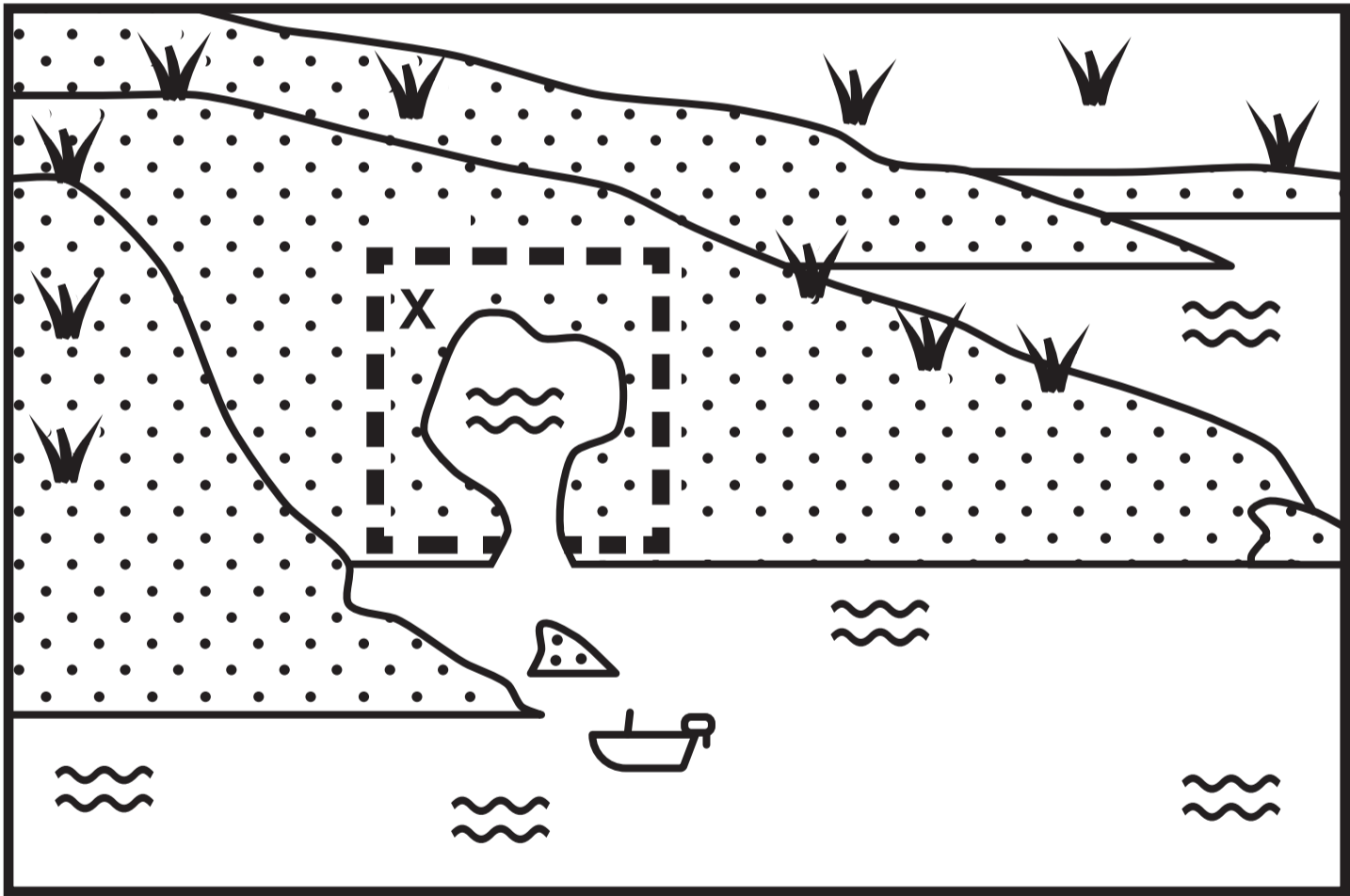
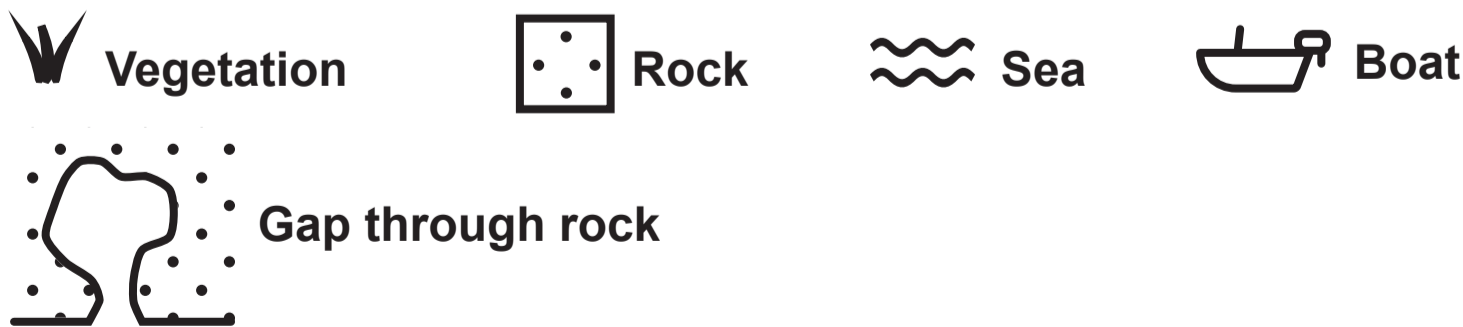


Figure 2b

A coastal landscape in St Lucia



Key:









(Source: © De Agostini Picture Library / Contributor/Getty Images)

Figure 2c – Colour

Different approaches to shoreline management along a stretch of coastline

KEY

	Marsh		Farmland
	Sand		Cliff face
	Settlement		Original beach

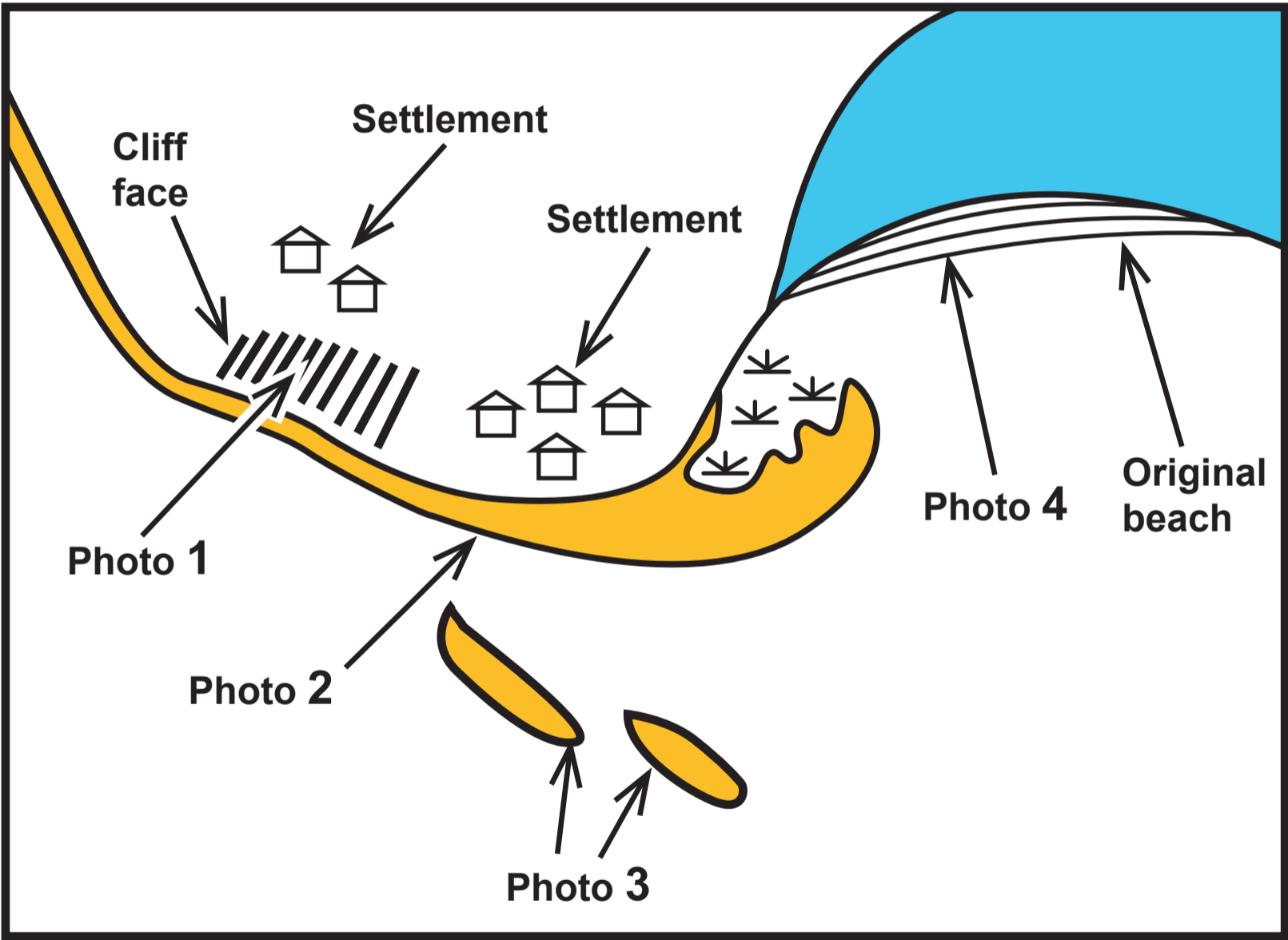








Figure 2c – Black and White

Different approaches to shoreline management along a stretch of coastline

KEY

	Marsh		Farmland
	Sand		Cliff face
	Settlement		Original beach

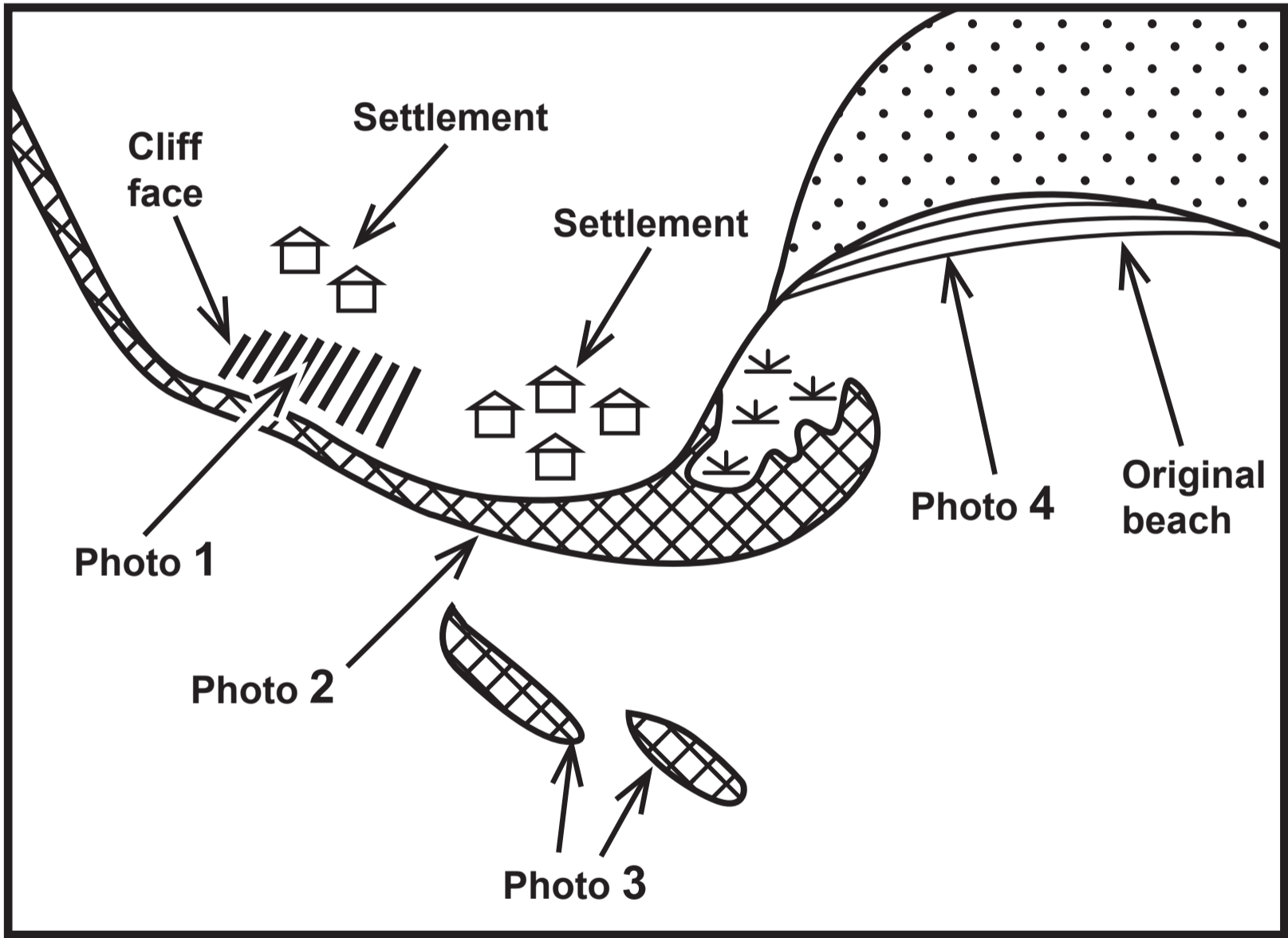


Figure 2d – Information

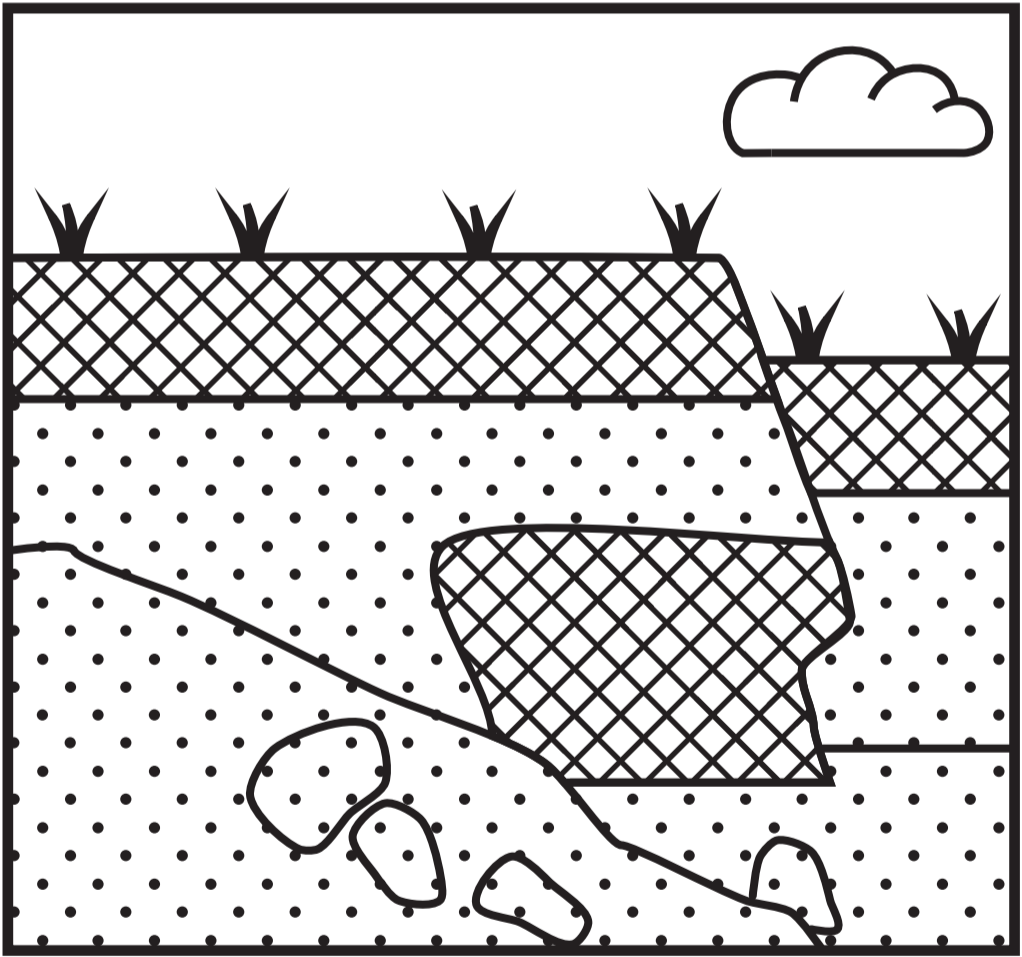
Photographic evidence of beach management techniques referred to in Figure 2c

Photo 1	Cliff regrading high maintenance and high cost.
Photo 2	Beach replenishment high maintenance cost and £20 per cubic metre so could be quite expensive.
Photo 3	Development and extension of natural sandbars. This has a similar cost and maintenance as beach replenishment.
Photo 4	Managed retreat low maintenance and cost dependent on compensation due to people living in the area.

(Sources: Photo 1 – © Geography Photos / Contributor/Getty Images, Photo 2 – © Mick House / Alamy Stock Photo, Photo 4 – Crown Copyright, Photo 3 – © Thales Paiva/Art in All of Us / Contributor/Getty Images)

Figure 2d (Part 1)

Photo 1



Key:





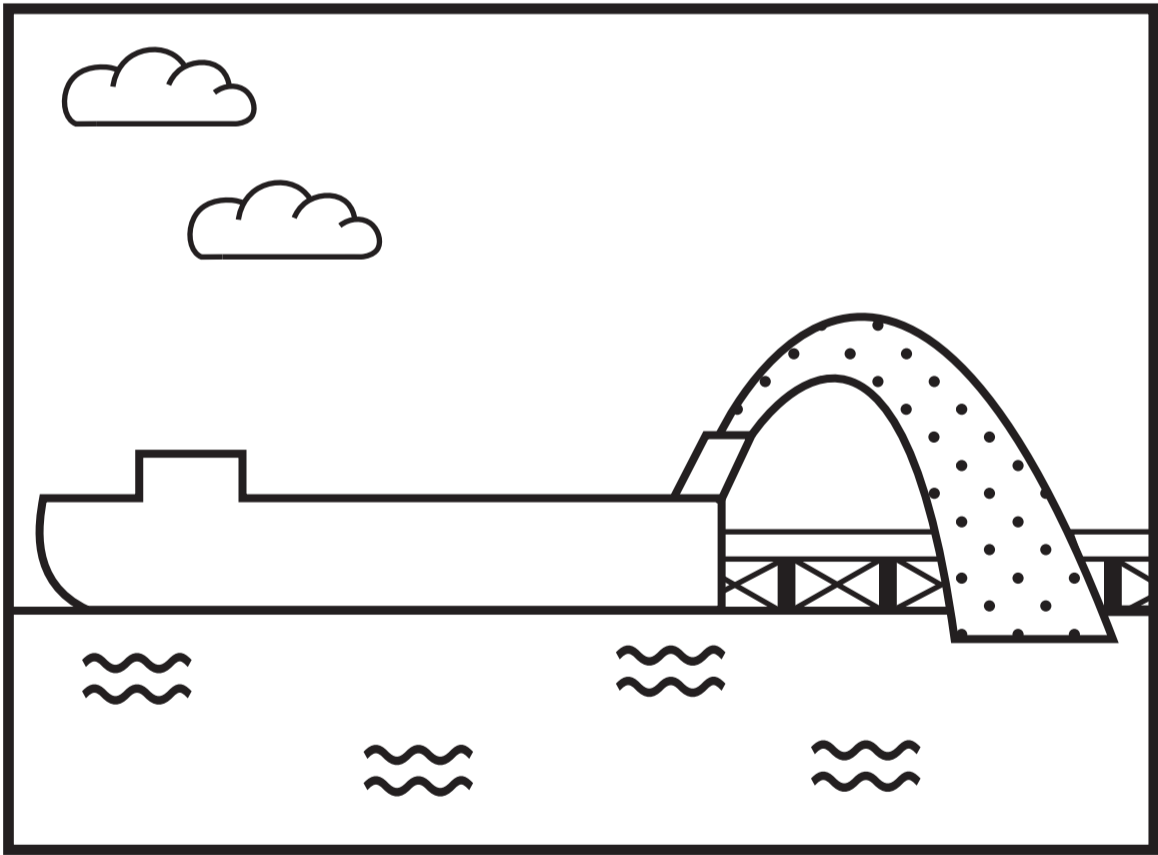
	Loose rock		Vegetation
	Cliff		Clouds

Figure 2d (Part 2)

Photo 2



Key:






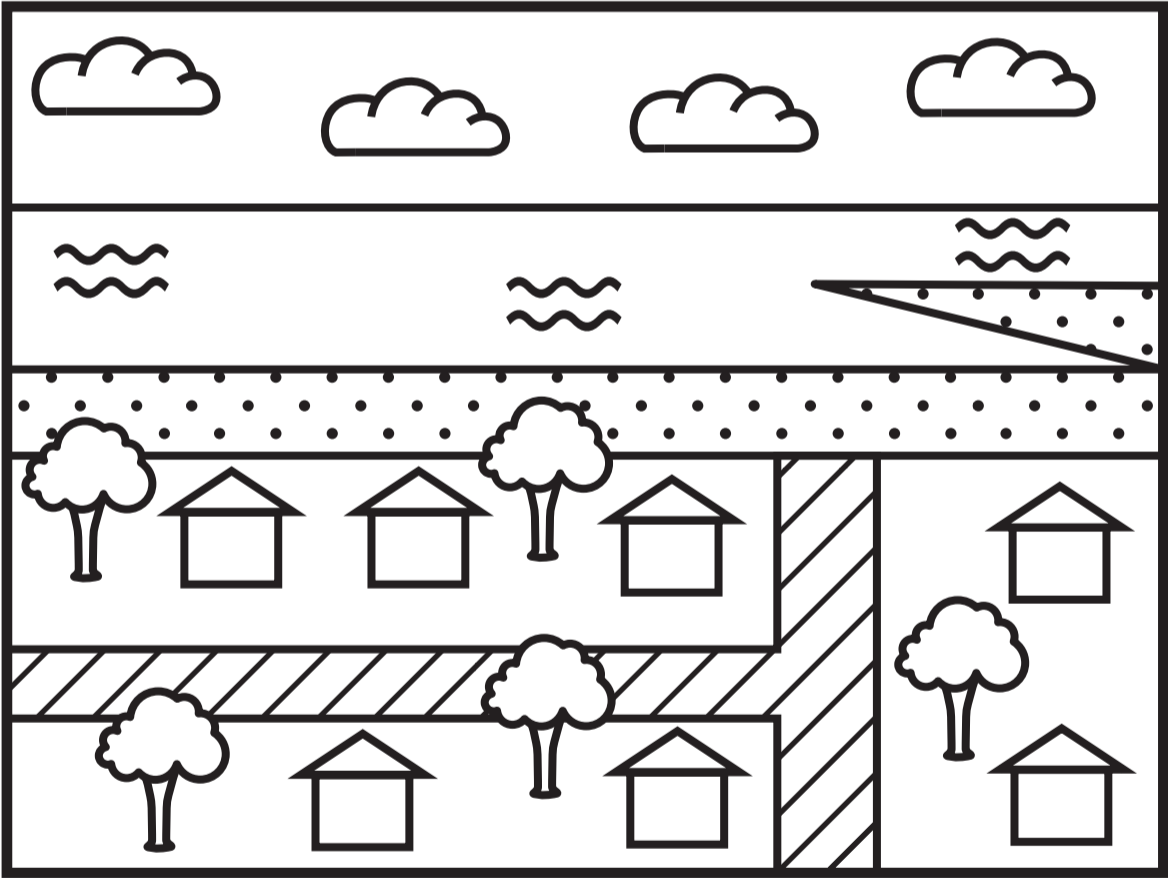
 Sea	 Boat	 Sand
 Clouds	 Pier	

Figure 2d (Part 3)

Photo 3



Key:

Sea



Sand



Clouds



Road



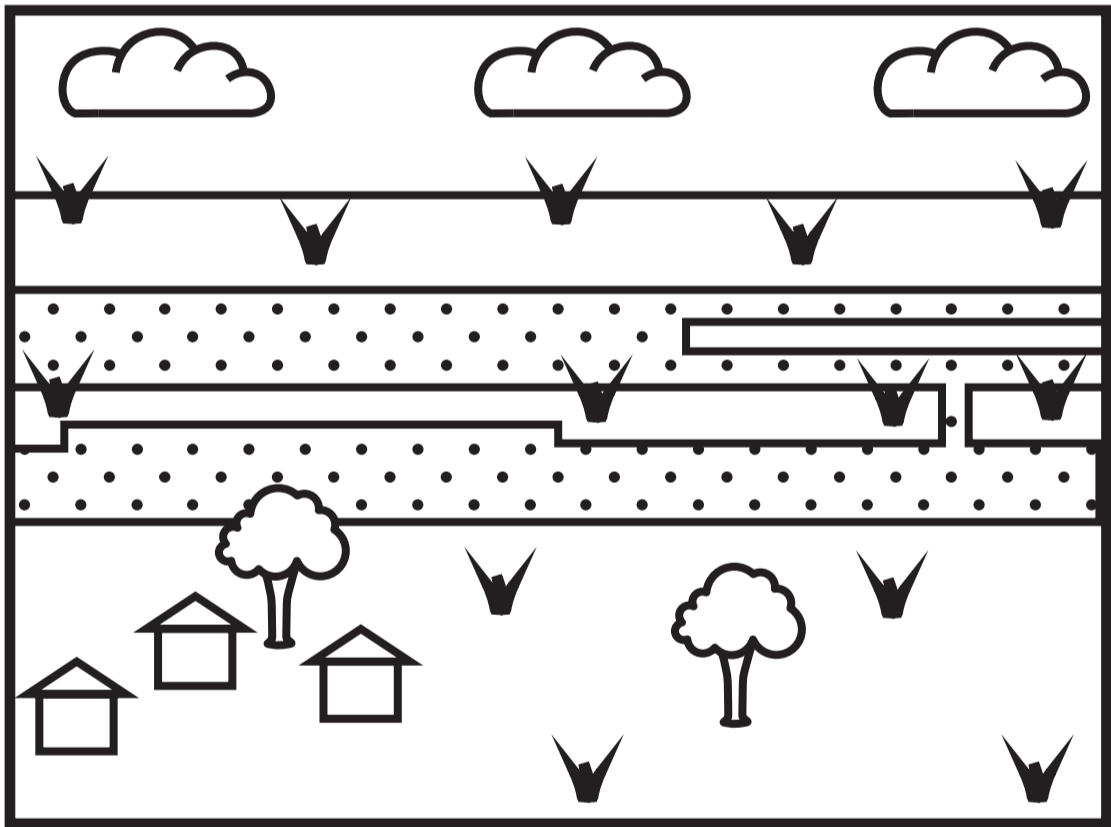
Trees



Houses

Figure 2d (Part 4)

Photo 4



Key:








-  Fields
-  Water
-  Clouds
-  Trees
-  Houses

Figure 3a – Colour

Factors affecting the formation of tropical cyclones

- 

= Sea temperature over 27°C
- 

= Direction of tropical cyclone
- A = June–October

B = August–October

C = October–November

D = May–December

E = January–March

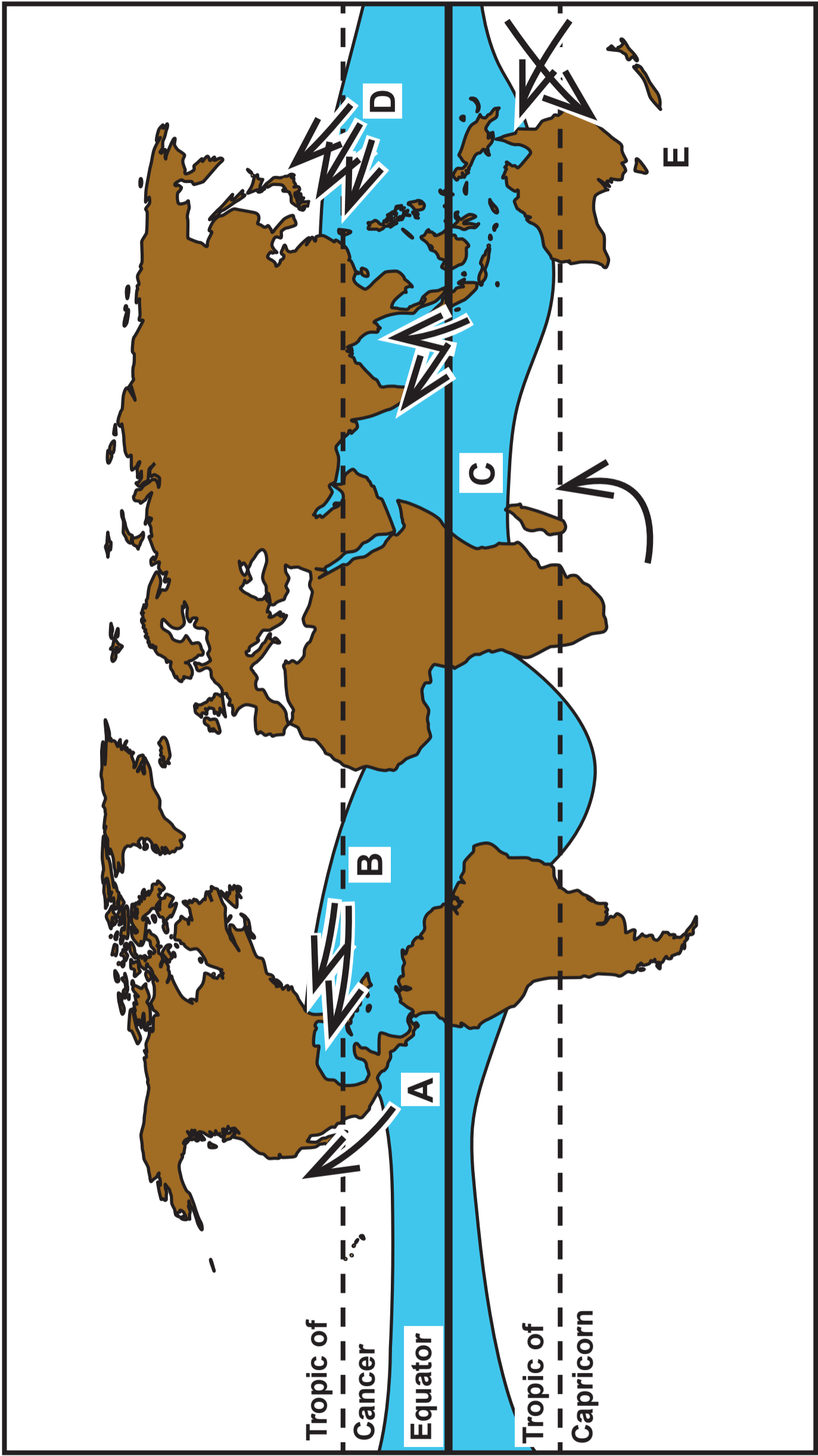
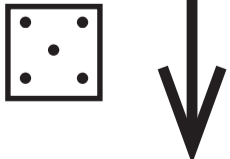




Figure 3a – Black and White

Factors affecting the formation of tropical cyclones

- 

 = Sea temperature over 27°C

 = Direction of tropical cyclone

A = June–October

B = August–October

C = October–November

D = May–December

E = January–March

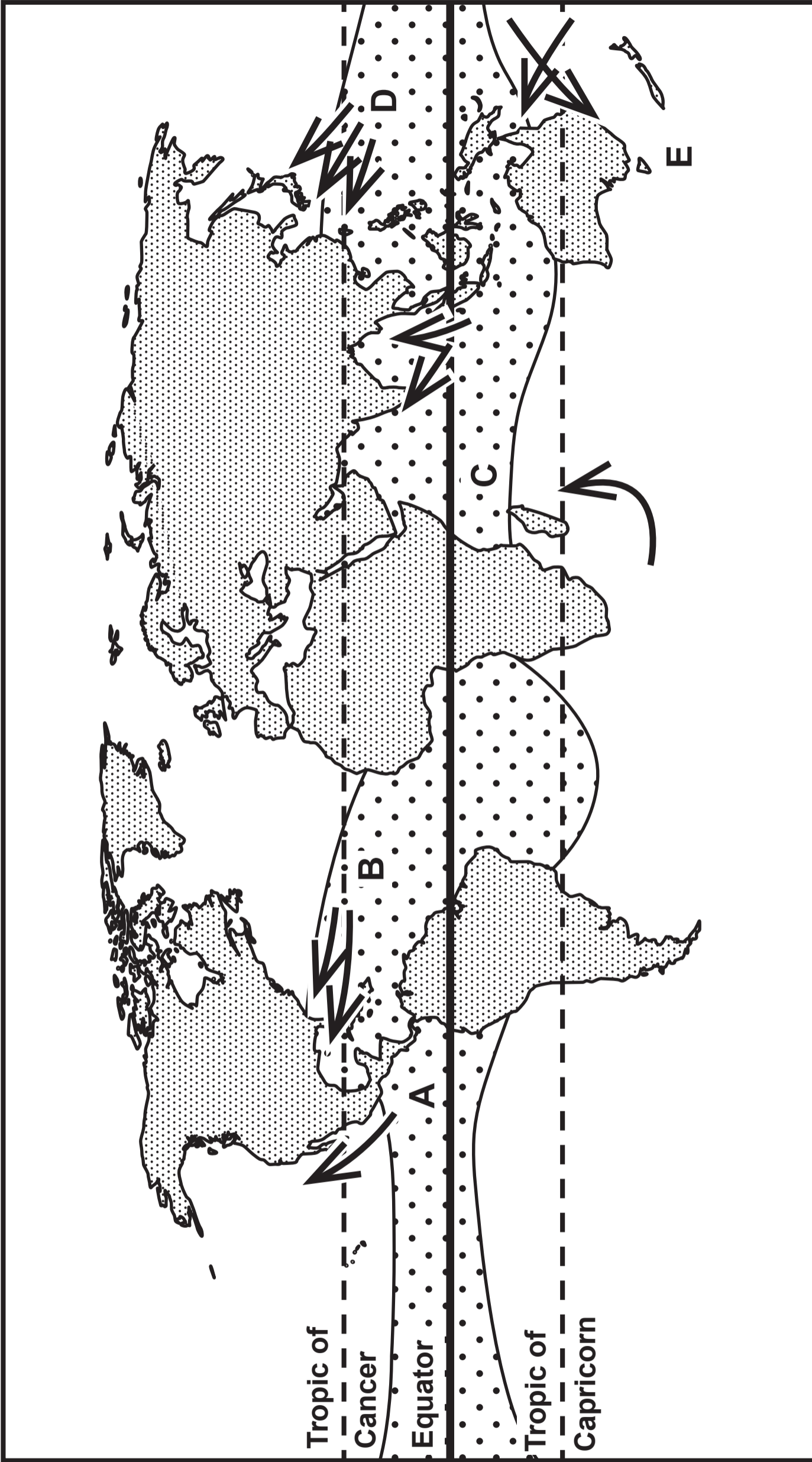
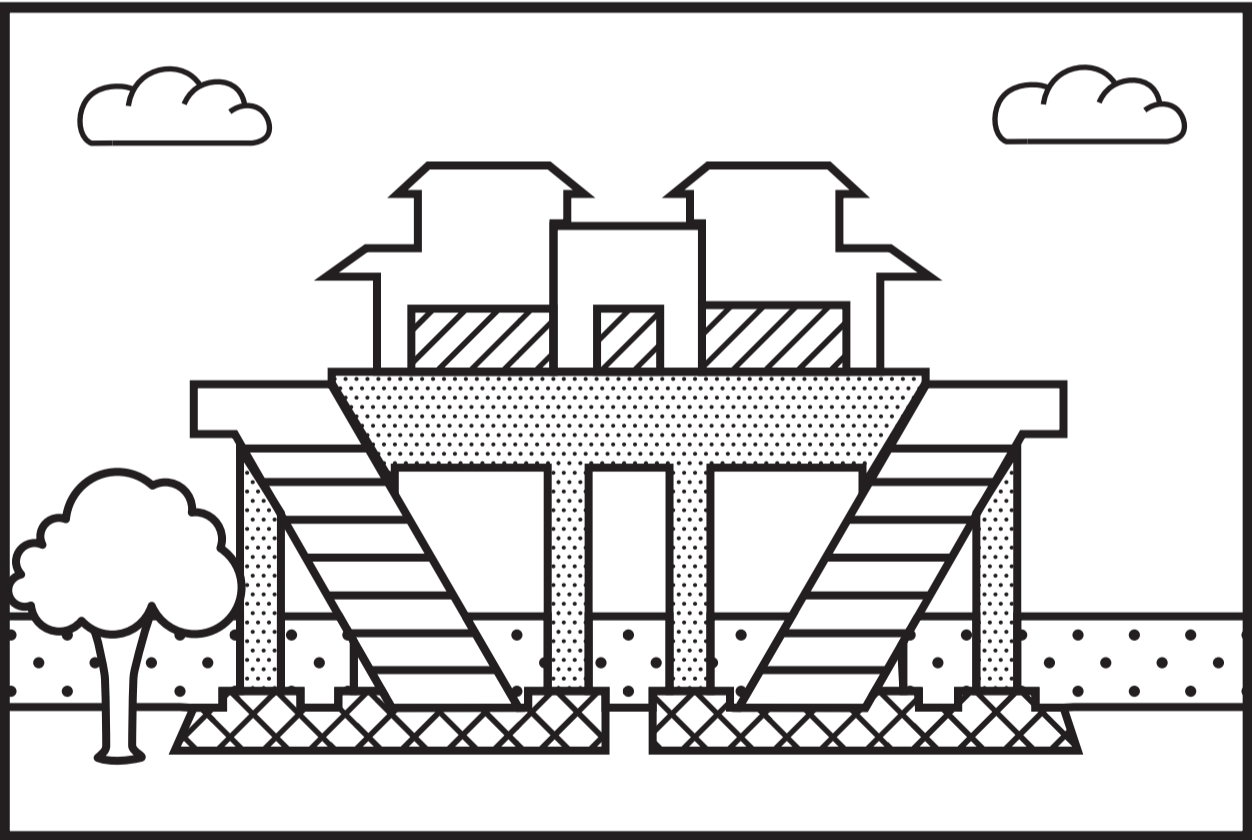
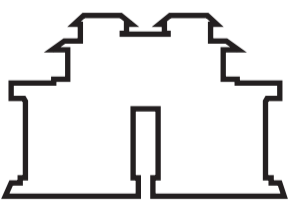


Figure 3b

A tsunami resistant building



Key:



Building



Stairs



Trees



Pillars



Windows



Rocks



Sea



Clouds

(Source from: https://commons.wikimedia.org/wiki/File:Tsunami_shelter_near_Khao_Lak_Thailand.jpg)

Figure 3c

Stages in hazard mapping

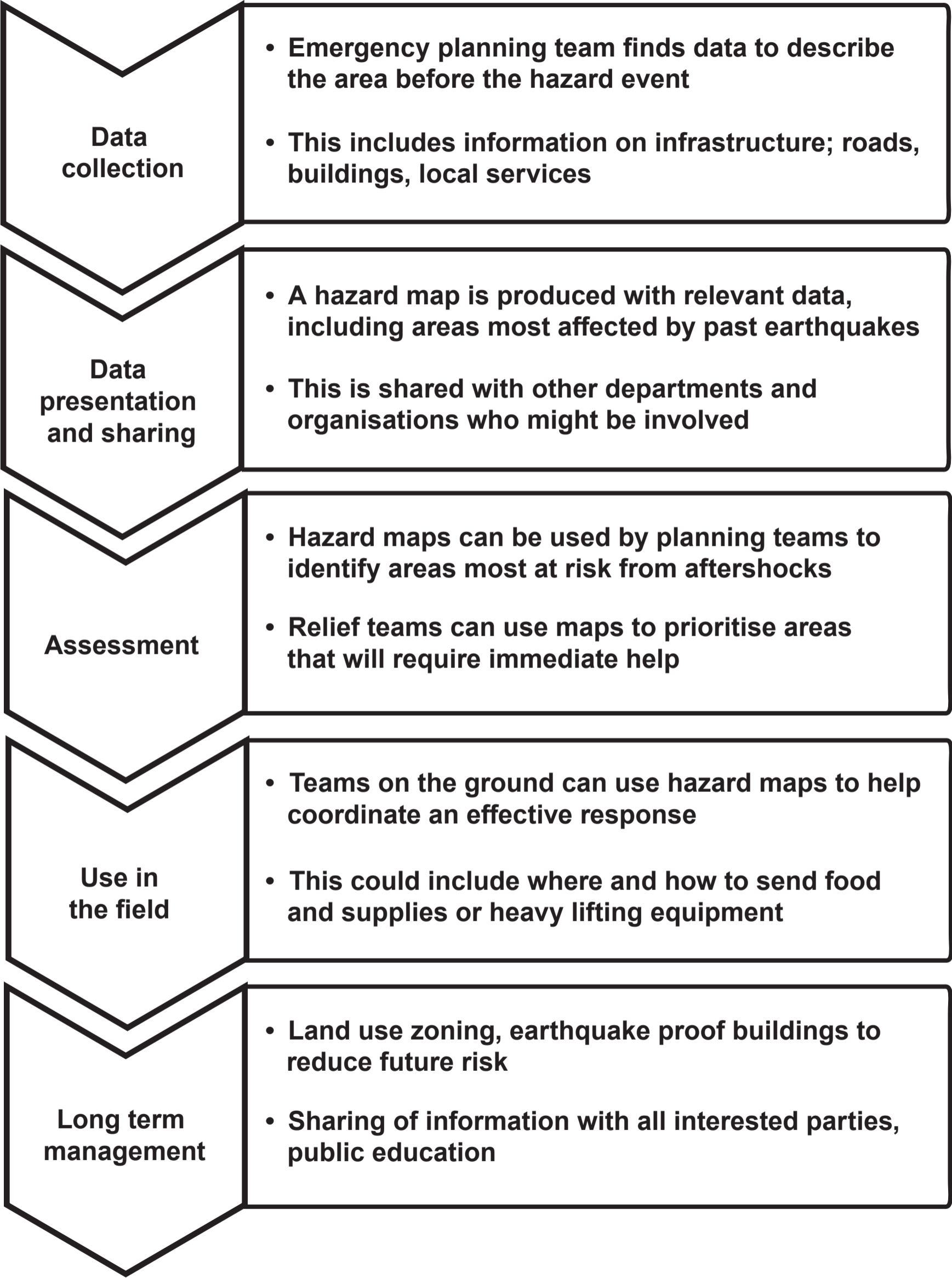
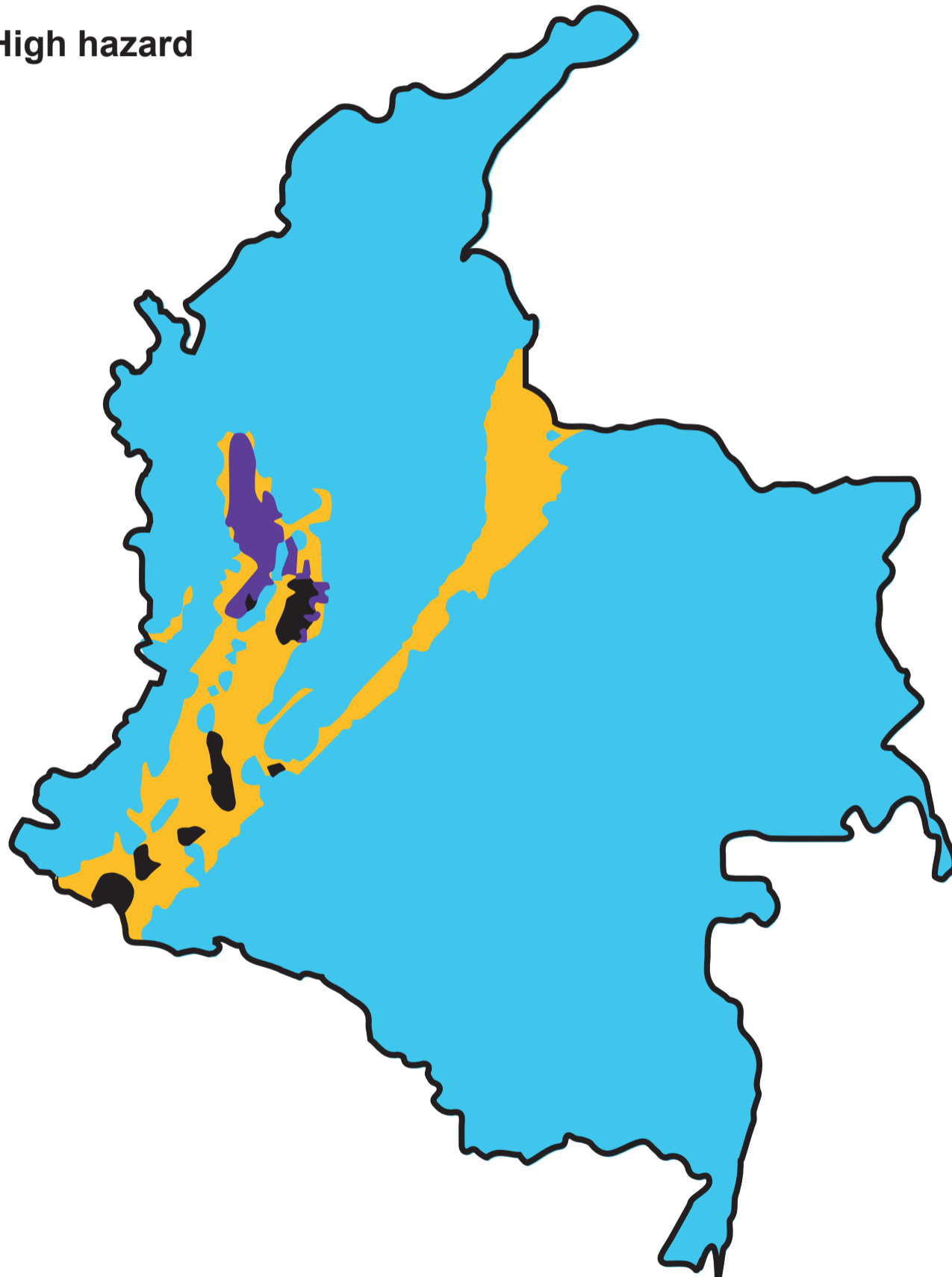
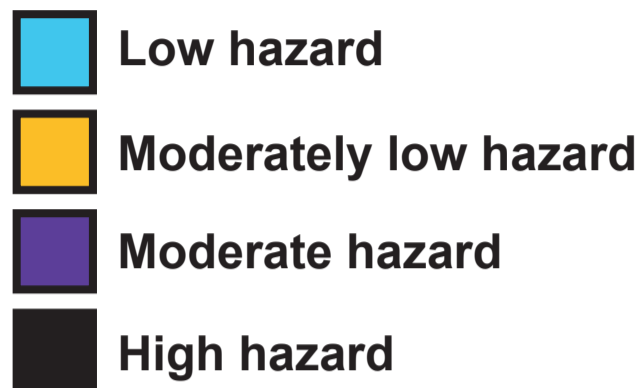


Figure 3d (Part 1) – Colour

An example of hazard, vulnerability and risk maps for tectonic events
in a South American country

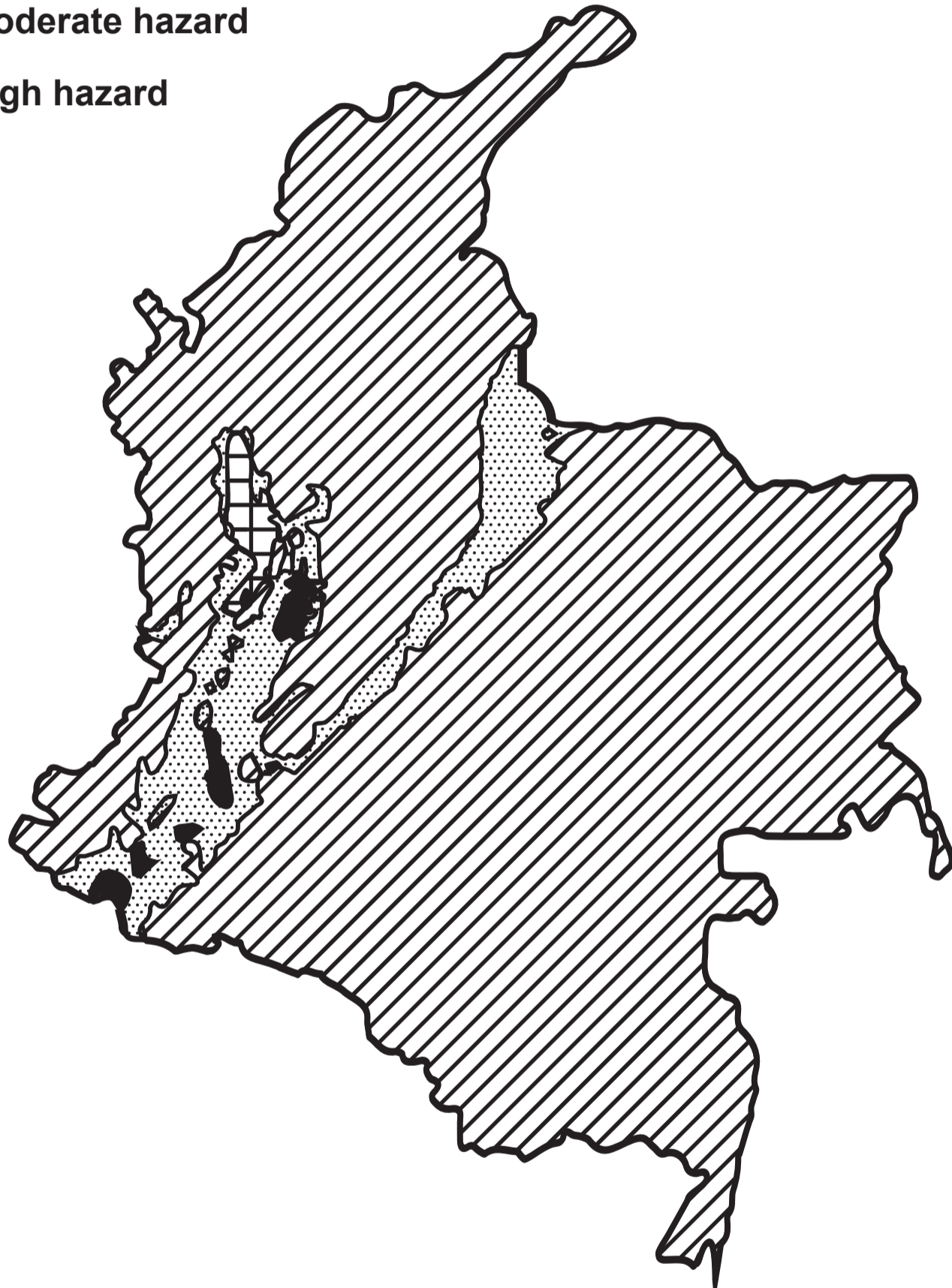
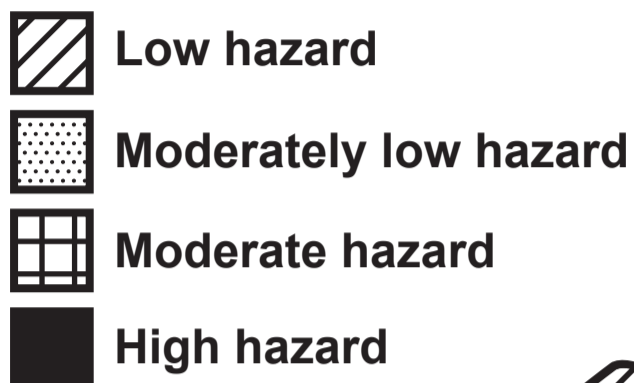
Hazard map



(Sourced from: Van Westen, C.J. (1997) Hazard, vulnerability and risk analysis. In: Cees van Westen, Asunción Saldaña López, Patricia Uría Cornejo and Guillermo Chávez Ardanza (eds). ILWIS Applications Guide, p 1–18. <https://www.itc.nl/ilwis/applications-guide/application-1/>)

Figure 3d (Part 1) – Black and White

**An example of hazard, vulnerability and risk maps for tectonic events
in a South American country**

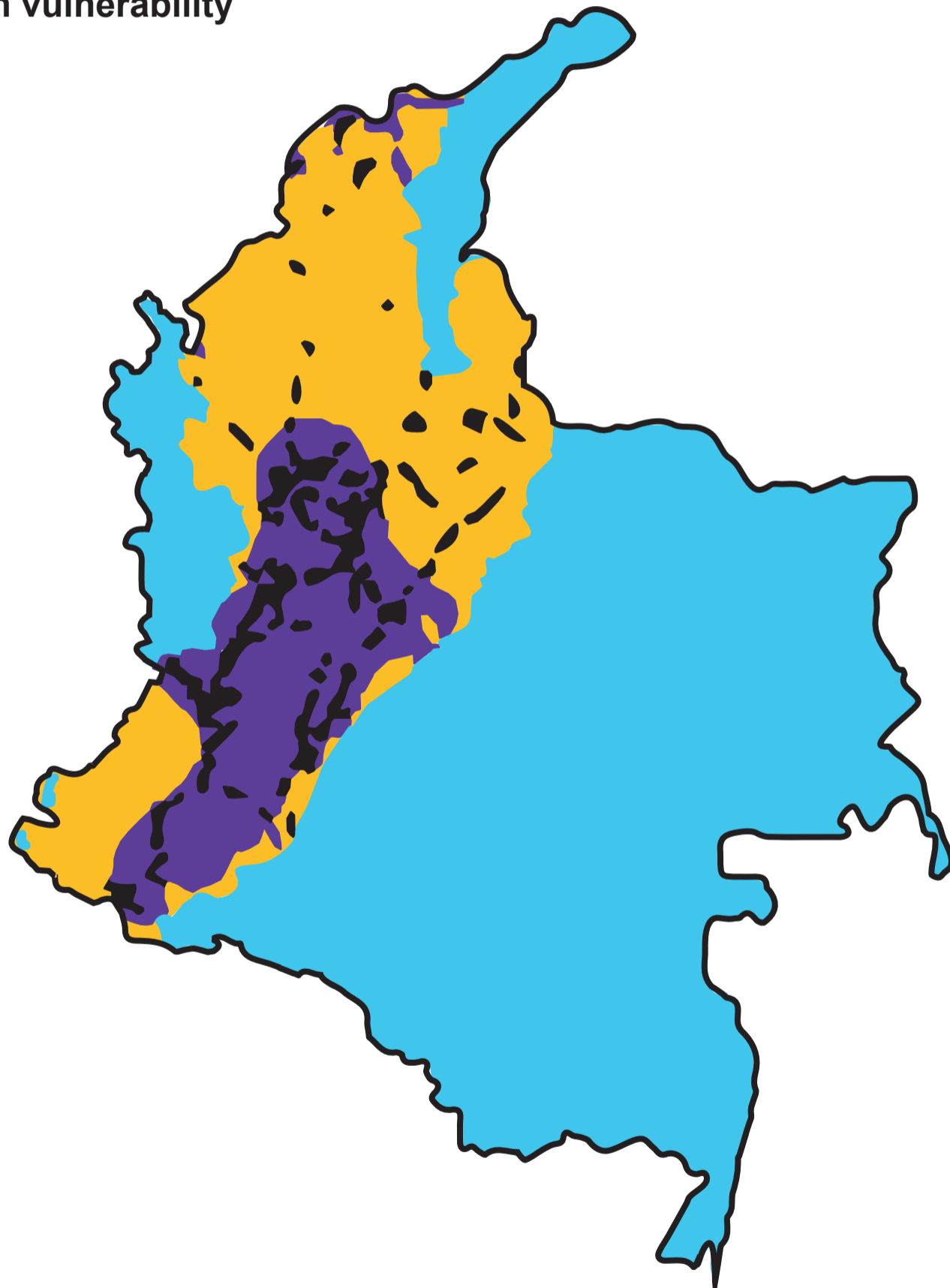
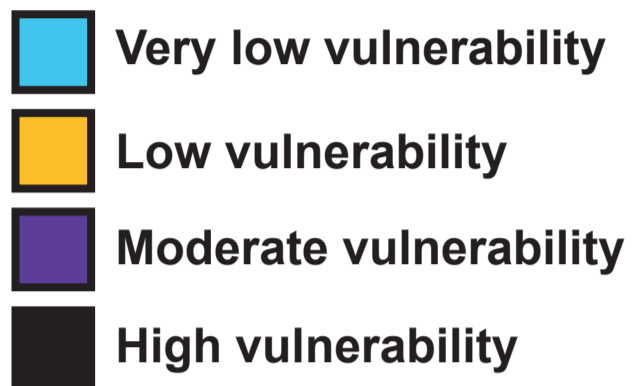
Hazard map

(Sourced from: Van Westen, C.J. (1997) Hazard, vulnerability and risk analysis. In: Cees van Westen, Asunción Saldaña López, Patricia Uría Cornejo and Guillermo Chávez Ardanza (eds). ILWIS Applications Guide, p 1–18. <https://www.itc.nl/ilwis/applications-guide/application-1/>)

Figure 3d (Part 2) – Colour

An example of hazard, vulnerability and risk maps for tectonic events
in a South American country

Vulnerability map

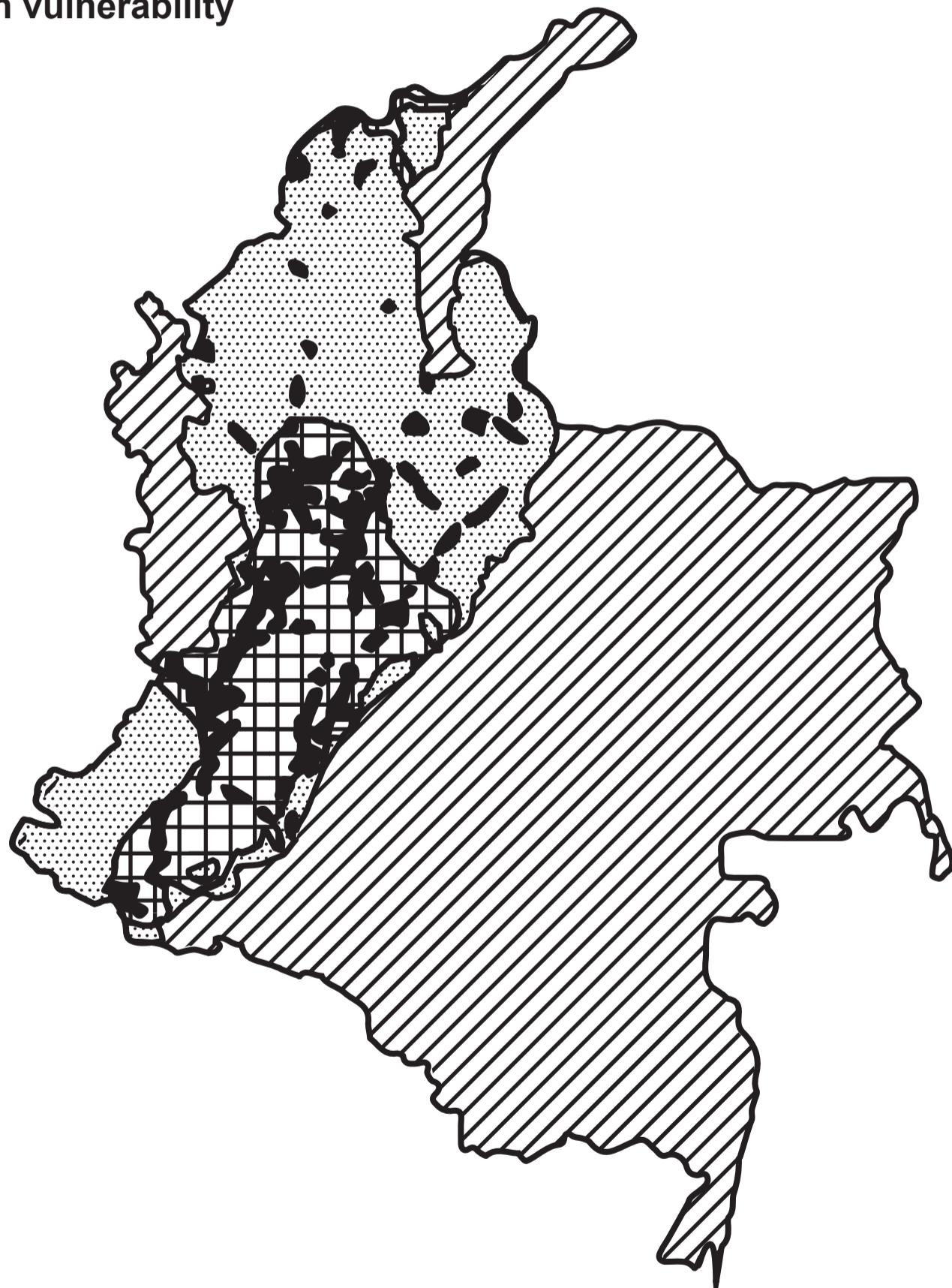
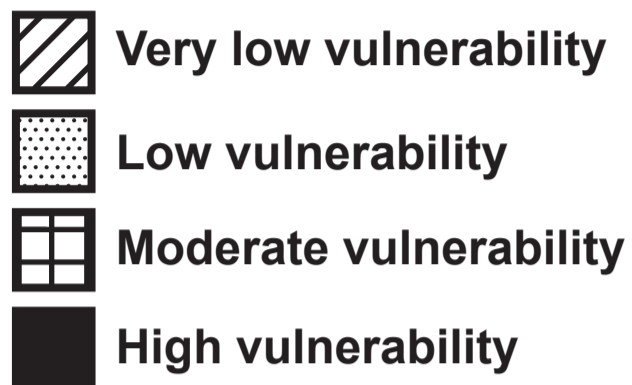


(Sourced from: Van Westen, C.J. (1997) Hazard, vulnerability and risk analysis. In: Cees van Westen, Asunción Saldaña López, Patricia Uría Cornejo and Guillermo Chávez Ardanza (eds). ILWIS Applications Guide, p 1–18. <https://www.itc.nl/ilwis/applications-guide/application-1/>)

Figure 3d (Part 2) – Black and White

An example of hazard, vulnerability and risk maps for tectonic events
in a South American country

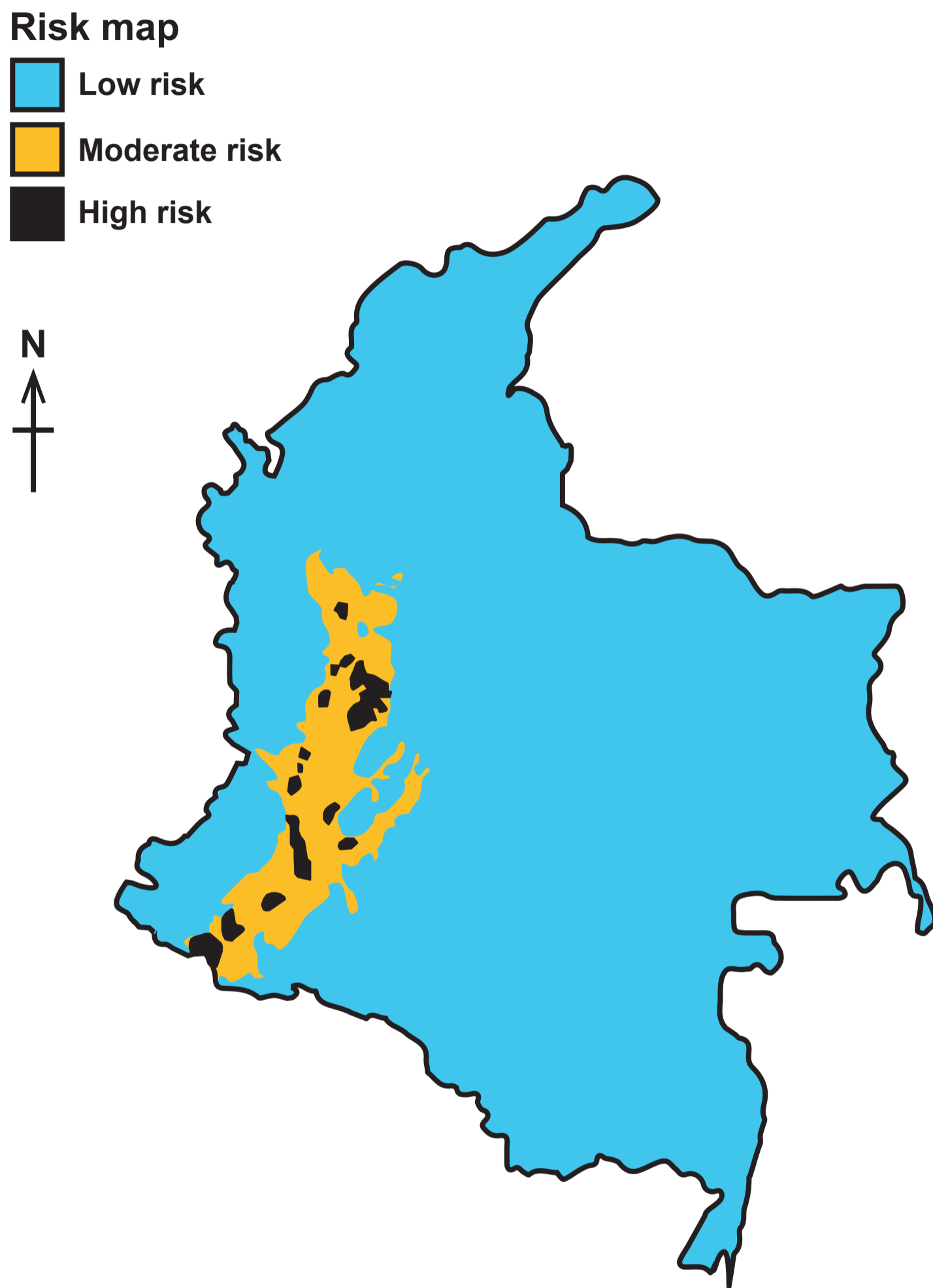
Vulnerability map



(Sourced from: Van Westen, C.J. (1997) Hazard, vulnerability and risk analysis. In: Cees van Westen, Asunción Saldaña López, Patricia Uría Cornejo and Guillermo Chávez Ardanza (eds). ILWIS Applications Guide, p 1–18. <https://www.itc.nl/ilwis/applications-guide/application-1/>)

Figure 3d (Part 3) – Colour

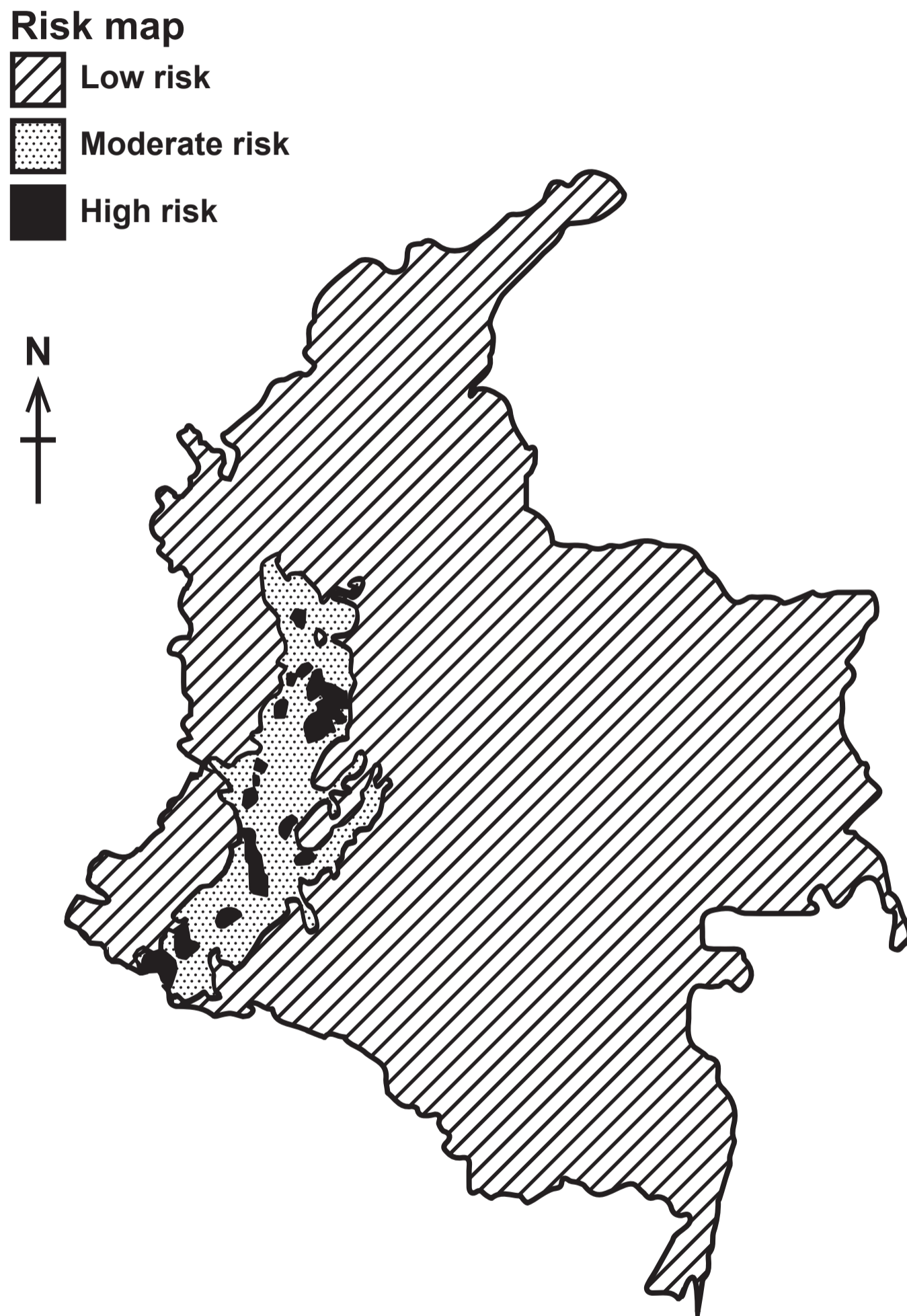
An example of hazard, vulnerability and risk maps for tectonic events
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Figure 3d (Part 3) – Black and White

An example of hazard, vulnerability and risk maps for tectonic events
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Figure 4a

River data collected by a group of students

Sample	Time taken (seconds)
1	20·0
2	16·0
3	14·1
4	15·0
5	35·0

Figure 5a

Coastal data collected by a group of students

Site	Mean shingle size (mm)
1	20·0
2	16·0
3	14·1
4	10·0
5	30·1

Figure 6a

Hazardous environment data collected by a group of students

Sample	Wind speed (mph)
1	50·0
2	35·1
3	45·1
4	40·0
5	10·0