

**ADVANCED GCE
GEOGRAPHY B**

Issues in the Environment

RESOURCE MATERIAL

WEDNESDAY 23 JANUARY 2008

2691/RM

Afternoon

Time: 2 hours



This document consists of **11** printed pages and **1** blank page.

Fig. 1

Flash flood devastates Cornish village

THE 16th August 2004 will be a date the residents of Boscastle will never forget. The day started quietly with holidaymakers enjoying the morning sun and peaceful surroundings.

But after lunch the sky

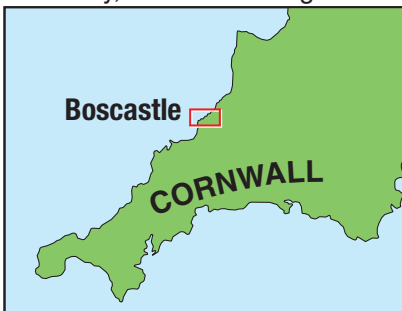
darkened and torrential rainfall transformed the village into a disaster zone. The village stands at the confluence of two steep sided valleys. A third river also flows through the village.

All three rivers burst their banks

as water levels rose – completely flooding the village and tearing down buildings. It was estimated that over 50mm of rain fell in four hours – creating a wall of water which flowed through the village at over 30mph.

WHAT CAUSED THE FLOODING?

At midday, on the 16th August 2004, heavy, thundery showers developed across the South West. These were the remnants of Hurricane Alex which had crossed the Atlantic. Bands of showers and strong winds converged along the coastal high ground around Boscastle.



It has been estimated that the Boscastle valley's catchment area exceeds 23sq kms, spanning inland to the relatively impermeable Bodmin Moor where many small rivers spring. The steep sided valleys that converge down to the sea act as huge funnels and can produce flash floods after a sudden cloudburst or prolonged heavy rainfall. During the afternoon of the 16th, an incredible amount of rainwater fell, estimated to have been over 1,422 million litres of rain in just 2 hours,

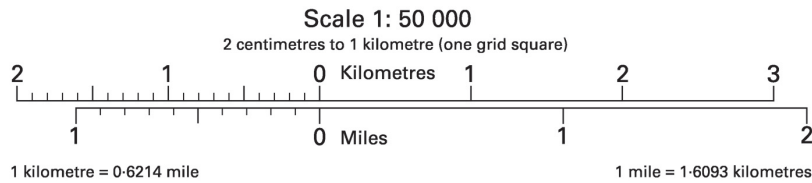
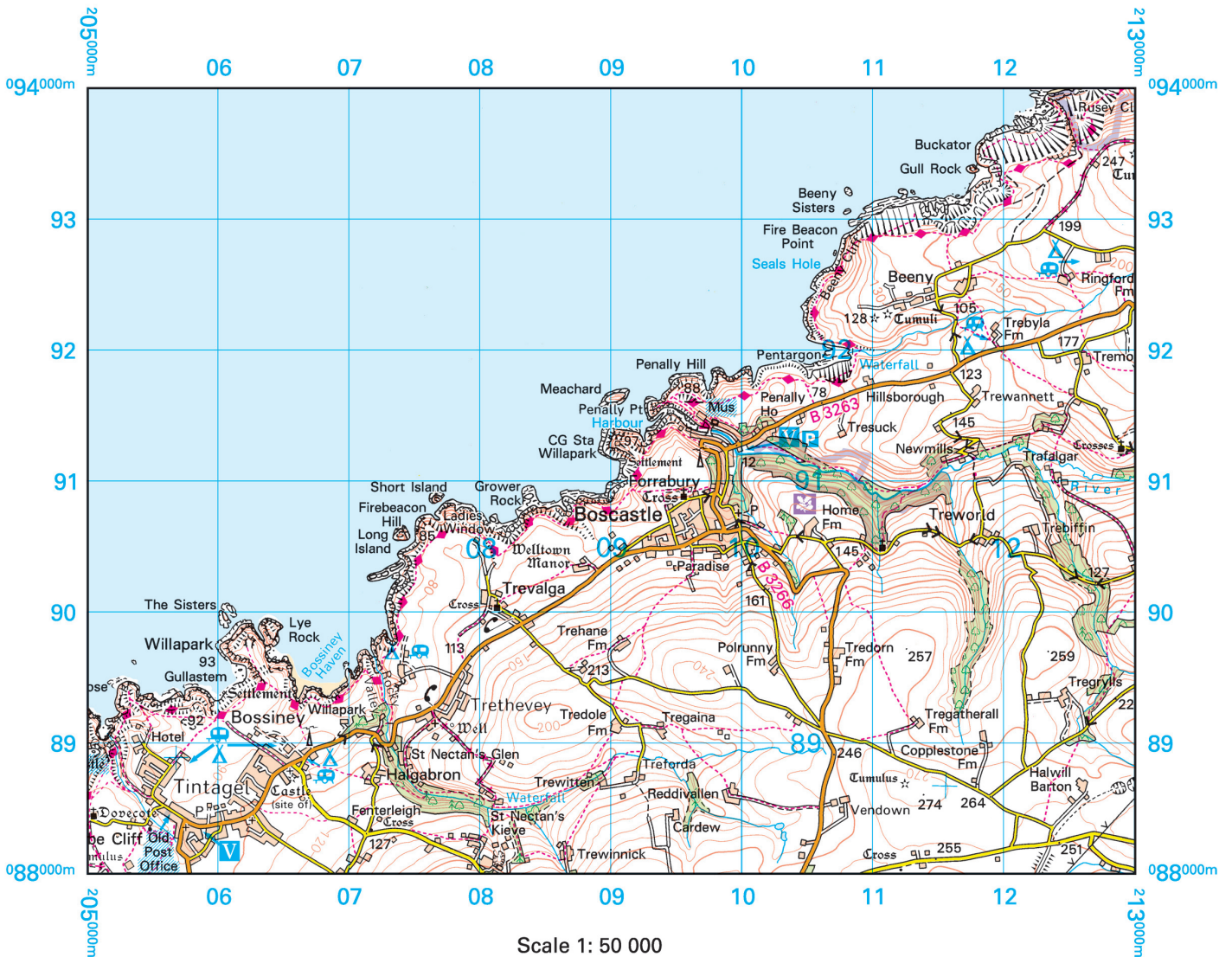
that's over 197,500 litres falling per second. At its peak, nearly 25mm had been recorded in a 15 minute time span, that's over 632,000 litres falling per second.

Source: *Boscastle: The Flood*, North Cornwall District Council, 2004



Extract No 1669/190
1:50 000 Scale
Landranger Series

Four colours should appear above; if not then please return to the invigilator.
Four colours should appear above; if not then please return to the invigilator.



Extract produced by Ordnance Survey 2007
© Crown copyright 2007. All rights reserved. Licence: 100024406

Ordnance Survey, OS, the OS Symbol and Landranger are registered trademarks of Ordnance Survey, the national mapping agency of Great Britain. Reproduction in whole or in part by any means is prohibited without the prior written permission of Ordnance Survey. **For educational use only.**

Fig. 2

Visitors rush to glimpse vanishing glaciers

Attention turns to Alaska where climate change is transforming the landscape *By Dan Glaister*

The four distinguished visitors looked on in awe at the sight before them. Exit Glacier in Alaska's Kenai Fjords national park is one of continental America's most imposing monuments, and last week it was at its most impressive – a hulk of ice and snow imperceptibly making its way toward the sea.

But lately that movement has quickened, a fact that will not have been lost on visitors. One of the most popular tourist attractions in Alaska, Exit Glacier has receded 300 metres in the past 10 years. The movement means that the viewing platform from which the group of dignitaries surveyed the glacier would have been under several metres of ice just a few years ago. Today it is on dry land.

Melting glaciers is only one of Alaska's problems. As Kate Troll, an environmentalist writing in the Anchorage Daily News, put it earlier this month: "Alaska is experiencing melting permafrost, flooded villages, warming oceans, coastal erosion, shifts in bird and wildlife populations, and shorter seasons for ice roads. And there is more to come, as Alaska is heating up at twice the rate of the rest of the world."



Exit Glacier in Alaska, which has shrunk by 300 metres in the past 10 years
© Loetscher Chlans/Alamy

Last year was the warmest summer on record for much of Alaska.

A report published in March noted that the average temperature in the Arctic had risen by 0.4°C a decade since the mid-1960s. The study reported that the last decade was the warmest since records began, and that 'the current warming in the Arctic was without precedent since the last ice age'.

One of the best known and most visited Alaskan glaciers, Muir Glacier, has retreated 8 kilometres in the past 30 years. Another, Portage

Glacier, is retreating at a rate of 50 metres a year and is no longer visible from its visitor centre.

In December, a geologist with the US Geological Survey presented a series of photographs of glaciers taken in the first four years of this century, alongside pictures taken up to a century before.

The result showed not just the retreat of glaciers but the spread of vegetation where once there was merely ice.

*Extract from The Guardian, 22 August 2005
© Guardian News & Media Ltd 2005*

Fig. 3

WILD ALASKA

A sea-kayaking expedition along the wild coast of Alaska proves rewarding and terrifying in equal measure as **Mike Carter** goes in search of whales, giant walls of ice and grizzly bears

‘So, Solan, as my guide, you’d better tell me what we do if we get capsized by a whale.’ *Whhhooooosh!* What the...? Yards away was a dark eye and a velvet head bejewelled with barnacles. Our two-man kayak suddenly felt very small. A whale, perhaps 40 tonnes, let rip with a deep, shuddering foghorn of a groan. It arched its back and dived. The oily waters closed and everything was still again.

I looked around, shaken. Above the Sitka spruce on the shore, bald eagles rode the winds. Across the straits, the shark-tooth profile of the Fairweather mountains. Sea lions popped their heads out of the water and sea otters floated around on their backs like fat, bewhiskered holidaymakers on lilos.

Glacier Bay National Park in south-east Alaska is one of the last true great wildernesses. At 1.4 million hectares, it is the world’s biggest protected marine sanctuary. Until the late 18th century it didn’t exist – covered as it was with ice 1500 m thick. Then, the ice receded more rapidly than ever recorded – pulling back 100 km in just under 100 years. It unveiled a virgin landscape.

The pioneer ground plants colonised the landscape, which in time ceded to willow and alder and eventually to huge spruce forests. The long days saturated the new bay with light, which sustained vast quantities of plankton. The whales followed, as did the salmon, as did the grizzly bears...ah, yes, the grizzly bears.

After my encounter with a whale, I joined a party of kayakers on a camping trip into the heart of the park,

an area with the greatest concentrations of grizzlies in the world. I was standing on a tiny spit of land covered in blueberries, 100 km from the nearest human habitation, and there, at my feet, were the enormous and unmistakable imprints of a grizzly.

We were in Reid Inlet, towards the top of Glacier Bay. We planned to paddle our kayaks for a week around some of the deep fjords, see some of the bay’s 16 glaciers and, hopefully, emerge uneaten.

There were no trails or roads. It felt like we were the only people on the planet

In the morning we broke camp and paddled out of Reid Inlet. The water was filled with chunks of floating ice, calved from the immense Johns Hopkins glacier several kilometres away.

As we rounded a headland, we were met with an icy blast and there, in front of us, was the vast blue tongue of the Johns Hopkins glacier. We were rendered speechless by what confronted us.

Above, a twisted, wall of ice three kilometres across and 80 metres high. Dotted about the face were half-emerged boulders the size of minibuses. Then, a crack, a thunderous rumble, and tonnes of ice crashed violently into the water, sending out waves that tossed our kayaks around. We sat there for hours, mesmerised.



Location of Glacier Bay National Park

The following day we walked to the coastal flats and then, after a week of shadows and rustles there they were. Huge grizzlies, some with cubs, others single males, just 100 yards from us. They belly-flopped into the water, scooping up salmon, with their claws; taking just a nibble if the taste was not quite right before tossing the flailing beast to the cubs.



© istockphoto.com/Frank Leung

Extract from *The Observer*, 9 April 2005

Fig. 4

Chop and change

Gabon's forests are some of the most pristine in the world for both wood and animals. **John Vidal** reports from Makokou on the battle to prevent logging companies from destroying this area of natural beauty

Kong Chiong Lok — known as “King Kong” — is the face of the global logging industry; a middle-aged, cheerful Malaysian working right on the equator deep in the Gabonese forests, cutting African wood with American machinery to make flooring and plywood for the Chinese and European markets.

His company, Bordamur, the biggest logging firm in the world, has already stripped much of Malaysia and the Solomon Islands, worked its way through large parts of Cameroon and Papua New Guinea, and is now deep in Russia, Guyana and the Congo basin — the largest and most biodiverse forest left intact in the world, excluding the Amazon.

Kong's job is to legally extract the most valuable timber from a vast 1,000 sq km rectangle of the Minkébé forest, populated by elephants, gorillas, buffalo and antelope. In seven years, Bordamur has constructed more than 350 kilometres of logging roads and taken out approximately 500,000 of the biggest and best trees.

Kong invites us to go into an area of virgin forest that Bordamur is working. Waiting for us is a gang of Gabonese loggers. Felix wields the chainsaw and Eric drives the bulldozer.

Together, they crash their way 1km from the road into the undergrowth, heading for a previously identified, 30m high, 1.2m diameter okan tree, used in China for railway sleepers and cheap flooring.



Removing the most valuable trees

© Martin Harvey/Alamy

Felix starts cutting. Within five minutes, the tree has fallen, with a terrible crash, felling or splintering 10 other smaller trees. Light floods in to the forest and, for more than a minute, it rains leaves, bees and birds' nests.

Eric is churning up the orange earth, ripping out yet more trees, and clearing the land to put a chain around the fallen okan. In just a few minutes, he has dragged it to a clearing with 30 other similar sized logs.

The process is called selective logging, but it's hardly sustainable. Research suggests that about 15-20% of the forest is completely destroyed just getting out the three or four trees that are felled on average in each hectare.

Over the course of the next 30-50 years, 83% of Gabon's pristine forest will be selectively logged, mainly by European-based companies. Pauwel de Wachter, Minkébé's environmental project leader, says that the scale of the logging is going to be shocking. Gabon, he says, has anything up to 17,000 elephants living in its forests, more even than in Kenya. “The whole forest will change immensely and inevitably,” he says.

*Extract from The Guardian, 16 June 2004
© Guardian News & Media Ltd 2004*

Fig. 5

Malnutrition kills 10 children every minute, say United Nations

By Maxine Frith
Social Affairs Correspondent

TEN children die every minute as a result of malnutrition, more than a quarter of children in developing countries are underweight and suffer disease because of their poor diet, and in some areas almost half of all under-fives are malnourished, a new United Nations report says.

The Unicef report found that 146 million children under five in the developing world are suffering from insufficient food intake, repeated infectious diseases, muscle wastage and vitamin deficiencies. While some countries, notably China and Latin American nations, have made progress in reducing undernutrition among children, the overall fall in rates is much slower than expected.

Three quarters of the 146 million undernourished children come from just 10 countries. India accounts for 57 million of the total.

Bangladesh and Pakistan each have 8 million children suffering as a result of hunger.

Almost half of all children in south Asia are underweight and girls are more likely to be victims of a poor diet than boys, the report found. However, while south Asian countries are beginning to reduce rates of undernourishment, levels are continuing to rise in Africa.

More than half of children in Burundi have stunted growth as a result of poor diet and the proportion of underweight children in South Africa has been increasing by 5 per cent a year.

The HIV pandemic has meant that agricultural productivity in many sub-Saharan countries has been reduced.

The proportion of children who are underweight is "substantially higher" than in 1990, the report found, with 16 per cent going hungry.

Yemen and Sudan have high rates that have been worsened by conflict, drought and other problems.

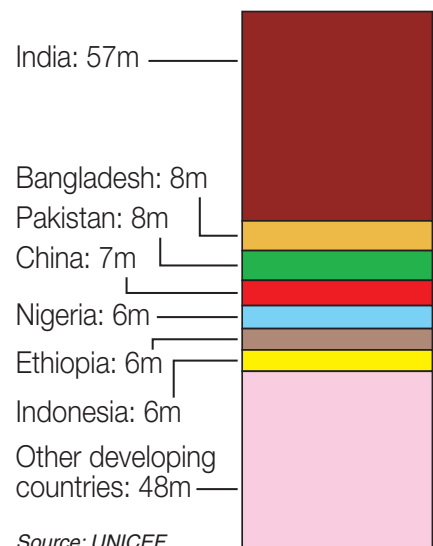
The report called for better public health initiatives, such as adding iodising salt to reduce deficiencies, and more help for the poorest nations,

particularly those with high rural populations.

The report also warned that more than 170 million children, mainly in the developed world, are now considered to be overweight or obese, including 22 million under the age of five.

Still hungry

UNDERWEIGHT CHILDREN UNDER FIVE YEARS OLD IN THE DEVELOPING WORLD



Source: UNICEF

UNICEF – United Nations International
Childrens Emergency Fund

From The Independent, 3 May 2006
© The Independent

Fig. 6

Boom city struggles to cope as millions move in

Shanghai leads China's Urbanisation charge

By Jonathan Watts



© iStockphoto.com/Adam Korzekwa

Shanghai's population has soared beyond the 20m mark in the past year as more than three million new job seekers have flocked to the city in the vanguard of China's spectacular economic surge.

The staggering shift from the countryside to the wealthy urban centre is being replicated around the country, which is undergoing one of the greatest demographic shifts in history.

Out of Shanghai's population, only 13.5 million people are considered permanent residents, said a city government spokesman. Most of the rest are members of China's vast floating population.

The city, which is now seen as the business capital of China, is drawing millions of peasant labourers to its vast construction boom and high wages. The average

annual income in the city is about £2,900 — many times the national average.

Millions of rural, migrant workers in Shanghai are lucky to get even a fifth of that sum, but this is still far higher than the income in their home villages where many people live on less than the equivalent of 60p a day.

Shanghai's growth appears to be only the start of things to come.

Over the next few years, the world's most populous nation plans to move about 300 million people from the countryside to urban areas.

The pressure on space and resources is becoming increasingly apparent. Shanghai's traffic is growing at a rate of 25% a year and house prices are soaring.

Earlier this year, the municipal

government announced that land was subsiding at a rate of 2.5cm a year because so many new tower blocks were being built and so much water was being pumped from underground to quench the thirst of a growing population.

This summer, a pedestrian tunnel caved in, causing an eight-storey building to collapse, and raising concerns about the thousands of skyscrapers. Most, including China's tallest building, the 88-storey Jinmao, have been built in the past decade.

In the latest sign that Shanghai is struggling to cope, the authorities ordered many factories to move to night shifts because energy supplies were unable to meet the soaring daytime demand for electricity.

*Extract from The Guardian, 6 December 2003
© Guardian News & Media Ltd 2003*

Fig. 7

Tobago spends big to attract the high end of the market

Tobago is developing an investment strategy to encourage more visitors

By Adam Fresco

Several years ago a 350 hectare beachfront site was bought by Tobago Plantations, a joint venture between Angostura and Guardian Life of the Caribbean. Many thought that the enterprising plans for the first master-planned resort development on the island was too ambitious. Designs for the first phase included a 200 room Hilton hotel, a championship golf course, villas and bungalows.

But the doubters have been left behind. The first phase of the project has been completed at a cost of £100 million.

Within the next eight years hopes are high that there will be two more hotels on the site — Marriot and Sandals are both said to have expressed interest — and a marina will be finished along with two further developments of villas and apartments. The total cost is estimated at £250 million.

Terrence Farrell, a former deputy governor of the central bank of

Trinidad and Tobago, believes that the push to transform Tobago into a renowned tourist destination is essential for its economic survival. “The imperative for diversification of the economy is to absorb the labour and get rid of unemployment. Tourism is perfect — it will employ a lot of labour.”

Farrell believes that the Government’s relative neglect of Tobago is changing. “At the moment Tobago is a relatively unknown destination and has not been marketed aggressively. The Government has not put a lot of money into tourism but that is all going to change.”

While the foreign exchange that tourists bring in is welcomed, there are real fears that the very things that attract the tourists will be destroyed by the masses.

Diving and snorkelling are popular pastimes for tourists but already coral is being destroyed.

Concerns are growing that the tourism boom will have hit the island before the island is fully ready.

Although there are plans to put the necessary infrastructure in place, many officials are reluctant to spend the money before the tourists arrive.

The island is very specific about the type of tourist that it wants. Orville London, Chief Secretary of the Tobago House of Assembly, says that he was not envisioning the island becoming a haven for cheap all-inclusive packages.

He is in no doubt as to the importance of tourism to the island’s future. “This is Tobago’s quest for economic security. Without tourism unemployment could be in excess of 30 per cent.”

Extract from The Times, 30 March 2002
© The Times, London

The true cost of cheap clothing

By Nick Mathiason & John Aglionby

We do the same work as they do in other factories. They just pay us less, said Nut Chenda. A complaint familiar to workers around the world, perhaps.

But Chenda may have a point. The Cambodian woman works as a machinist for the Fortune Garment and Woollen Knitting Factory, near the Cambodian capital, Phnom Penh. The Taiwanese-owned business sells garments to some of Britain's biggest retailers – among them, household names such as Next, Debenhams and BHS.

Nut Chenda and all the workers The Observer spoke to last week outside the Fortune factory gates earn between \$50 and \$60 a month. Even in Cambodia – one of the world's poorest countries – that is low, especially as neighbouring factories, it is said, pay \$90 to \$100. Though Fortune maintains it pays a 'fair wage above legal requirements'.

That may be true but it is only part of what appears to be a story of harsh conditions and aggressive management. Almost all the 30 workers interviewed said conditions in the factory were poor. Most people work in rooms of 600 people, they maintained. 'There

are not enough fans and only two doors, which are kept closed,' said Chenda.

'In the washing room there are lots of chemicals and the ceiling is not high, so it gets very hot and stuffy,' said another woman, who asked not to be named. 'We are given masks but they are not good enough, and we often suffer the effects of chemical inhalation.'

Yim Sarun works in the washing room. 'When the buyers come to inspect the factory the managers bring out the best equipment, like good gloves. They also open the doors and increase the ventilation. But no one is allowed to talk to visitors and after the buyers leave they close the doors and take away the safety equipment.'

The International Labour Organisation, a United Nations body aimed at improving working conditions, particularly in developing countries, has inspected three times. In the latest ILO report, Fortune had 39 outstanding issues to resolve, including sick pay, noise, ventilation, safety equipment and allegedly making employees injured at work pay for medicine.

Though Fortune is just one case, the issue goes to the heart of contemporary retail, with pressure

on suppliers from retailers wanting to offer low prices while increasing their own margins.

As prices in first world shops fall, consumer concern has risen. Dan Rees is director of Ethical Trading Initiative, an industry-wide body of retailers and unions that promotes best practise. He said 'the biggest challenge is integrating ethical decisions in an environment of falling prices'.

It is a challenge perhaps too rarely met. But in recent years, media coverage of sweatshops in faraway places that produce footballs for Nike or T-shirts for GAP has forced giant retailers in particular to come clean and publish transparent auditing mechanisms as well as join industry-wide bodies to promote best practice.

Extract from The Observer, 23 April 2006

BLANK PAGE

Copyright Acknowledgements:

- Fig. 1 text (middle) © North Cornwall District Council, *Boscastle: The Flood*, 2004. Reproduced by kind permission of North Cornwall District Council.
 Fig. 1 map Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright 2008. All rights reserved. Ordnance Survey Licence number 10043707.
- Fig. 2 text Extract from Dan Glaister, *Visitors rush to glimpse vanishing glaciers*, The Guardian, 22 August 2005 © Guardian News & Media Ltd 2005, www.guardian.co.uk
- Fig. 2 image © Loetscher Chlaus / Alamy
- Fig. 3 text Extract from © Mike Carter, *Wild Alaska: Where glaciers sing and grizzlies are hungry*, The Observer, 9 April 2005, www.guardian.co.uk
- Fig. 3 image © iStockphoto.com / Frank Leung
- Fig. 4 text Extract from John Vidal, *Chop and change*, The Guardian, 16 June 2004 © Guardian News & Media Ltd 2004, www.guardian.co.uk
- Fig. 4 image © Martin Harvey / Alamy
- Fig. 5 From Maxine Frith, *Malnutrition kills 10 children every minute, says UN*, 3 May 2006 © The Independent, www.independent.co.uk
- Fig. 6 text Extract from Jonathan Watts, *Boom city struggles to cope as millions move in*, The Guardian, 6 December 2003 © Guardian News & Media Ltd 2003, www.guardian.co.uk
- Fig. 6 image © iStockphoto.com / Adam Korzekwa
- Fig. 7 Extract from Adam Fresco, *Tobago spends big to attract the high end of the market* © The Times, London, 30 March 2002, www.timesonline.co.uk
- Fig. 8 Extract from © John Aglionby, *The true cost of cheap clothing*, The Observer, 23 April 2006, www.guardian.co.uk

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.