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Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Geography B

PAPER 3: People and Environmental Issues

Making Geographical Decisions

Time: 1 hour 30 minutes

Resource Booklet

Do not return this Resource Booklet with the Question Paper.

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SECTION A

People and the Biosphere

The issue: development choices for Ghana.

- **Ghana is a tropical West African country.**
- **Its main exports are oil, gold and cocoa (used to make chocolate).**
- **However, the country remains dependent on foreign aid.**
- **Ghana's government recently introduced a policy called 'Ghana beyond aid'. It wants Ghana's economy to grow more quickly – but how?**

Introduction

- **Ghana is a relatively poor country where around a quarter of children still don't complete secondary school.**
- **Ghana's tropical climate is suitable for cocoa production and this has led to the removal of much of Ghana's tropical rainforest. Nearly half of Ghana's people work in agriculture.**
- **Around 1 million people work in small gold mines. This industry is another major cause of deforestation. Ghana lost a larger percentage of its remaining rainforest than any other country in 2018.**
- **Ghana gained independence from the UK in 1957. Like then, much of today's profit from mining and agriculture still leaves Ghana. One view is that local people are exploited by transnational corporations (TNCs).**
- **Ghana's government has made developing new offshore oil resources its priority. The government says this will make people wealthier and less dependent on foreign aid.**
- **Two major development challenges lie ahead though. Firstly, population is predicted to nearly double between 2020 and 2050. Secondly, Ghana's physical environment is greatly threatened by climate change.**

Figure 1

Population growth in Ghana, 1950–2020

In 2020, the fertility rate for Ghana was approximately 4 children per woman. The fertility rate is the average number of children a woman gives birth to in her lifetime.

KEY — Population (millions) **A** = 1960, 7.5 million people lived in Ghana.
B = In 1990, there were 15 million people. **C** = In 2020, there were 30 million people.

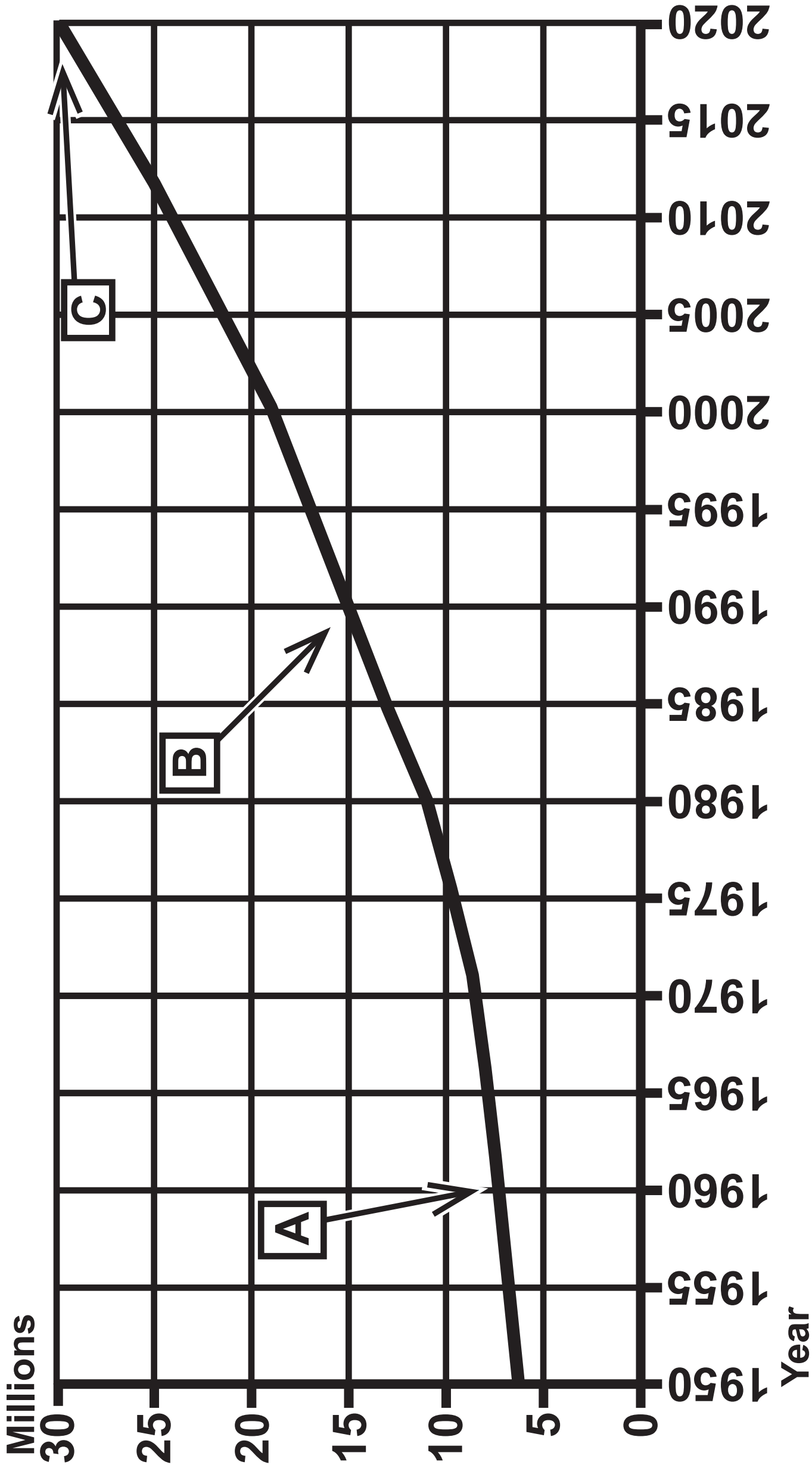
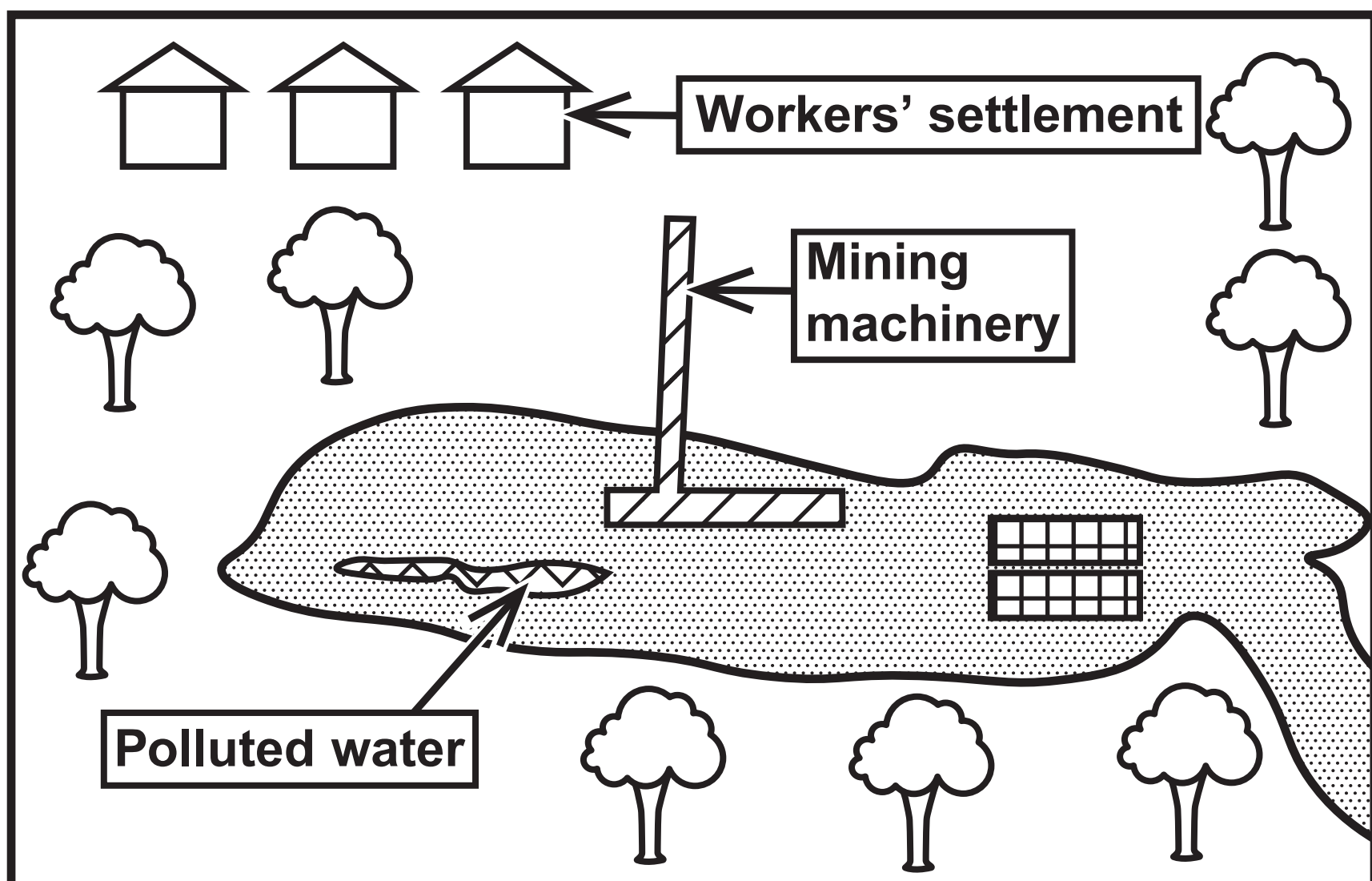


Figure 2

Gold mining in Ghana



KEY  Shipping Containers  Cleared area  Trees

SECTION B

Forests Under Threat

Figure 3

Climate graph for Ghana's tropical rainforest region

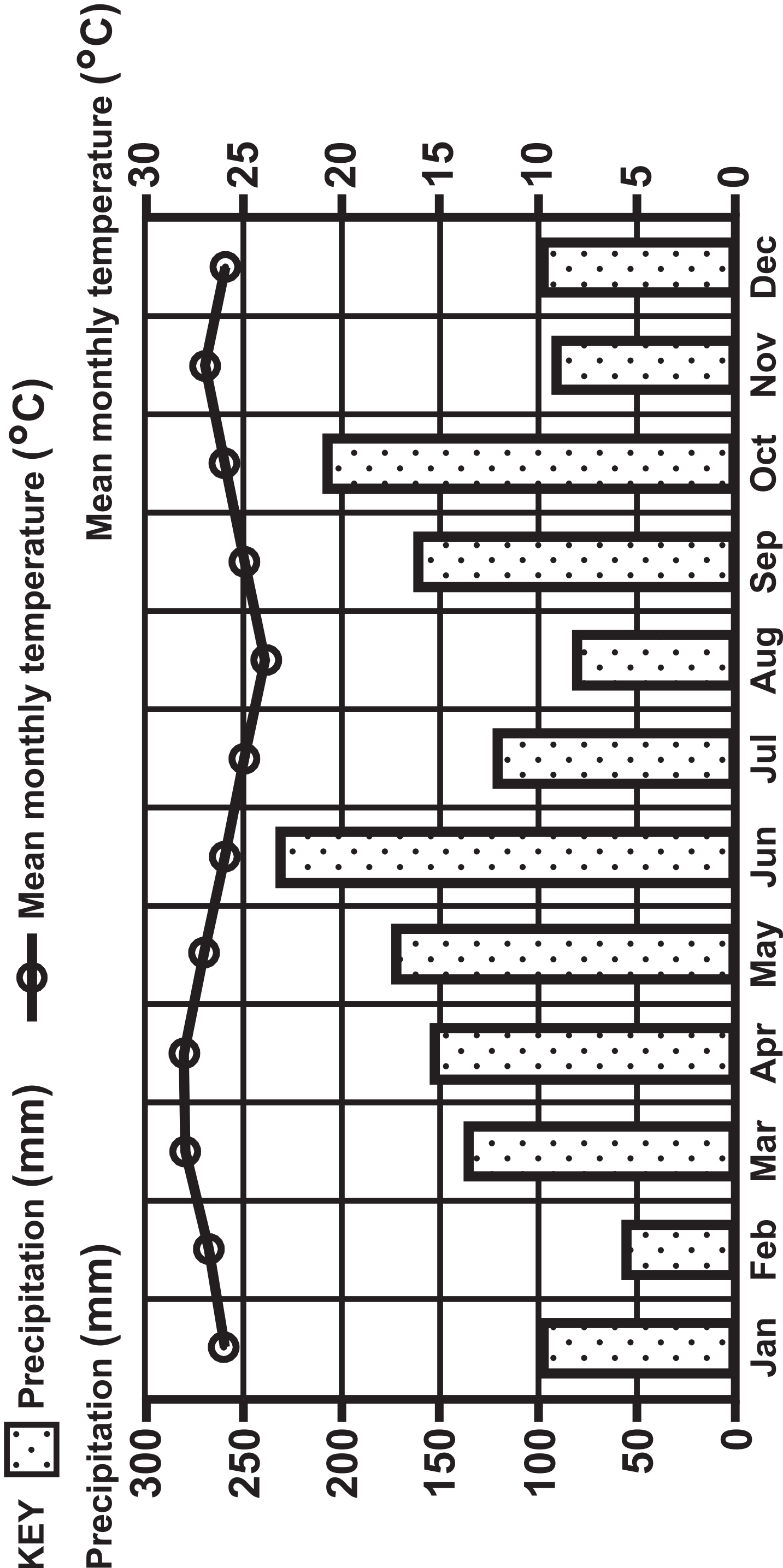


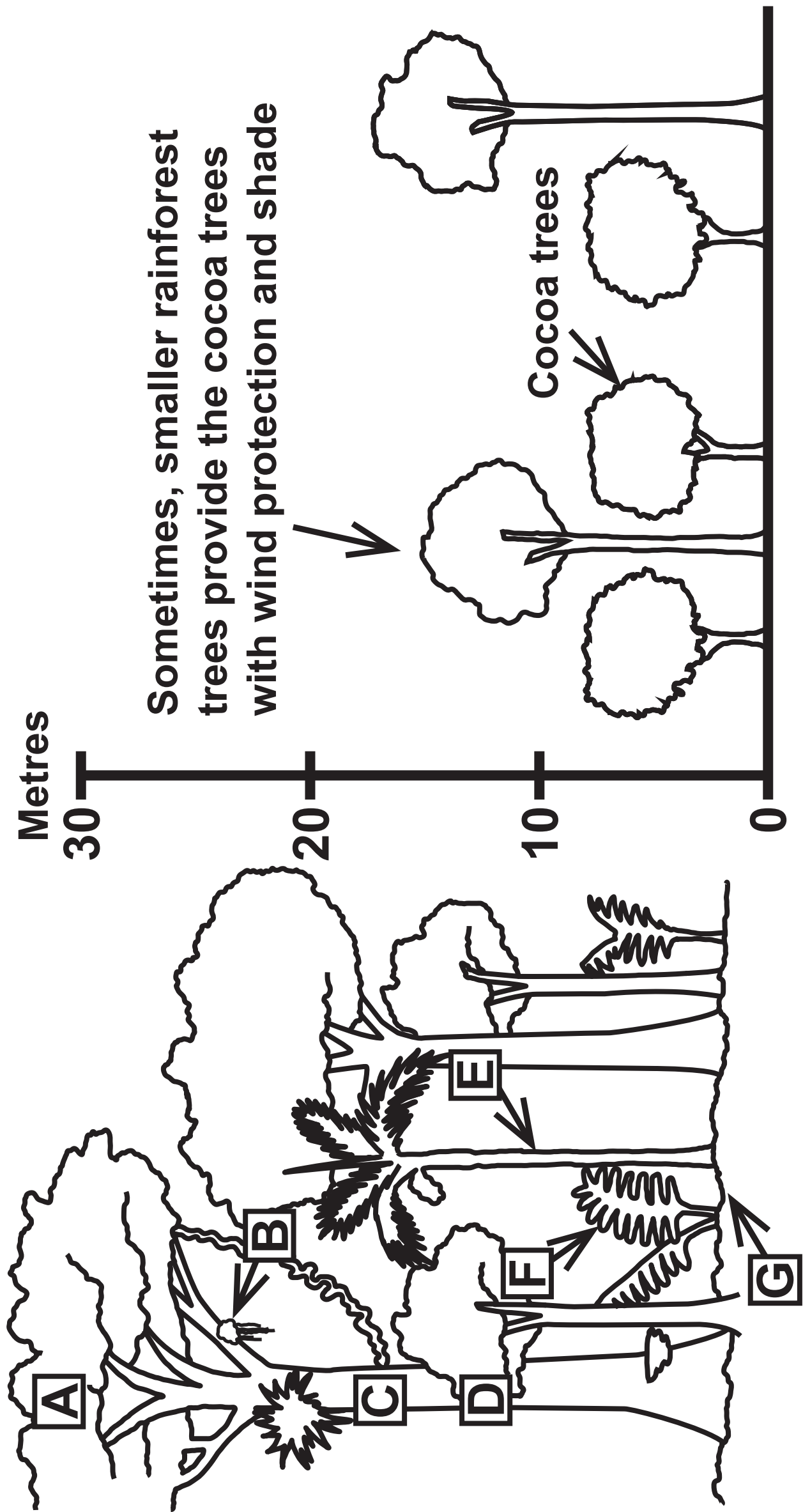
Figure 4
Changes in vegetation resulting from cocoa production

KEY

- | | | | |
|--------------------|------------|------------------|-----------------------|
| A – Emergent layer | B – Orchid | C – Canopy layer | D – Understorey layer |
| E – Palm | F – Fern | G – Ground layer | |

BEFORE

AFTER



The structure of the tropical rainforest

The structure of the cocoa plantation

SECTION C

Consuming Energy Resources

Figure 5

A development and economic profile of Ghana

Ghana – a development profile		
Development indicators	2010	2019
Gross Domestic Product (GDP) per capita in US\$	3,100	5,194
Human Development Index (HDI) ranking	152	140
% of 18 year olds attending university	7	17
Amount of international aid received in US\$	1,697 million	1,256 million

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Turn over

Figure 5 continued.

The relative value of Ghana’s different exports,
2019

- Each rectangle’s size is proportional to the value of that economic sector.
- In 2020, the total economic value of Ghana’s exports was US\$ 21 billion.

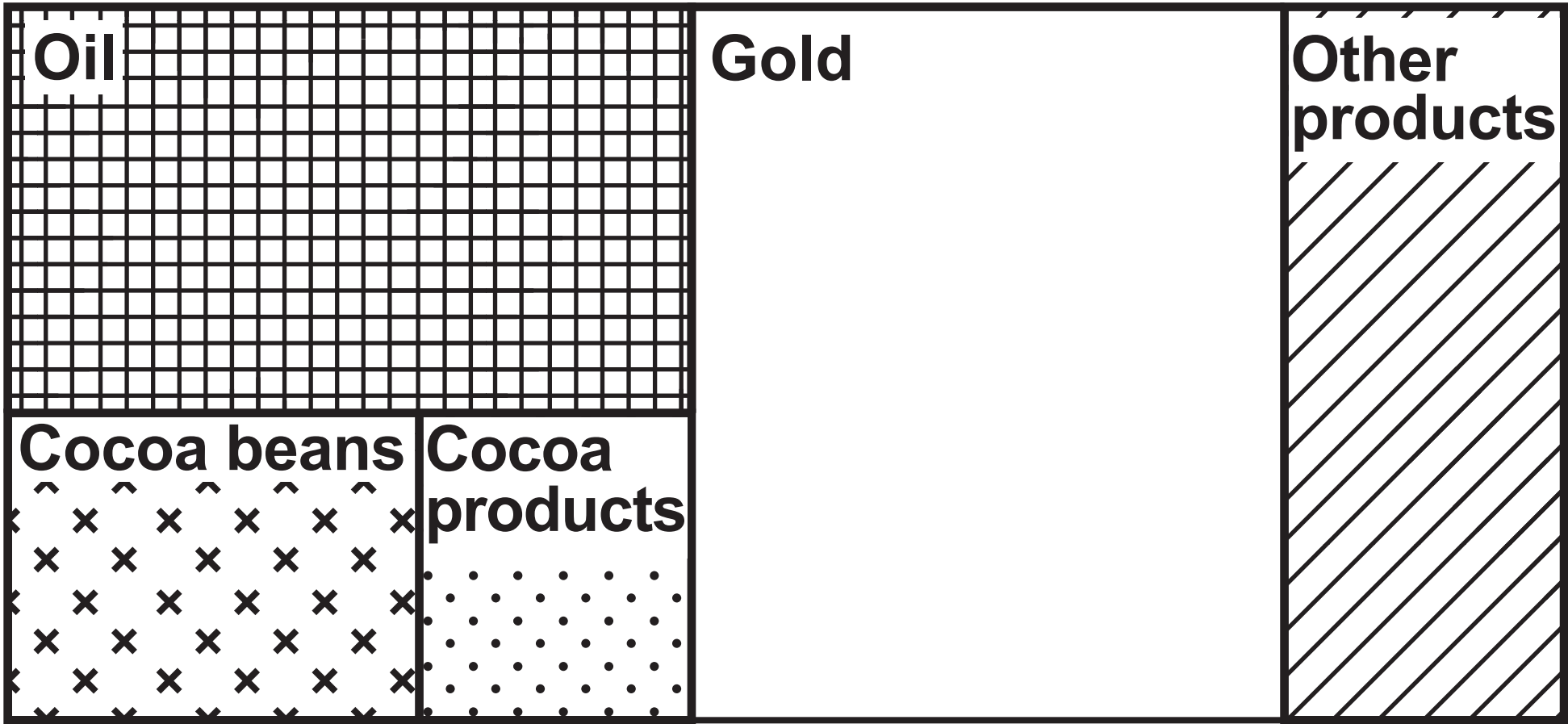


Figure 6

Africa’s top three oil producers, 2020



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Figure 6 continued.

Country	Nigeria	Republic of the Congo (Congo–Brazzaville)	Angola
GDP contribution of oil	10%	50%	25%
Annual oil production	670 million barrels	125 million barrels	600 million barrels
Per capita GDP	US\$ 6,100	US\$ 6,300	US\$ 6,800
Living in extreme poverty	39% of population	37% of population	52% of population
Year oil production began	1958	1957	1956

Figure 7

Ghana's Jubilee oil field

In 2010, Ghana's government allowed a British TNC called Tullow to begin exploiting the newly-discovered Jubilee oil field.

KEY

- Capital city ○ City - - - Oil fields
- ▲ Oil storage area — Roads ■ Dam and hydroelectric power (HEP) station

N
0 50 100 150 km

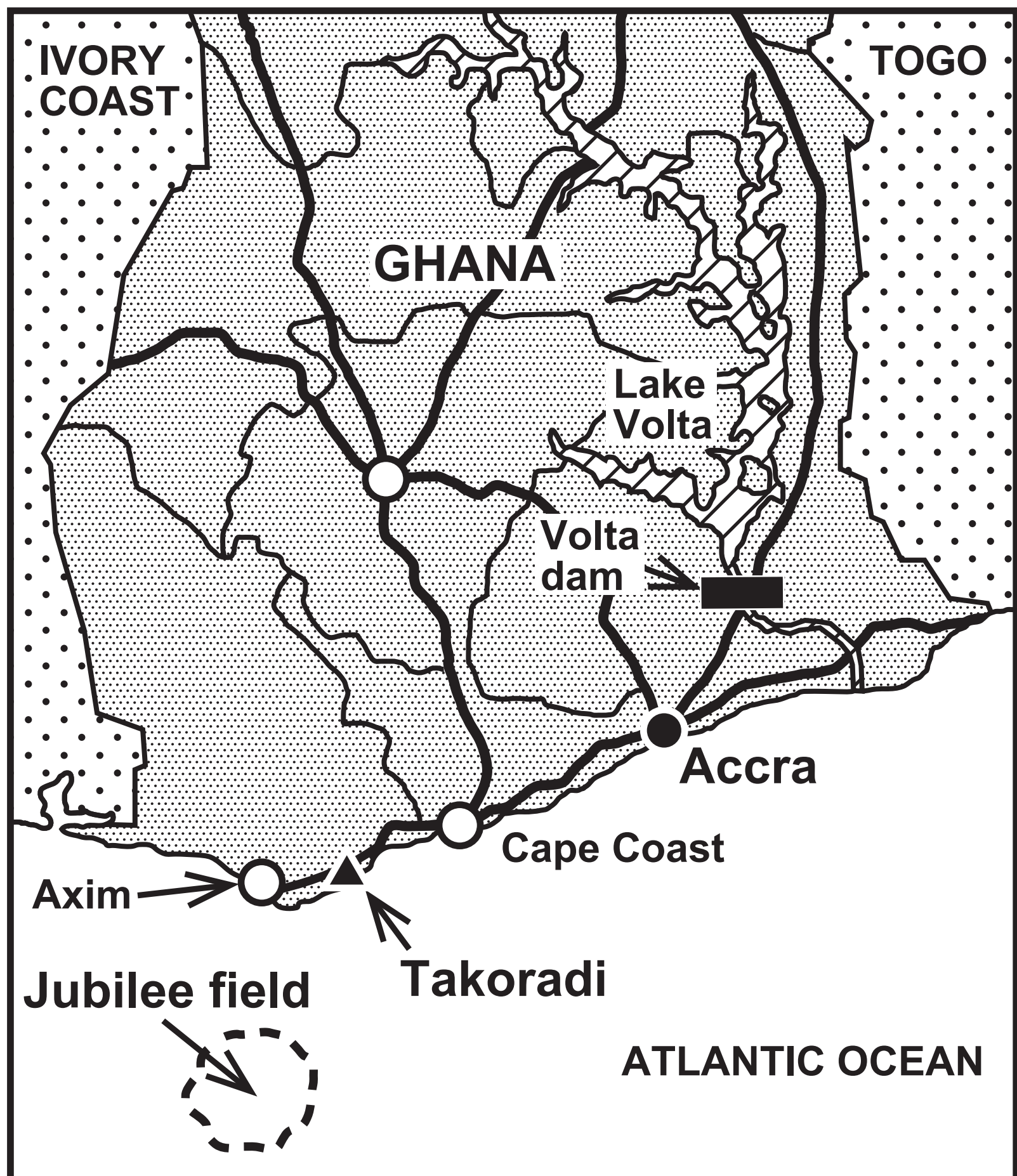


Figure 8

Two views on the exploitation of oil and other natural resources in Ghana

View 1: A Ghanaian government minister

“Ghana is lucky. We only found oil recently, so we can learn from the mistakes of other countries where oil wealth has been a source of corruption and war. When I was young, we depended on cocoa exports. Today, everyone is talking about oil and freeing ourselves from foreign aid.

We still rely on foreign TNCs to provide the skilled workers and technology needed to develop our offshore oil. But this will change as our universities begin to offer management and engineering courses.

One day soon, Ghana will be a top African oil exporter with production of about 100 million barrels per year. We are excited about new offshore survey data produced by Kosmos (a US TNC). It shows we will become a very rich and successful country.”

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Figure 8 continued.

View 2: A Ghanaian university professor

“The vast majority of the profits from our natural resources do not remain here. Only 2% of gold profits make their way back. Oil is not much better. TNCs, aided by a few rich and powerful Ghanaians, keep most of the profits. Everyone else is left dependent on aid.

TNCs take 100 billion US\$ each year from developing countries. Of the top 10 foreign TNCs operating in Africa, nine are based in developed countries. This is just a new version of colonialism.

In other words, wealth from our gold, cocoa and oil is used to promote economic growth elsewhere – while we stay too poor to pay for the infrastructure, education and skills needed to process and distribute our resources ourselves.”

Figure 9

Global CO₂ emissions from fossil fuel use,
2000–2017

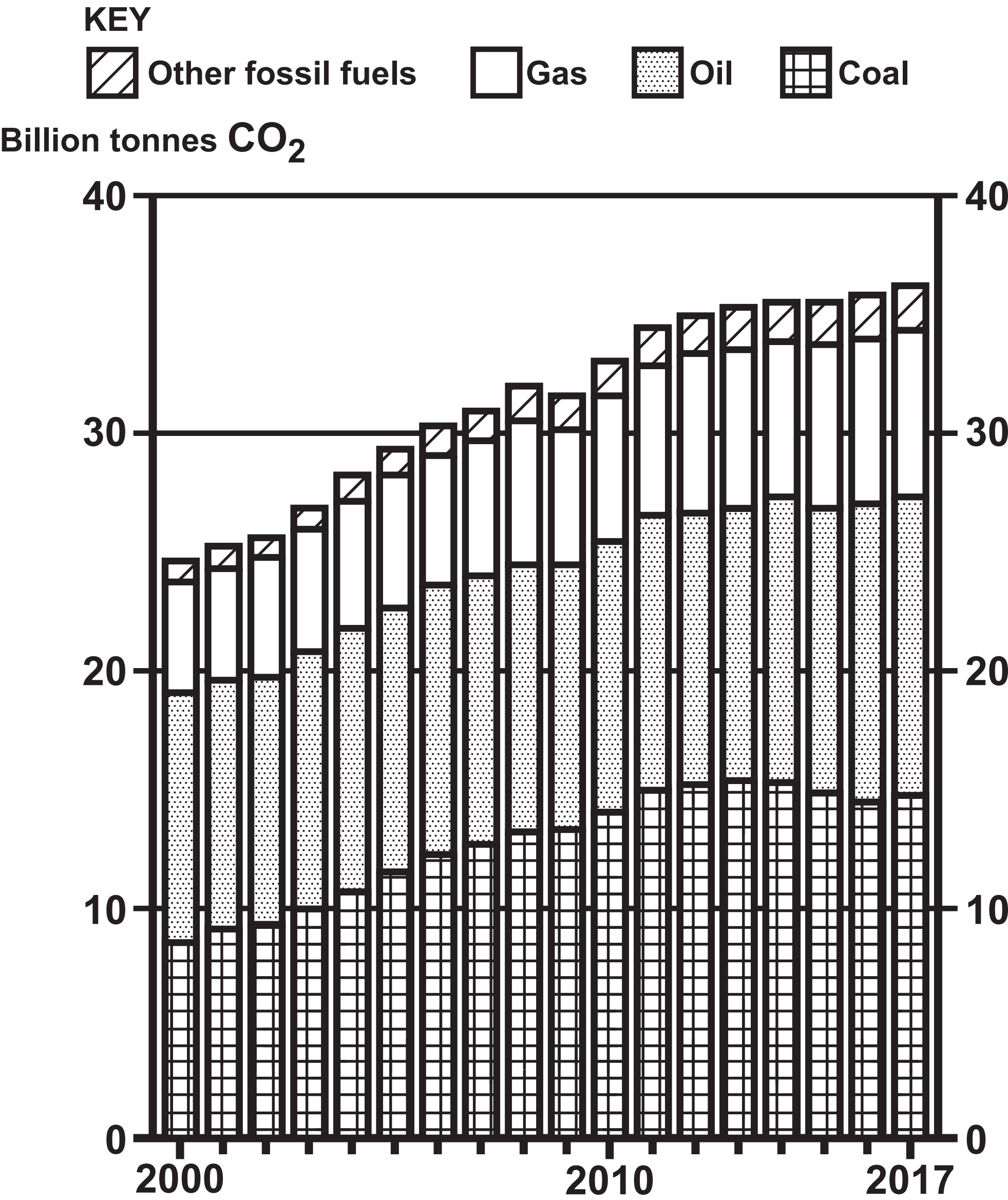


Figure 10

Results of research by Ghana's climate change scientists

Climate change projections for Ghana

- 1.4–5.8°C increase in temperature by 2080
- 4 per cent (%) decrease in rainfall by 2040
- 75–190 mm rise in sea levels by 2100

Key future environmental issues for Ghana

Threatened ecosystems

- Forests replaced by grasslands with fewer animal habitats.
- Climate may become too dry for some existing crops.

Freshwater shortages

- Reduced water availability.
- Reduced water for HEP (hydroelectric power).

Flooded coastline

- Many of Ghana's urban areas will be flooded, where 2 million people live.
- Loss of farmlands near Lake Volta.

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Turn over

Figure 10 continued.

Warmer coastal waters

- **Loss of species who prefer a colder habitat, so food webs may collapse.**
- **Loss of earnings for 2 million people who earn a living from fishing.**

The longer 'business as usual' fossil fuel use continues, the worse these impacts will be.

Acknowledgements

Pearson Education Ltd gratefully acknowledges all following sources used in preparation of this paper:

Figure 1 sourced from <https://worldpopulationreview.com/countries/ghana-population>

Figure 2 ©Greenshoots Communications/Alamy Stock Photo

Figure 5 sourced from <https://oec.world/en/profile/country/gha/#Exports%20%20%20>, <https://wenr.wes.org/2019/04/education-in-ghana>

Fig 6 sourced from <https://www2.deloitte.com/us/en/insights/industry/oil-and-gas/africa-oil-gas-industry-energy-reserves.html>

Fig 7 sourced from <https://www.ft.com/content/b6c4d2c6-c1ad-11e8-84cd-9e601db069b8>

Fig 8 view 1 adapted from <https://www.ft.com/content/c10e6314-c1ad-11e8-84cd-9e601db069b8>

Fig 8 view 2 adapted from https://www.salon.com/2019/05/25/98-3-percent-of-ghanas-gold-remains-in-the-hands-of-multinational-corporations_partner/

Fig 10 adapted from https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID_Climate%20Change%20Risk%20Profile%20-%20Ghana.pdf