

**Pearson Edexcel IGCSE (9-1)**

**Tuesday 21 May 2019**

Afternoon (Time: 1 hour 10 minutes)

Paper Reference **4GE1/01**

**Geography**

**Paper 1: Physical Geography**

**Resource Booklet**

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

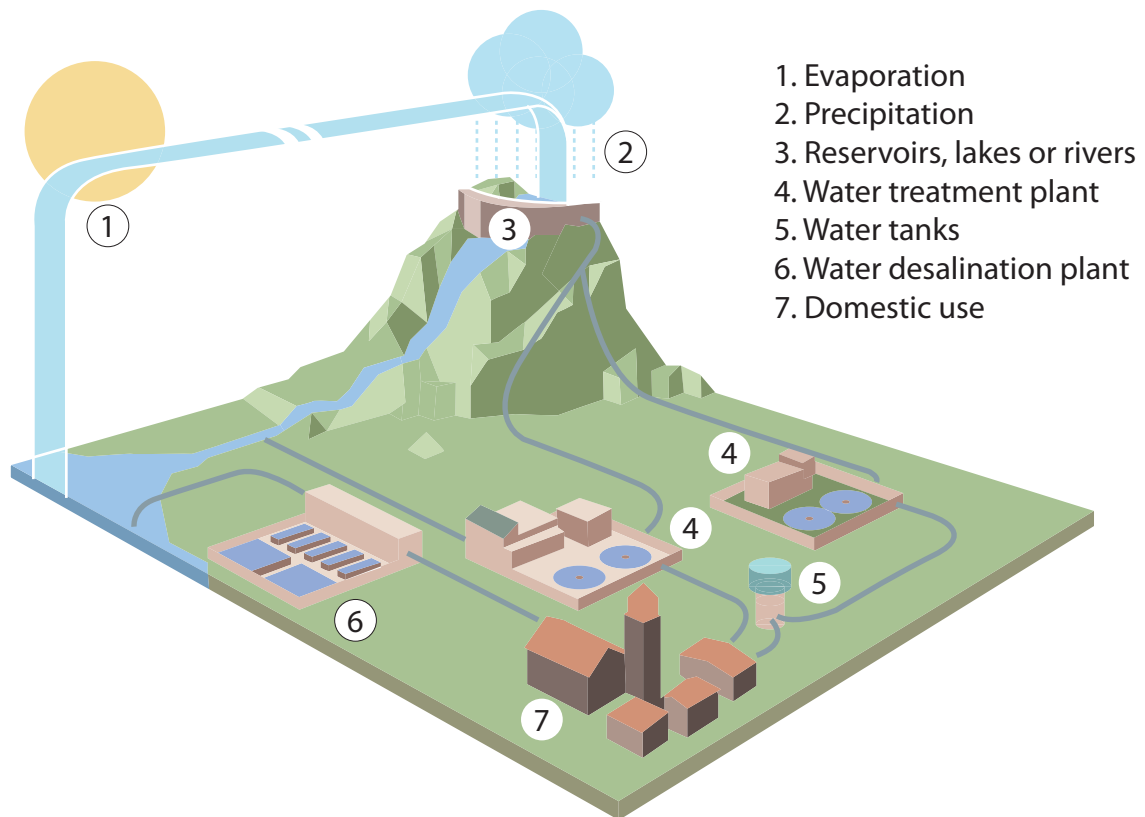
*Turn over* ►

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## Water cycle management



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

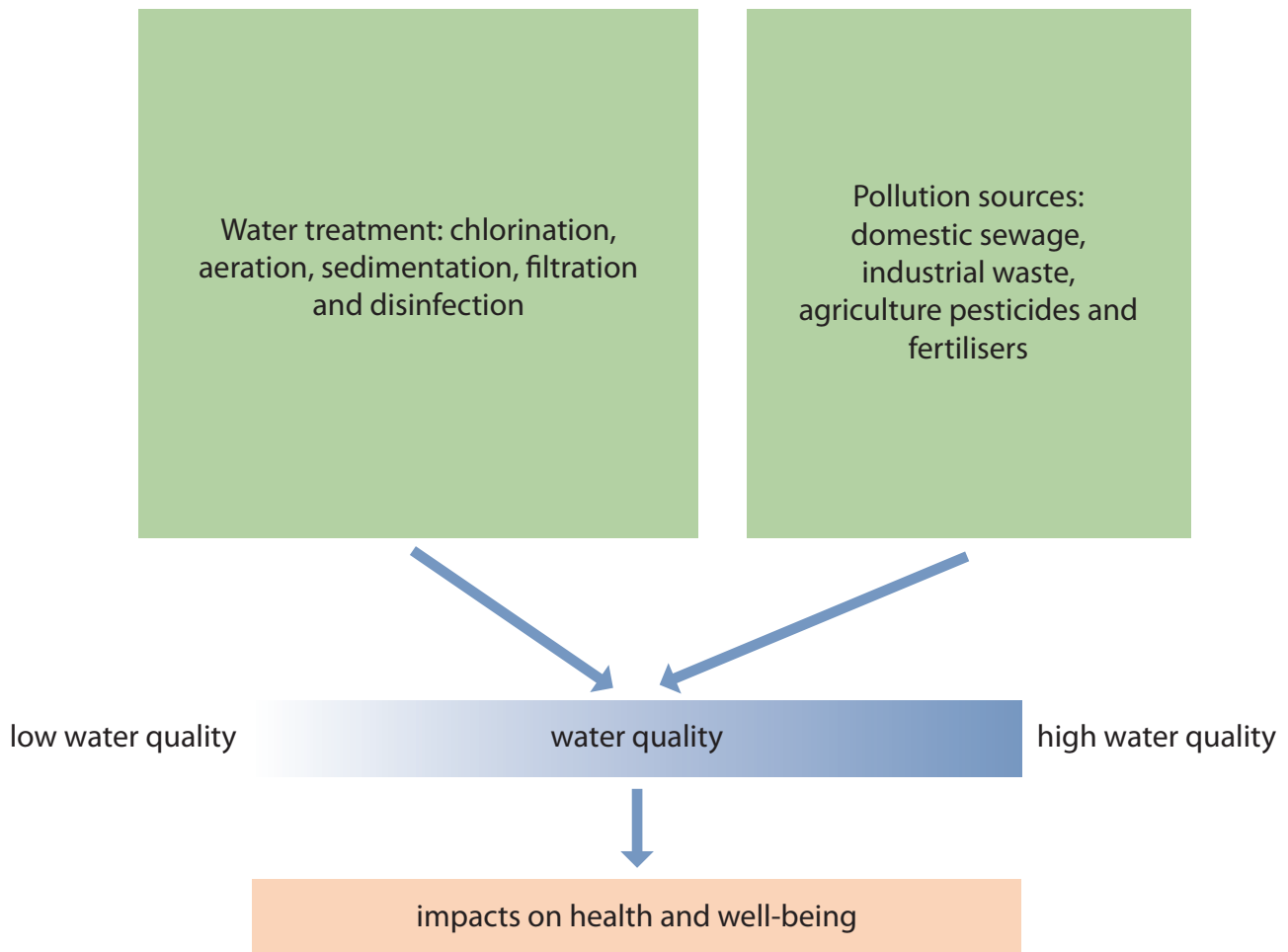
**Figure 1a**

## Water management in India

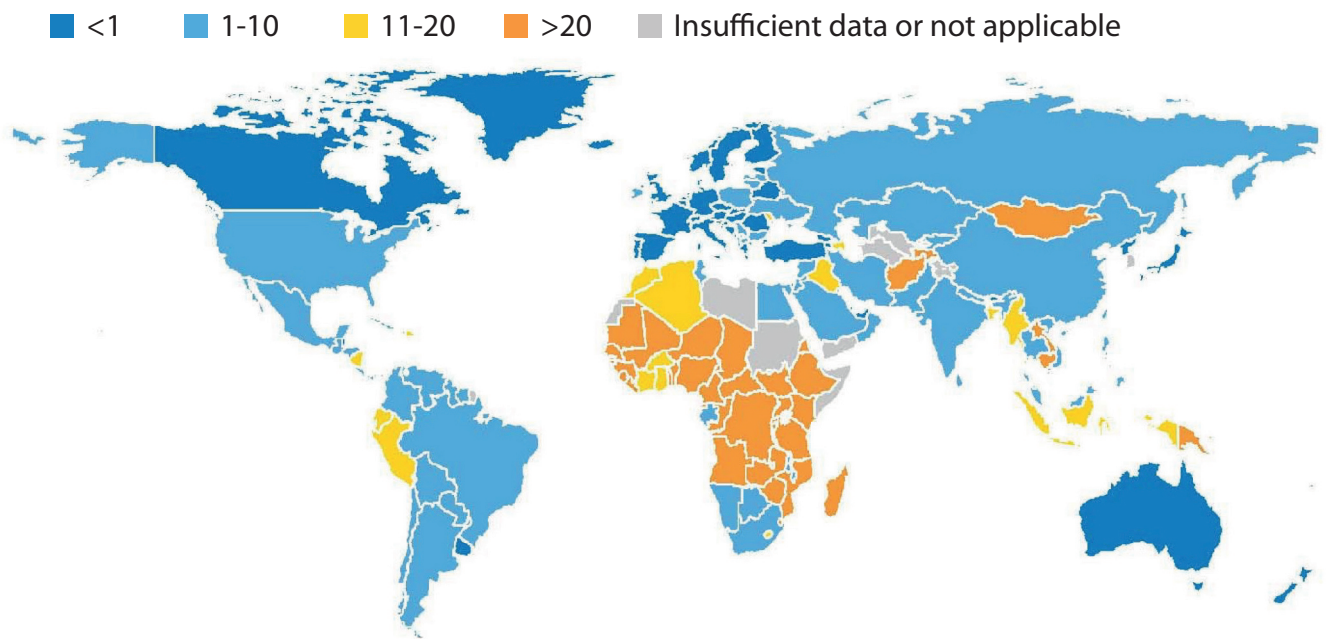


(Source: © David Holmes)

**Figure 1b**  
**A river landform in Hong Kong**



**Figure 1c**  
**Factors affecting water quality**

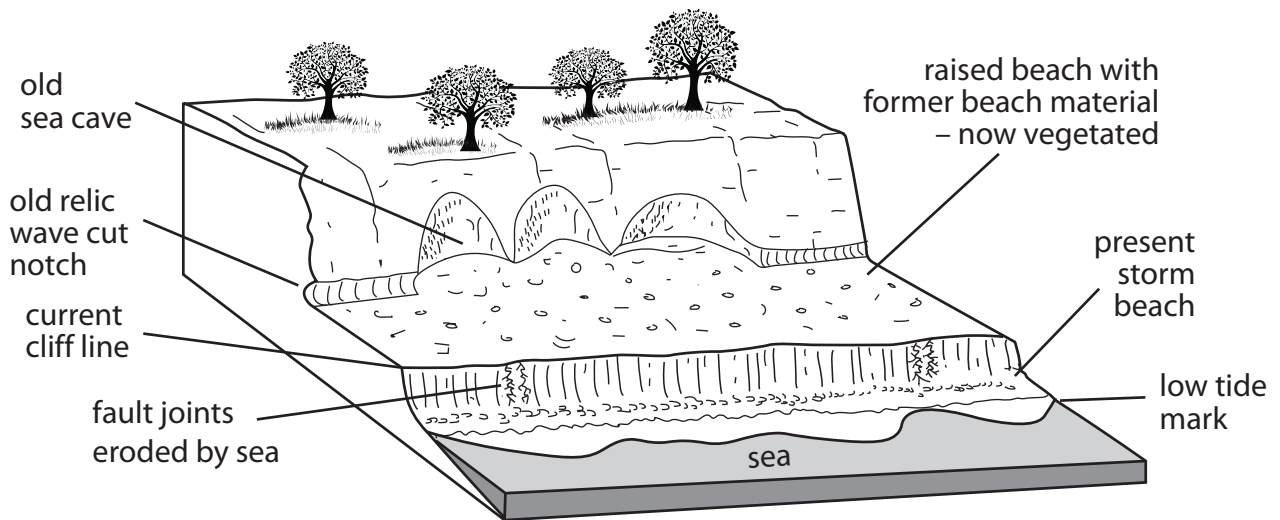


(Source: <https://www.theguardian.com/global-development-professionals-network/2017/mar/17/access-to-drinking-water-world-six-infographics#img-2>)

**Figure 1d**

**Percentage of people using untreated drinking water**

## Raised beaches



**Figure 2a**

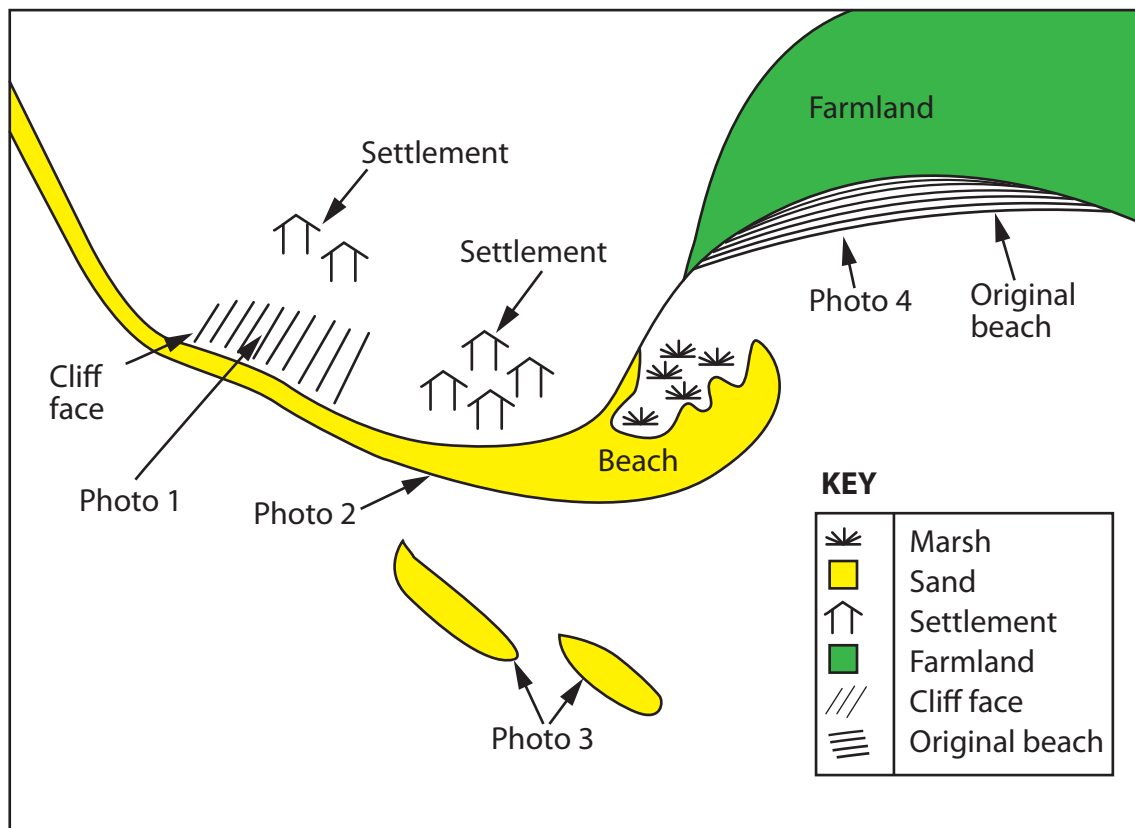
**An example of a coastal landscape in south west England**



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

**Figure 2b**

**A coastal landscape in St Lucia**



**Figure 2c**

**Different approaches to shoreline management along a stretch of coastline**



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.

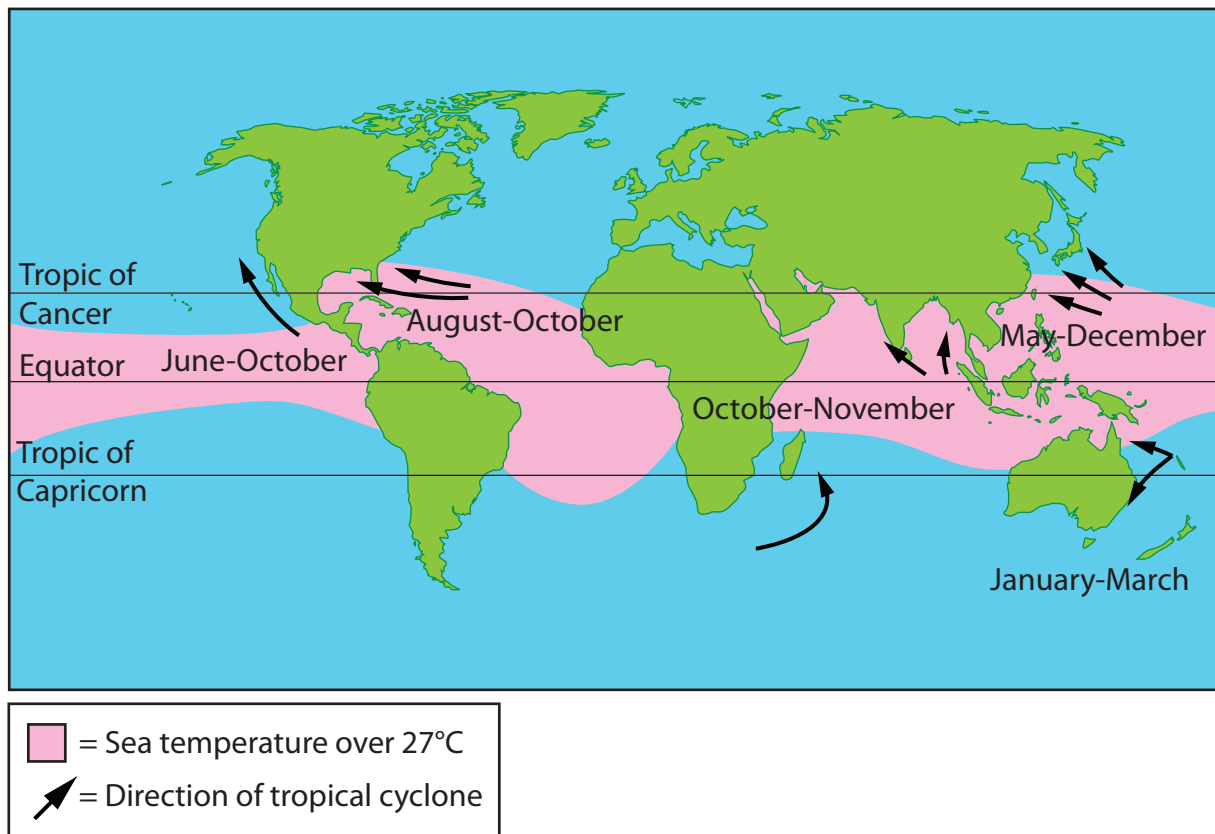


Photo 4 Managed retreat low maintenance and cost dependent on compensation due to people living in the area.

(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

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



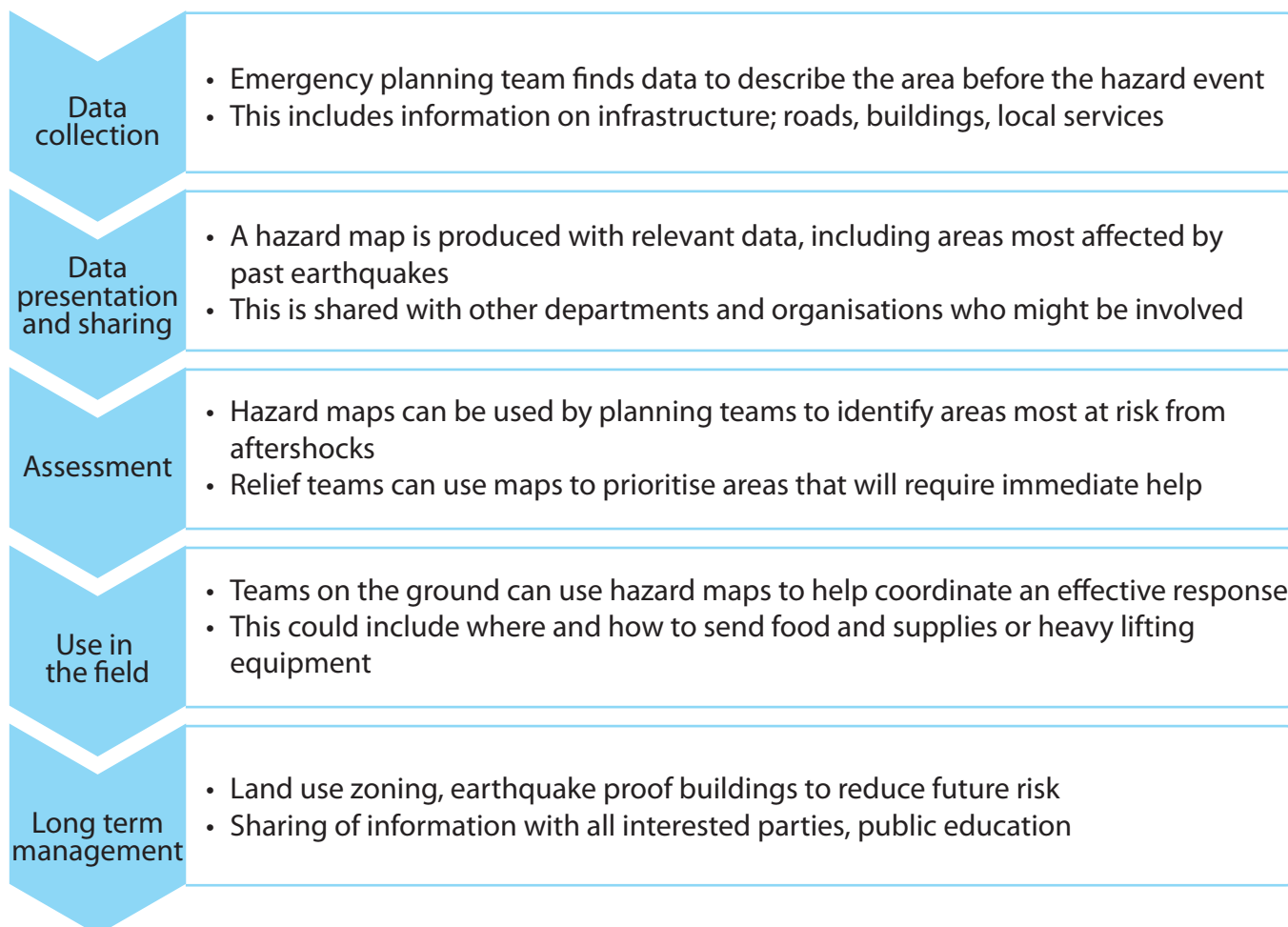
**Figure 3a**  
**Factors affecting the formation of tropical cyclones**



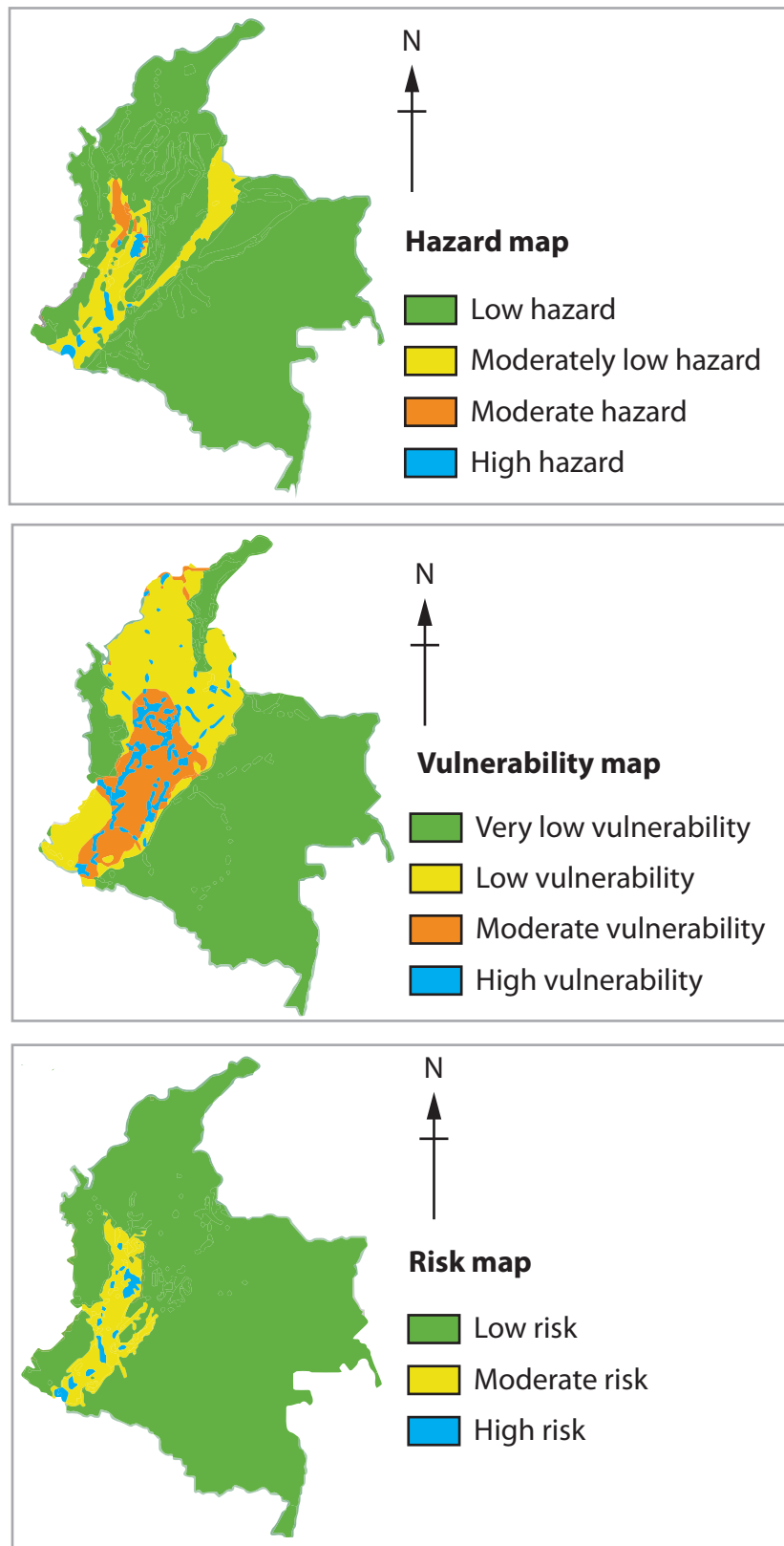
(Source from: [https://commons.wikimedia.org/wiki/File:Tsunami\\_shelter\\_near\\_Khao\\_Lak\\_Thailand.jpg](https://commons.wikimedia.org/wiki/File:Tsunami_shelter_near_Khao_Lak_Thailand.jpg))

**Figure 3b**

**A tsunami resistant building**



**Figure 3c**  
**Stages in hazard mapping**



(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**

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

Sample	Time taken (seconds)
1	21.1
2	16.0
3	14.1
4	15.0
5	35.0

**Figure 4a**

**River data collected by a group of students**

Site	Mean shingle size (mm)
1	21.1
2	16.0
3	14.1
4	10.0
5	30.1

**Figure 5a**

**Coastal data collected by a group of students**

Sample	Wind speed (mph)
1	50.1
2	35.1
3	45.1
4	40.0
5	10.0

**Figure 6a**

**Hazardous environment data collected by a group of students**