Question1 This document has been uploaded so that teachers or students can look over the questions that students have answered correctly or incorrectly. They contain none of the interactive elements of the online competition. Some of the wider graphics are missing their edges but the skill/knowledge required by the student to answer the question remains clear.

1. Which phenomenon is illustrated in the satellite image animation of western Sydney?

edge expansion
rural-urban migration
tree change
urban sprawl

Choose the answer from the drop-down menu.

The animation represents [⌄].

Animation file loaded separately – see Sydney_Landsat.gif

Western Sydney, 1991, 2002, 2019   *Source images © U.S. Geological Survey*
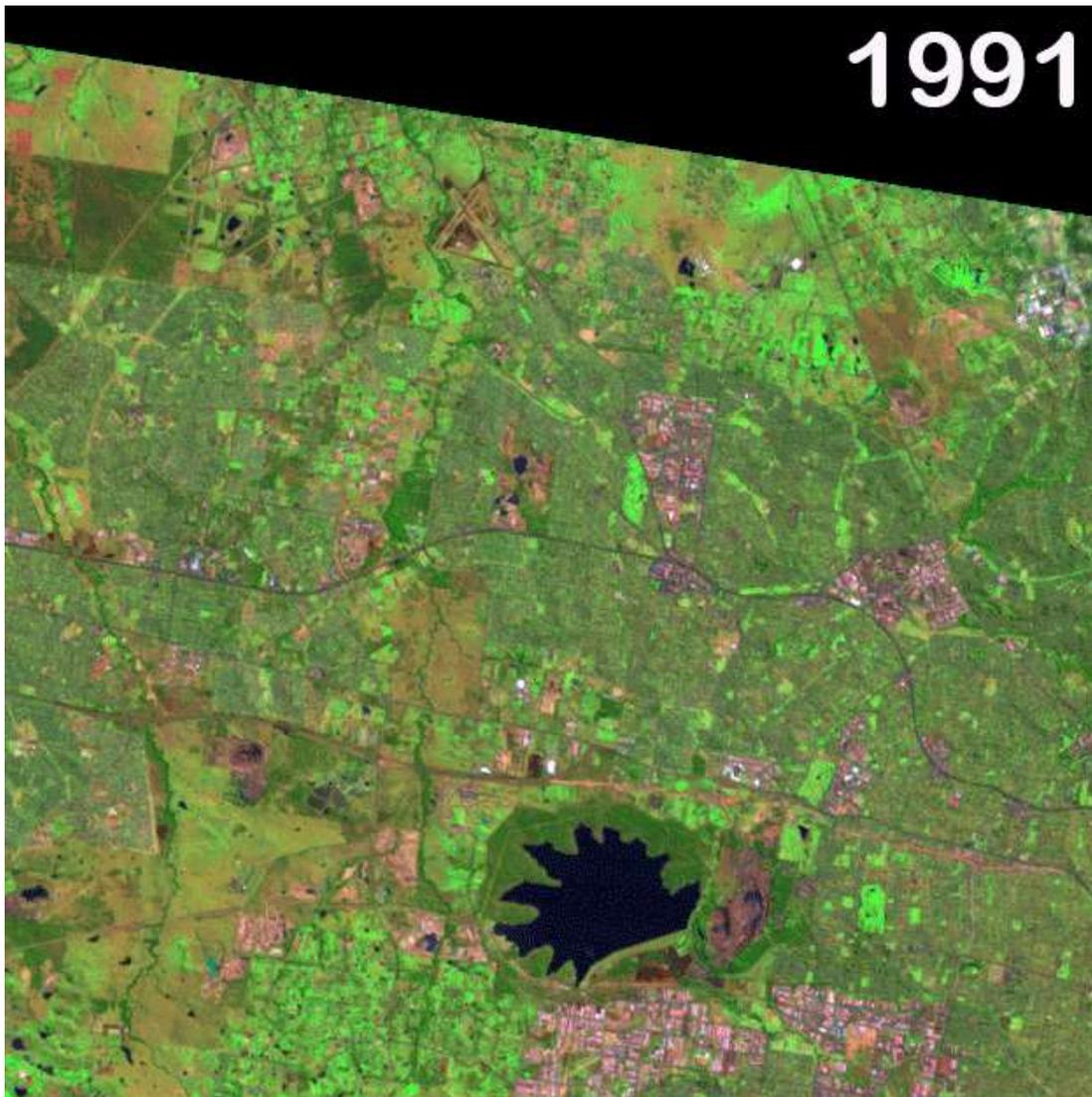
Question 2

2. Which is the most sustainable and efficient transport strategy to address impacts arising from the changes seen in the animation?

○ walking 1	○ ride-share service 2
○ public transport 3	○ private cars 4

Animation file loaded separately – see Sydney_Landsat.gif

Western Sydney, 1991, 2002, 2019   *Source images © U.S. Geological Survey*

Question 3

3. Which of these impacts of growing coastal populations are environmental?

Select ALL correct options

☐ increased runoff of sediment and nutrients	1
☐ destruction of mangroves	2
☐ filling in coastal lagoons	3
☐ increased property prices	4

Question 4

4. Look at the lower panel of the diagram.

Are the illustrated management strategies hard or soft engineering?

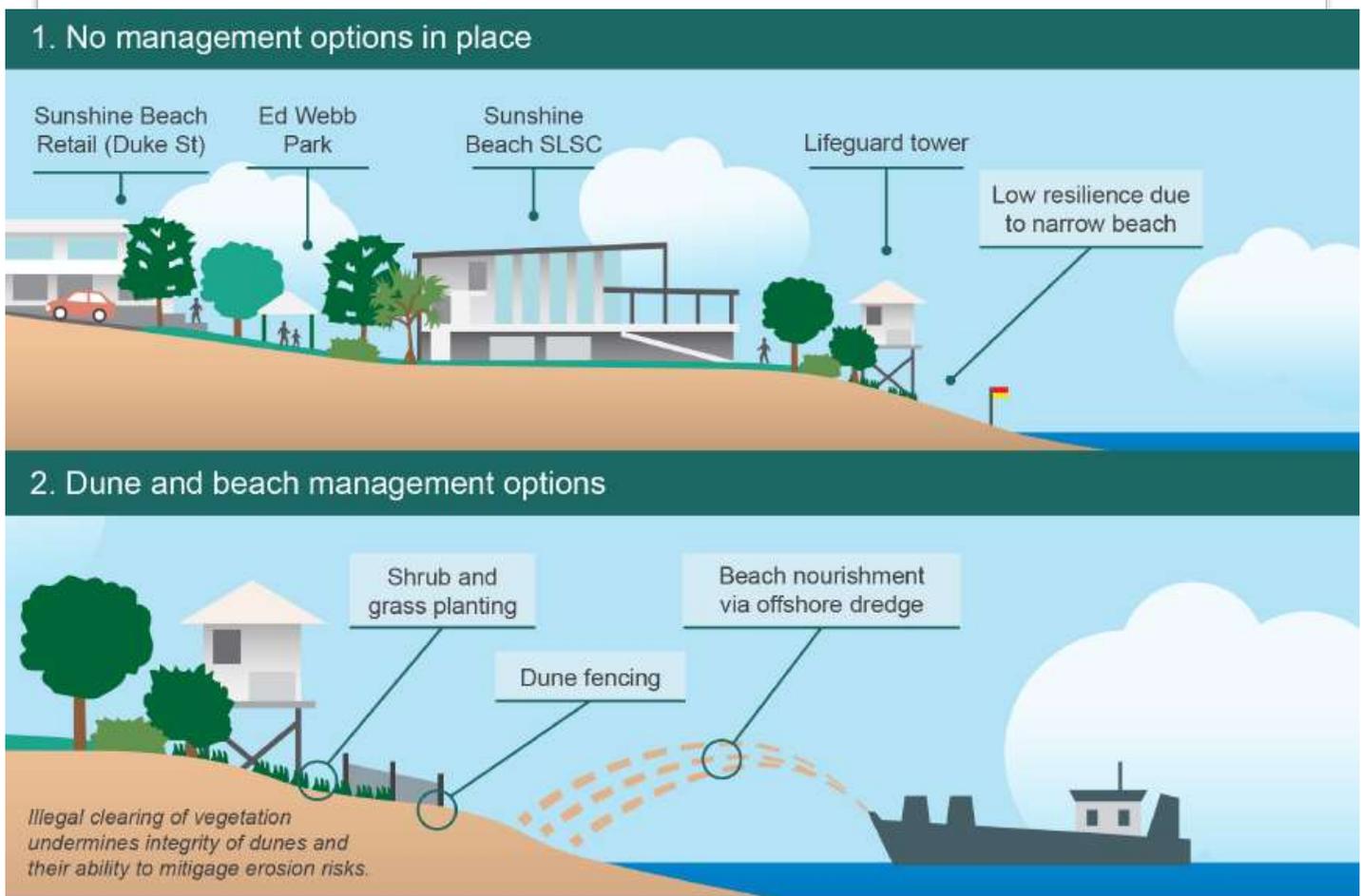*Choose the answers from the drop-down menus.*

Shrub and grass planting is soft ˅ engineering.

Dune fencing is hard˅ engineering.

Beach nourishment is soft ˅ engineering.

Dune and beach management measures, Sunshine Beach, Qld   *© Noosa Council*

1. No management options in place

Sunshine Beach Retail (Duke St)   Ed Webb Park   Sunshine Beach SLSC   Lifeguard tower   Low resilience due to narrow beach

2. Dune and beach management options

Shrub and grass planting   Dune fencing   Beach nourishment via offshore dredge

Illegal clearing of vegetation undermines integrity of dunes and their ability to mitigage erosion risks.

Question 5

5. Implementing all the strategies shown in the lower panel of the diagram would result in:

○ erosion at the base of lifeguard tower   1

○ restoration of dune succession   2

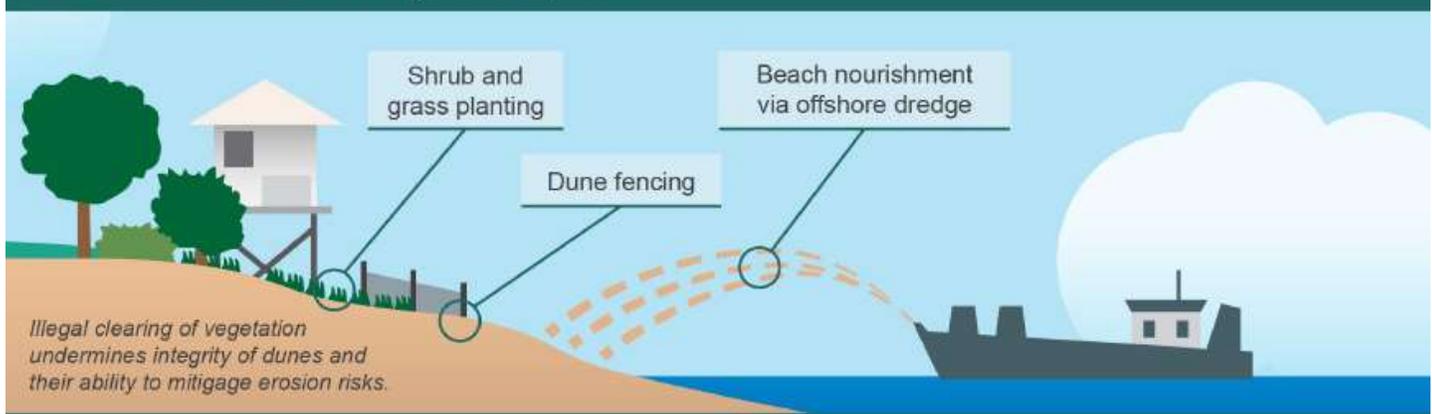○ improved resilience to erosion   3

○ improved access to the SLSC   4

Dune and beach management measures, Sunshine Beach, Qld   © *Noosa Council*

Question 6

6. In the table, classify the impacts of Sunshine Beach's management to indicate if they are mainly environmental, social or economic.

Choose the answers from the drop-down menus.

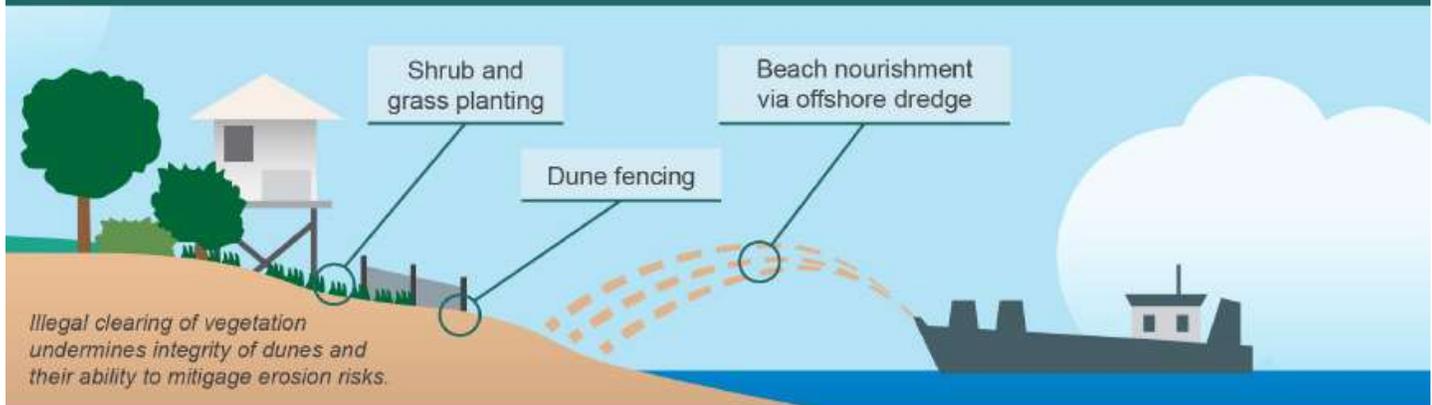| Classification	Impact of beach management
Economic ⌄	Tourism operators will benefit as more tourists are attracted.
Environmental ⌄	Vegetated dunes provide habitats for native species.
Social ⌄	Local residents can make more use of the beach for recreation.
Environmental ⌄	Offshore dredging will stir up sediment affecting marine life.
Economic ⌄	Damage to infrastructure from sea encroachment will be less likely.

Dune and beach management measures, Sunshine Beach, Qld   *© Noosa Council*

1. No management options in place

Sunshine Beach Retail (Duke St)   Ed Webb Park   Sunshine Beach SLSC   Lifeguard tower   Low resilience due to narrow beach

2. Dune and beach management options

Shrub and grass planting   Beach nourishment via offshore dredge   Dune fencing

Illegal clearing of vegetation undermines integrity of dunes and their ability to mitigage erosion risks.

Question 7

7. Australia's First Nations peoples have used fire as a management tool for their country for thousands of years.

Which word best describes their approach to land management?

○ destructive   1

○ vigilant   2

○ custodial   3

○ careful   4

Question 8

8. Using the video, in which month in 2004 was the most land burnt in northern Australia?

○ September ₁   ○ October ₂

○ November ₃   ○ December ₄

Video loaded separately - see North_Aust_HotSpots_edited.mp4

A comparison of two extreme fire condition years in Northern Australia

© Charles Darwin University; North Australia and Rangelands Fire Information

Question 9

9. The incorporation of First Nations led burning into land management practices in northern Australia has mainly resulted in:

○ fewer fires but more canopy fires

1

○ rainforest replacing savannah

2

○ a reduction in the extent and intensity of bushfires

3

○ savannah replacing eucalyptus woodlands

4

Question 10

10. Which environmental world views match the definitions?

Drag and drop the answers.

anthropocentric   egocentric   ecocentric   biocentric

Term	Definition
anthropocentric	regarding human beings as the central and most important part of the world
biocentric	regarding all living components of the environment as equally important
ecocentric	placing value and importance on all elements of the ecosystem

Question 11

11. Which world view is evident in the image?

○ biocentric 1	○ **anthropocentric** 2
○ egocentric 3	○ ecocentric 4

Land clearing for oil palm plantation, Sabah, Malaysia   *© Mongabay.com*

Question 12

12. Which biome has been cleared in the area shown in the photo?

○ rainforest   1   ○ coniferous forest   2

○ shrubland   3   ○ deciduous forest   4

Land clearing for oil palm plantation, Sabah, Malaysia   © *Mongabay.com*

Question 13

13. Which of these environmental problems was most likely to have been caused by the clearing shown in the image?

○ desertification of surrounding land ₁	○ siltation of waterways ₂
○ acid rain ₃	○ salinisation ₄

Land clearing for oil palm plantation, Sabah, Malaysia   © *Mongabay.com*

Question 14

14. Which of these geographical concepts is best illustrated in the photo?
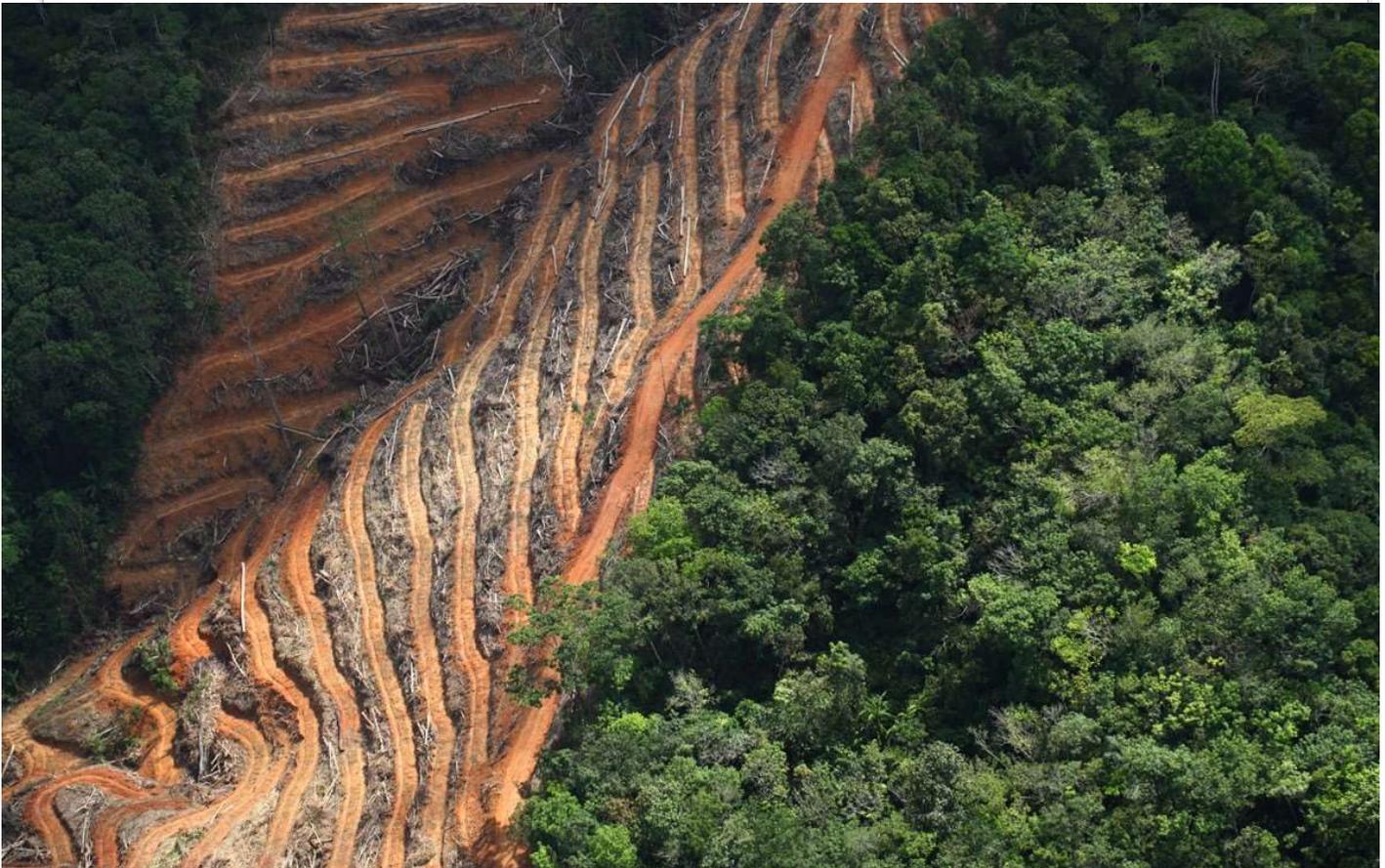
○ scale   1   ○ space   2

○ change   3   ○ place   4

Land clearing for oil palm plantation, Sabah, Malaysia   *© Mongabay.com*

Question 15

15. Which of these species were introduced into Australia?

Select ALL correct options

- ☐ flying fox   1

- ☐ brumby   2

- ☐ blackberry   3

- ☐ black rat   4

Question 16

16. What is one disadvantage of culling as a control method for large feral animals?

○ non target species affected   1

○ high ongoing maintenance costs   2

○ carcasses left to rot   3

○ can be carried out via helicopter   4

Question 17

17. Which pressure most affects endangered species in Australia?

○ overexploitation   1

○ pollution   2

○ habitat loss   3

○ introduced species   4

Question 18

18. Which land cover change has occurred in the northwest section of the images since 1969?

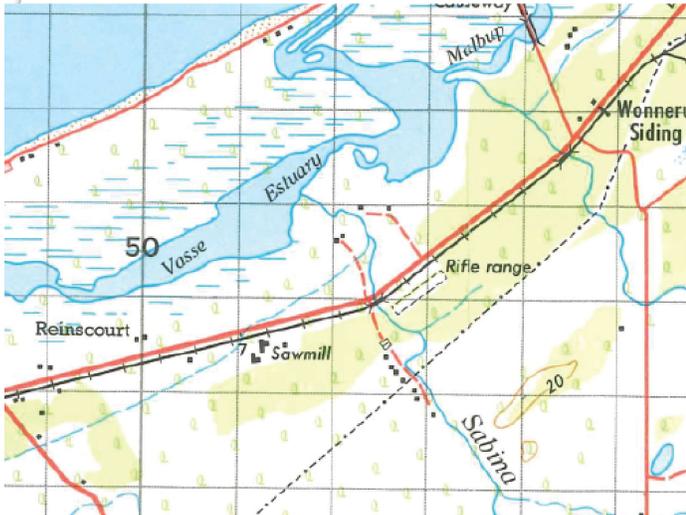| ◯ mining and land reclamation | 1 | ◯ land drainage and urban growth | 2 |
| ◯ land reclamation and irrigation | 3 | ◯ urban growth and rangeland modification | 4 |

Near Busselton, 1969

© *Commonwealth of Australia, Geoscience Australia*

Near Busselton, 2017

© *CNES*

Question 19

19. Based on the two images, which of these is the WA Environmental Protection Authority likely to see as potentially the major concern arising from the mining in the southeast section?

○ clearing of extensive areas of endangered tuart woodlands 1	○ contaminants entering the Ramsar-listed Vaase Estuary via the Sabina River 2
○ noise and dust pollution affecting close neighbours 3	○ loss of land productivity due to soil disturbance 4

Near Busselton, 1969

© Commonwealth of Australia, Geoscience Australia

Near Busselton, 2017

© CNES

Question 20

20. Which of these are environmental benefits from the establishment of the Tuart Forest National Park in the northeast section of the image?

Select ALL correct options

☐ providing a visual barrier to the mine 1

☐ restricting the flow of traffic into the regional township of Busselton 2

☐ providing protection for the Vasse Estuary 3

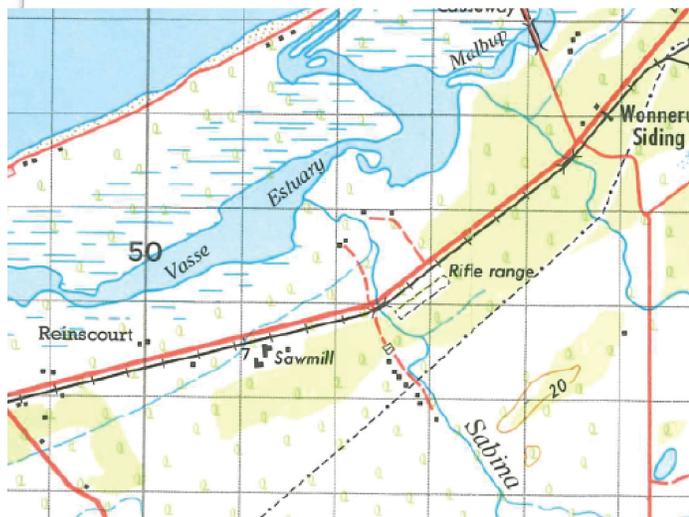☐ protecting the biodiversity of the area from future land cover change 4

Near Busselton, 1969

© *Commonwealth of Australia, Geoscience Australia*

Near Busselton, 2017
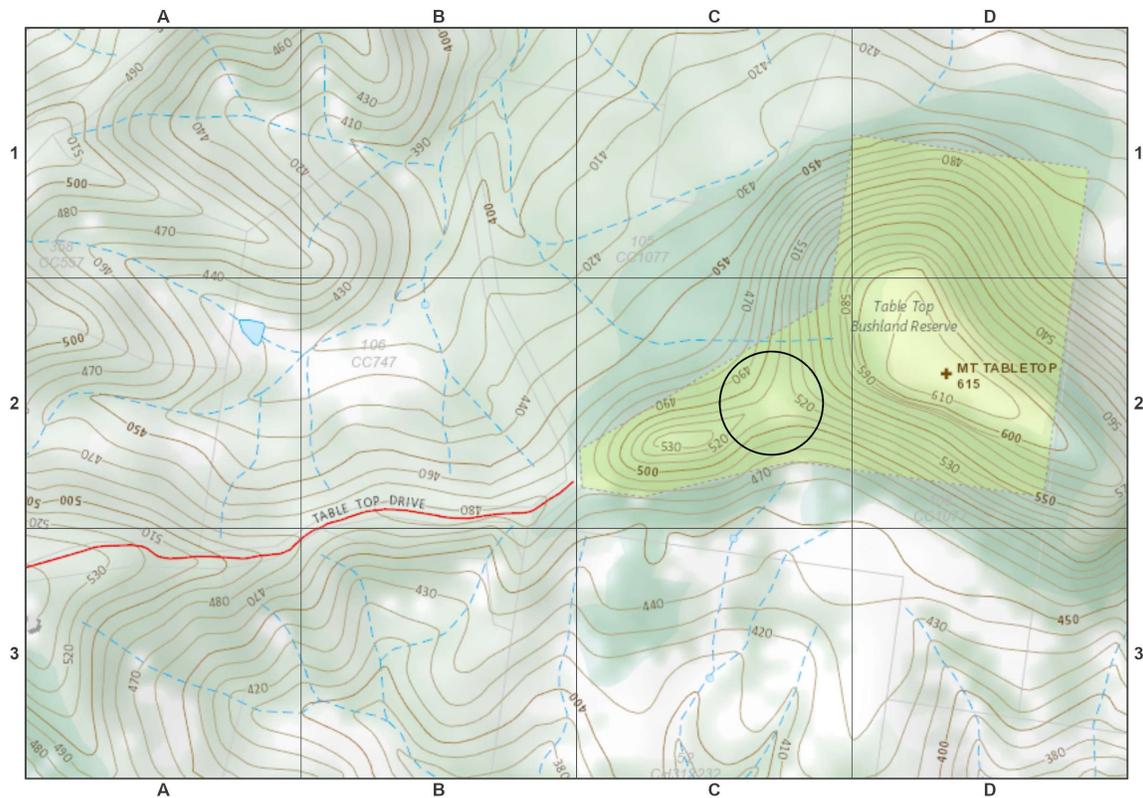
© *CNES*

Question 21

21. Which type of landform is depicted inside the black circle on the map?

Choose the answer from the drop-down menu.

The landform shown inside the black circle is a [cliff / saddle / valley / spur ⌄] .

Mount Tabletop map extract   © *State of Queensland, Department of Resources*

Question 22

22. Which of these best defines the concept of climate change?

○ the change to long-term weather conditions at different scales	1

○ how day-to-day weather conditions change from long-term averages	2

○ the change in average weather conditions over decades or longer	3

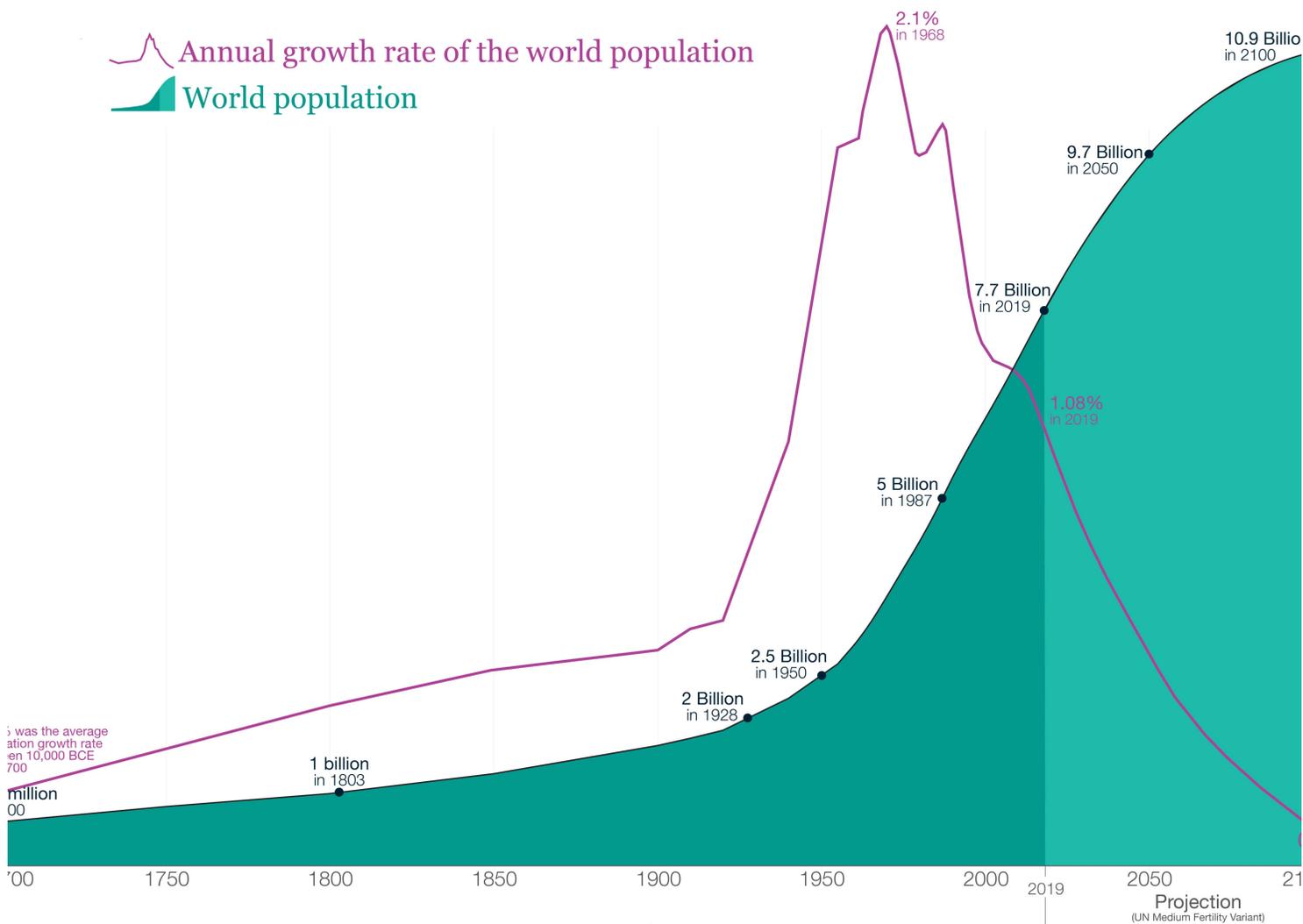|	
○ the changing condition of the atmosphere due to carbon dioxide build-up	4

Question 23

23. What accounts for the dramatic change in the world's population growth rate from the 1930s to the 1960s, as shown in the graph?

○ Health improved and mortality declined.   1

○ The total fertility rate increased.   2

○ Infant mortality and life expectancy increased.   3

○ The birth rate and death rate decreased.   4

ld population growth, 1700-2100   © M Roser, Our World in Data,

Annual growth rate of the world population

World population

2.1% in 1968

10.9 Billio in 2100

9.7 Billion in 2050

7.7 Billion in 2019

1.08% in 2019

5 Billion in 1987

2.5 Billion in 1950

2 Billion in 1928

1 billion in 1803

was the average ation growth rate en 10,000 BCE 700

million 00

1700   1750   1800   1850   1900   1950   2000   2050   21

2019

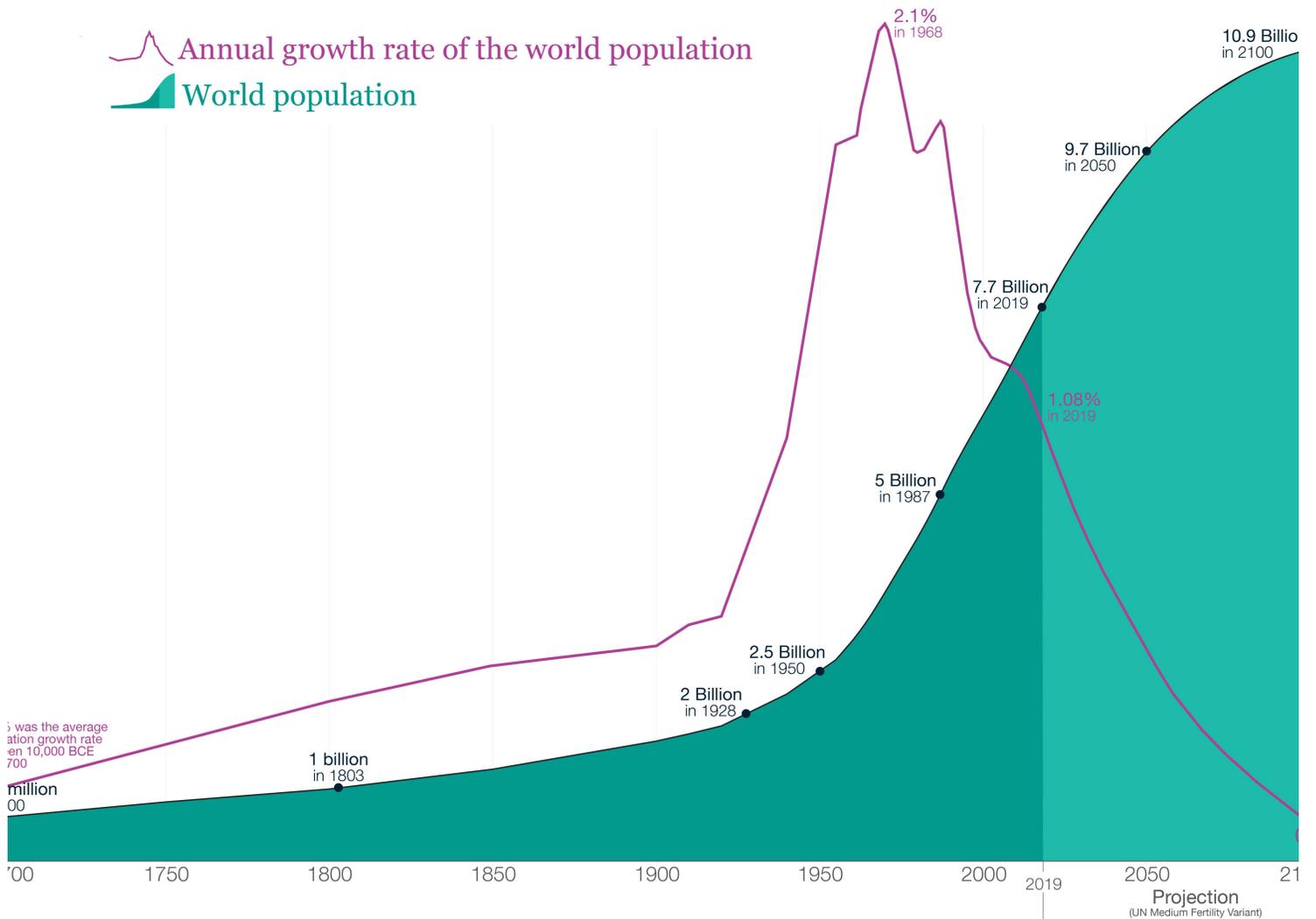Projection (UN Medium Fertility Variant)

Question 24

24. What is the explanation for the increase in world population given that the annual growth rate is declining, as shown in the graph?

- ○ population wealth   1
- ○ population distribution   2
- ○ **population momentum**   3
- ○ population density   4

ld population growth, 1700-2100   *© M Roser, Our World in Data,*

Annual growth rate of the world population
World population

2.1%
in 1968

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million
00

1700   1750   1800   1850   1900   1950   2000   2019   2050   21

Projection
(UN Medium Fertility Variant)

Question 25

25. Which type of graph is this?

○ scatter plot 1	○ infographic 2
○ ternary graph 3	○ rose diagram 4

tal fertility relative to income   © Gapmind
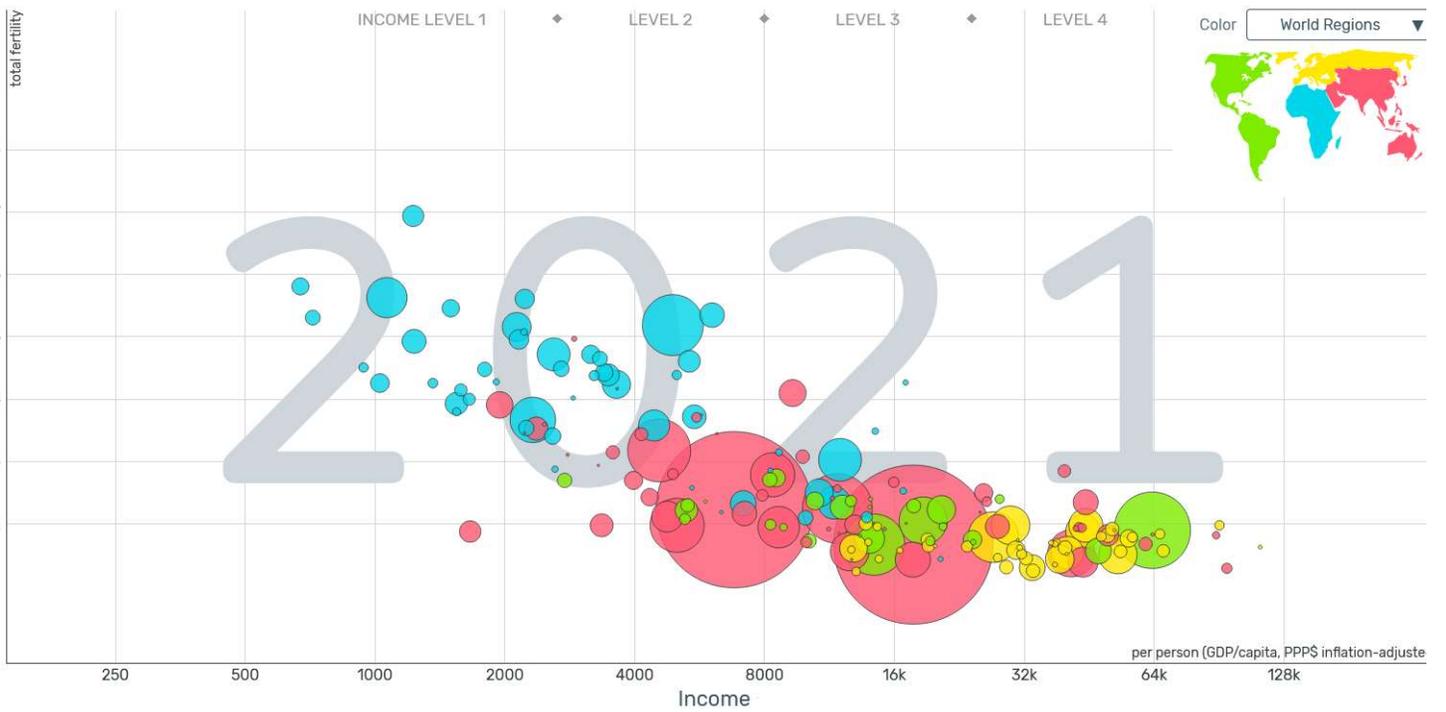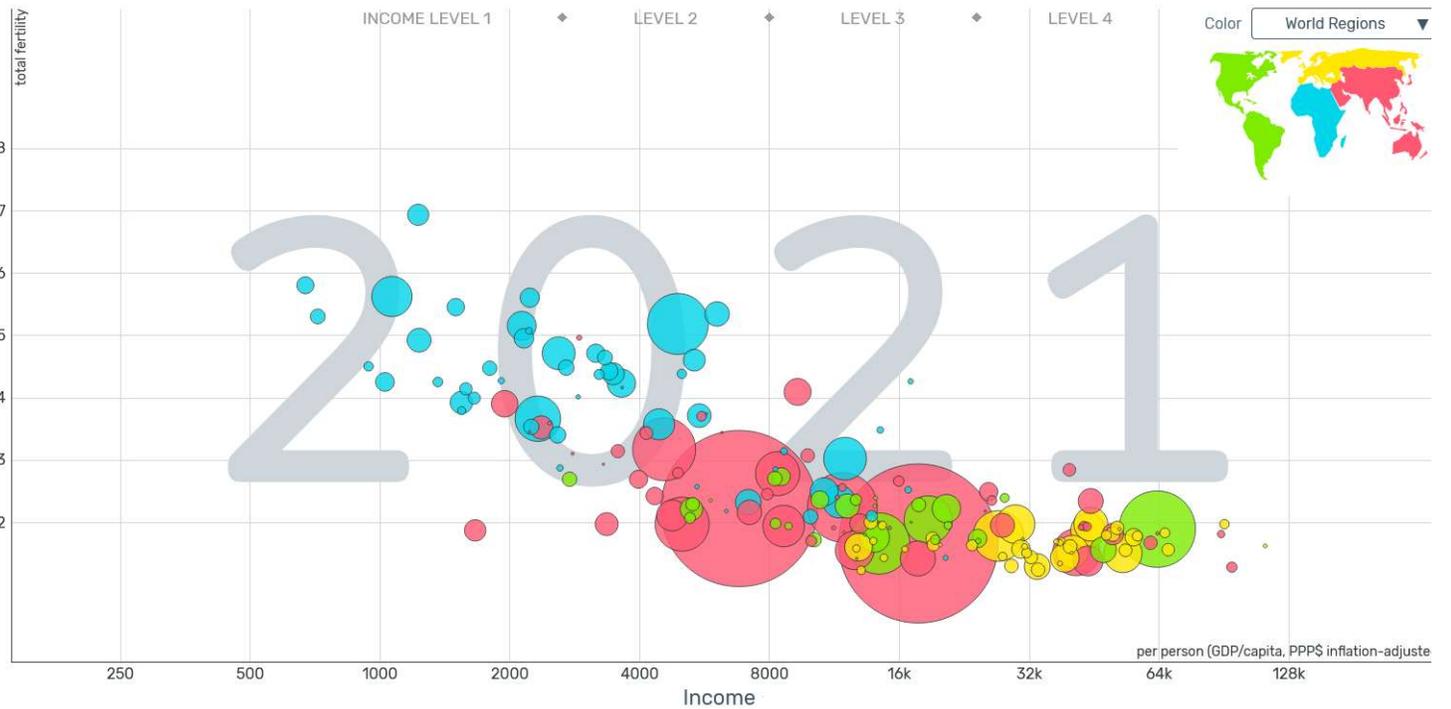
Question 26

26. What is the correct description of the correlation shown in the graph?

○ no correlation   1   ○ positive   2

○ negative   3   ○ perfect   4

tal fertility relative to income   © Gapmind
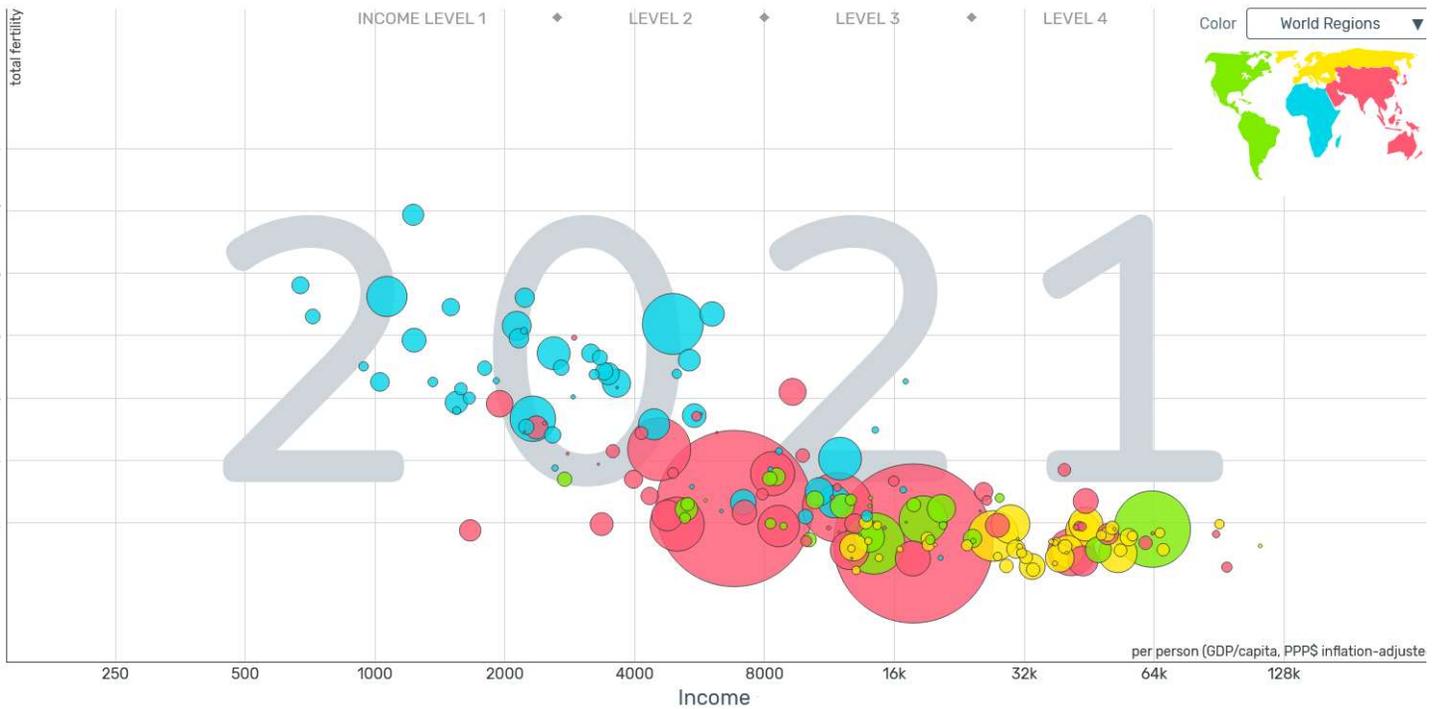
Question 27

27. Using the graph, in which region does the highest proportion of countries have a fertility rate below replacement level?

○ Europe   1   ○ Africa   2

○ The Americas   3   ○ Asia/Pacific   4

tal fertility relative to income   © *Gapmind*

Question 28

28. Which of these influences on fertility in high-income countries is contrary to the relationship shown in the graph?

|	
○ Higher-income parents value quality over quantity and choose to spend their resources on fewer children. 1	○ Higher-income earners lose a larger amount of money if they focus on child rearing rather than their careers. 2
○ Women who can economically sustain themselves have less incentive to get married. 3	○ Employment instability contributes to fertility postponement in families. 4

tal fertility relative to income   © *Gapmind*
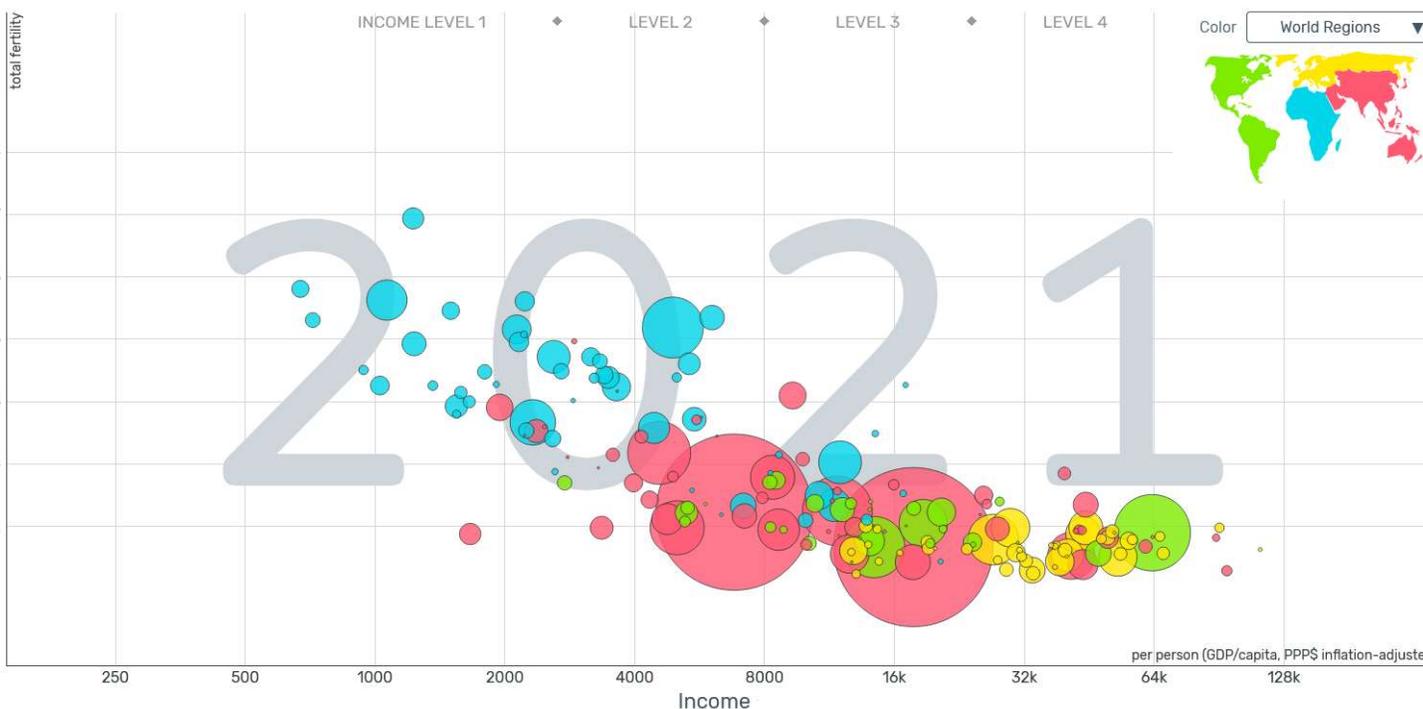
Question 29

29. In the table below, rank the countries from highest (1) to lowest (5), in the Human Development Index, according to the indicators.

Enter the numbers in the boxes in the Rank column.

Human Development Index (HDI) indicators for selected countries, 2020   *Data source: UNDP*

Rank	Country	Life expectancy at birth (years)	Mean years of schooling	Expected years of schooling	GNI per capita (PPP $)
1	Australia	83.4	12.7	22.0	48,085
3	Fiji	67.4	10.9	14.4	13,009
2	Italy	83.5	10.4	16.1	42,776
4	Kenya	66.7	6.6	11.3	4,244
5	Rwanda	69.0	4.4	11.2	2,155

Question 30

30. Bhutan measures its country's Gross National Happiness (GNH).

Which of these dimensions is included in measuring GNH but not HDI?

○ education	1	○ good governance	2
○ health	3	○ standard of living	4

Human Development Index (HDI) indicators for selected countries, 2020   *Data source: UNDP*

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Kenya	66.7	6.6	11.3	4,244
Rwanda	69.0	4.4	11.2	2,155

Question 31

31. Using the graph, approximately how much Australian aid did PNG and the Pacific receive in 2018-19?

Round the answer to 2 decimal points and enter the number in the box.

$ [1.25] billion   Accepted any number between 1.20 and 1.30

tralian bilateral aid flows by region, 2010-11 to 2020-21 (constant 2020 $AU)   © Commonwealth of Australia, Parliamentary Li
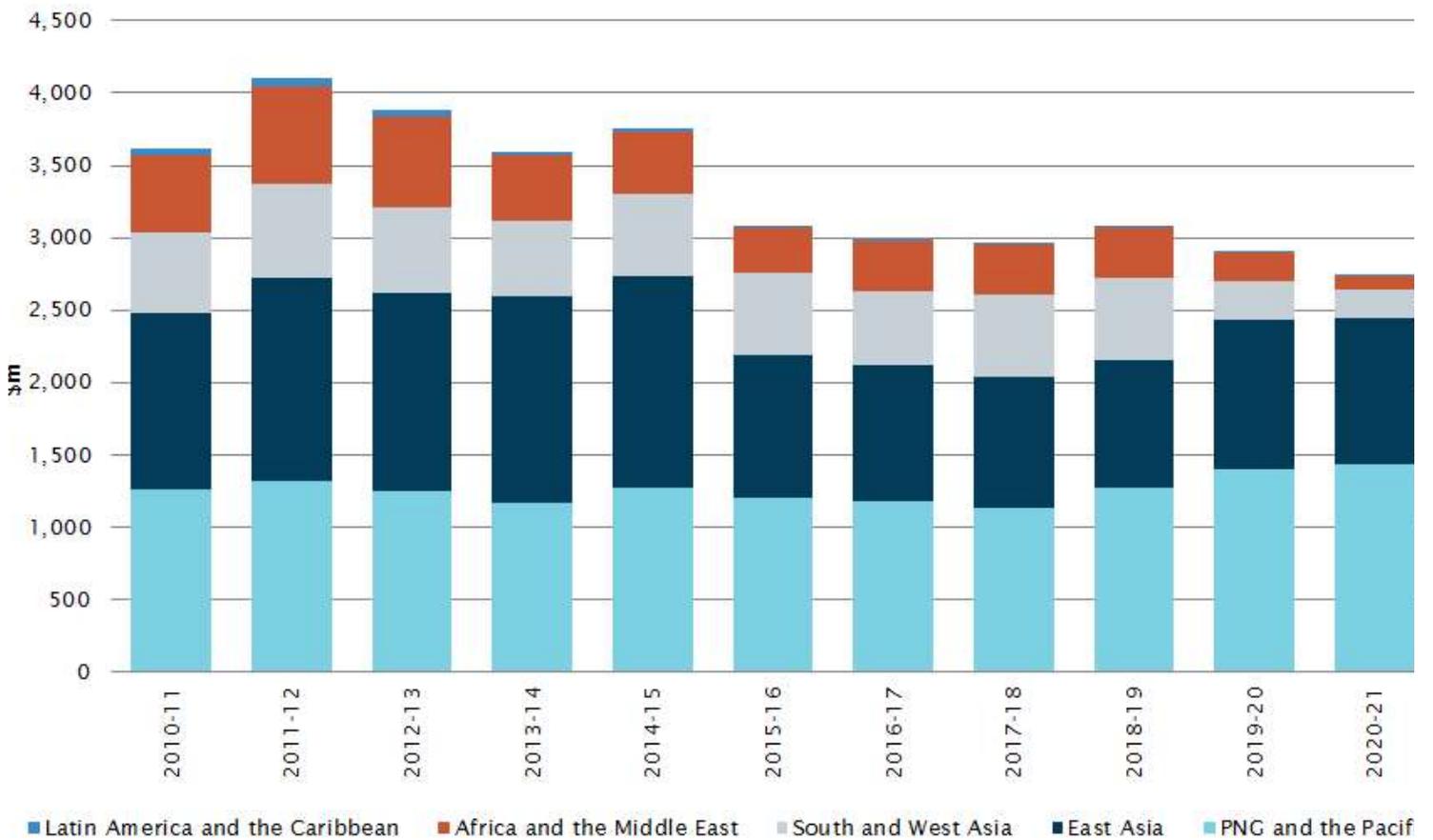
Question 32

32. Based on the graph, Australian aid to which region was reduced by the largest amount in the aid cuts of 2015-16?

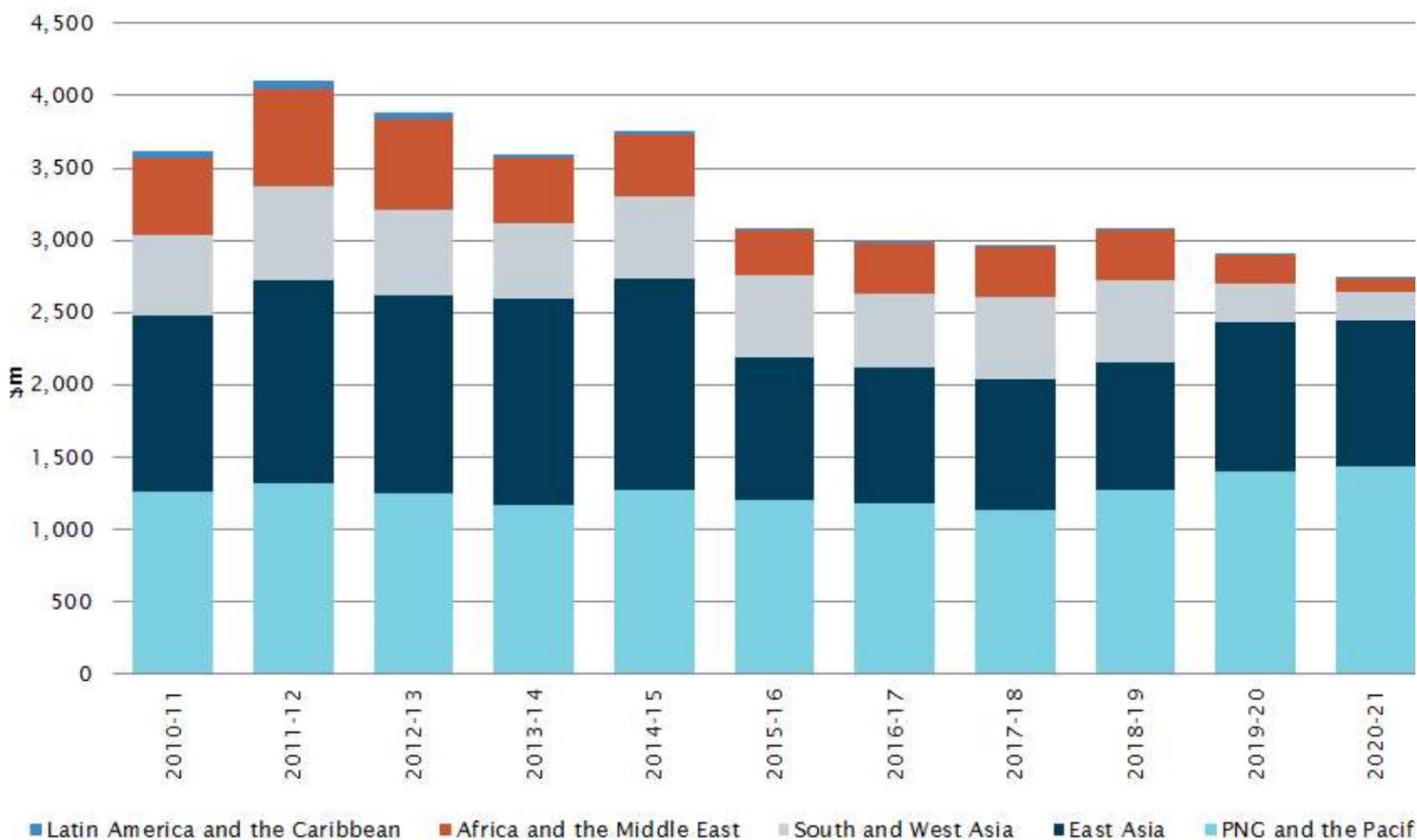| ○ South and West Asia | 1 | ○ East Asia | 2 |
| ○ PNG and the Pacific | 3 | ○ Latin America and the Caribbean | 4 |

tralian bilateral aid flows by region, 2010-11 to 2020-21 (constant 2020 $AU)   © *Commonwealth of Australia, Parliamentary Li...*

■ Latin America and the Caribbean   ■ Africa and the Middle East   South and West Asia   ■ East Asia   ■ PNG and the Pacif...

Question 33

33. Select the statement which best explains why Australia allocates the majority of its bilateral aid to the PNG and Pacific region.

○ Other regions have more capacity to lift themselves out of poverty and do not need as much aid from Australia.	1
○ It is in Australia's security and economic interests that the region is stable and resilient.	2
○ The region is the most economically disadvantaged in the world and therefore need the most funding.	3
○ It is easy for Australia to run development programmes in nearby locations.	4

Question 34

34. What are the United Nation's five overarching focus areas?

○ ==peace and security, sustainable development, human rights, humanitarian aid, international law== 1

○ nuclear disarmament, zero hunger, gender equality, renewable energy, prosecuting war criminals 2

○ eradicating poverty, quality education, clean water for all, life expectancy, reducing pollution 3

○ food security, global warming, COVID-19, caring for refugees, cultural identities 4

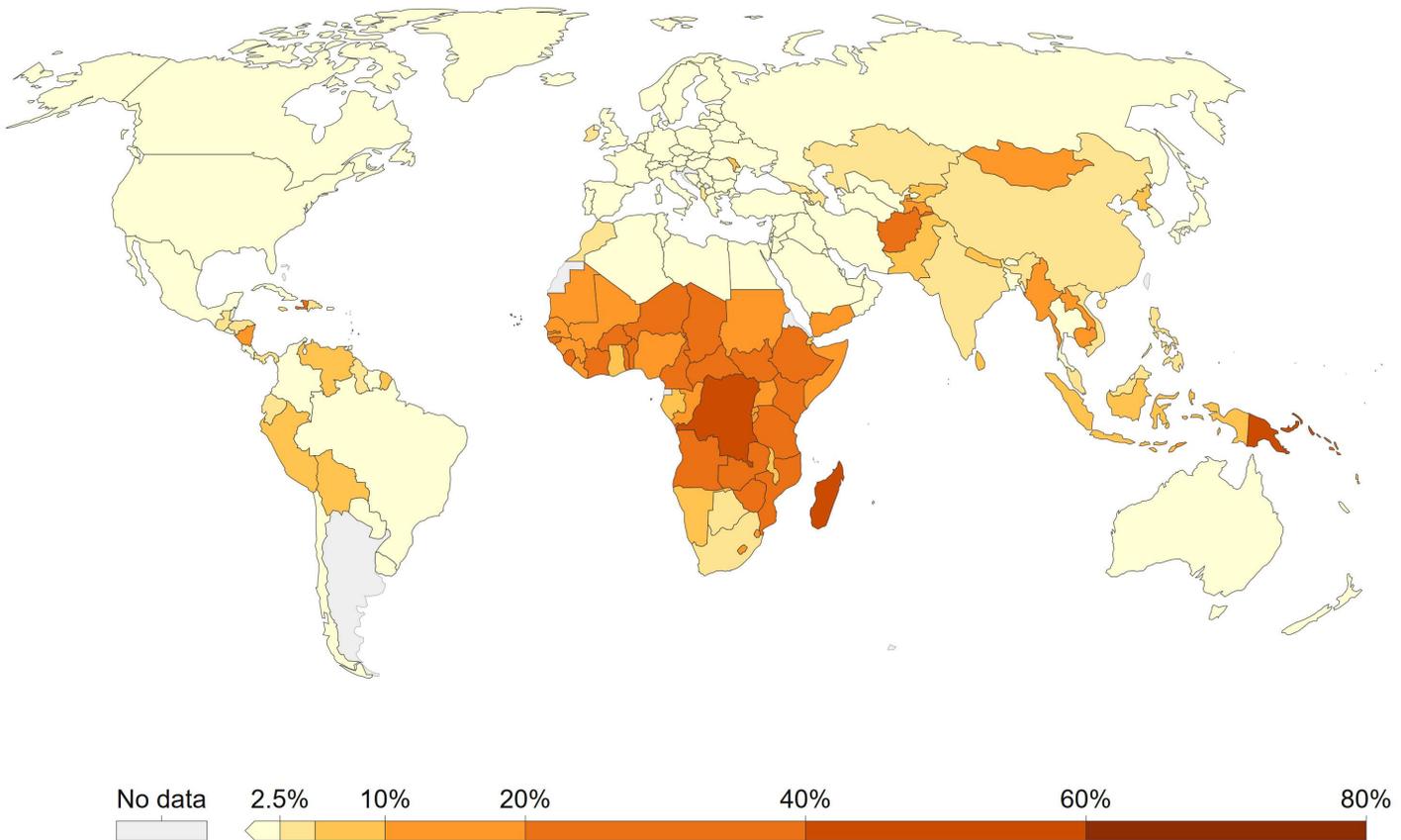**Question 35**

35. Based on the map, what is one reason why people have more access to an improved water source?

○ higher GDP per capita 1	○ higher population 2
○ population density 3	○ larger land area 4

Share of the population without access to an improved water source, 2020   © *Our World in Data, CC BY*

No data   2.5%   10%   20%   40%   60%   80%

Question 36

36. Which type of map is this?

- ○ choropleth   1
- ○ political   2
- ○ cadastral   3
- ○ topographic   4

Share of the population without access to an improved water source, 2020   *© Our World in Data, CC BY*

No data   2.5%   10%   20%   40%   60%   80%
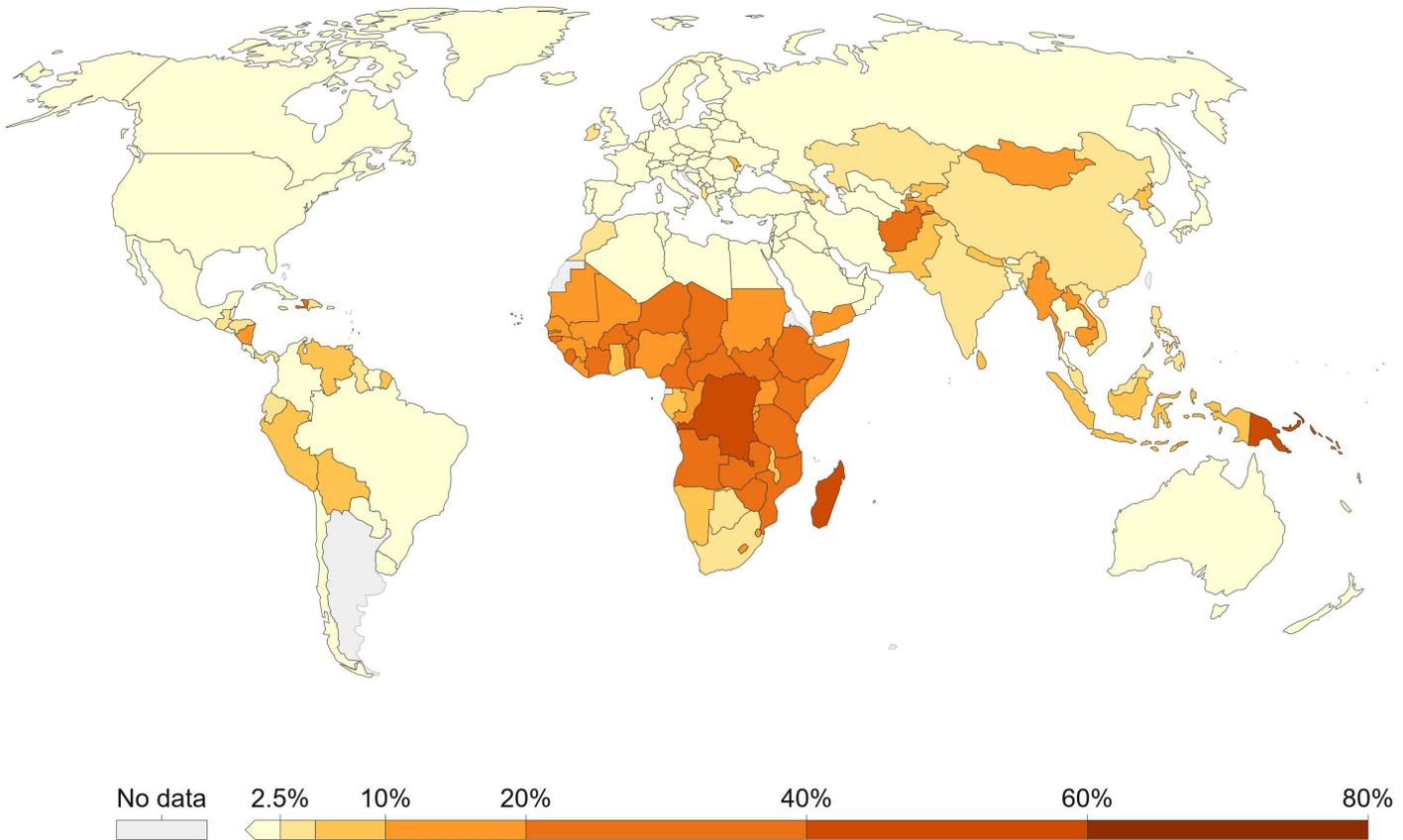
Question 37

37. In 2020 approximately 2 billion of the world's 7.8 billion people did not have access to safely managed drinking water.

What percentage of the world's population was that?

Round the answer to the nearest whole number and enter in the box.

You may use a calculator.

26 %

Question 38

38. Unsafe drinking water is a leading risk factor for deaths from:

○ diabetes   1

○ heart disease   2

○ malnutrition   3

○ infectious diseases   4

Question 39

39. Using the table, for which social media platform do income and college education make the most difference in usage?

| ○ TikTok | 1 | ○ **LinkedIn** | 2 |
| ○ Instagram | 3 | ○ YouTube | 4 |

Percentage of U.S. adults who say they ever use selected social media, 2021   *© Pew Research Center*

	YouTube	Facebook	Instagram	LinkedIn	Snapchat	Twitter	WhatsApp	TikTok
Total	81	69	40	28	25	23	23	21
Men	82	61	36	31	22	25	26	17
Women	80	77	44	26	28	22	21	24
White	79	67	35	29	23	22	16	18
Black	84	74	49	27	26	29	23	30
Hispanic	85	72	52	19	31	23	46	31
Ages 18-29	95	70	71	30	65	42	24	48
30-49	91	77	48	36	24	27	30	22
50-64	83	73	29	33	12	18	23	14
65+	49	50	13	11	2	7	10	4
<$30K	75	70	35	12	25	12	23	22
$30K-$49,999	83	76	45	21	27	29	20	29
$50K-$74,999	79	61	39	21	29	22	19	20
$75K+	90	70	47	50	28	34	29	20
HS or less	70	64	30	10	21	14	20	21
Some college	86	71	44	28	32	26	16	24
College+	89	73	49	51	23	33	33	19
Urban	84	70	45	30	28	27	28	24
Suburban	81	70	41	33	25	23	23	20
Rural	74	67	25	15	18	18	9	16

0%   20   40   60   80   100

Question 40

40. Using the table, across the range of social media, which demographic characteristic makes the greatest difference in usage?

○ gender	1	○ ethnicity	2	○ **age**	3
○ income	4	○ education	5	○ residence	6

Percentage of U.S. adults who say they ever use selected social media, 2021   © *Pew Research Center*

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65+	49	50	13	11	2	7	10	4
<$30K	75	70	35	12	25	12	23	22
$30K-$49,999	83	76	45	21	27	29	20	29
$50K-$74,999	79	61	39	21	29	22	19	20
$75K+	90	70	47	50	28	34	29	20
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0% 20 40 60 80 100