

General Certificate of Secondary Education

J380

Geography A

Unit A674: *Issues in our Fast Changing World*

Resource Booklet

Candidate
Forename

Candidate
Surname

Centre
Number

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Candidate
Number

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INSTRUCTIONS TO CANDIDATES

- This Resource Booklet must be handed in to your teacher at the end of each lesson. **You must not write on the booklet**, apart from **writing your name, Centre Number and Candidate Number** at the top of this page.

INFORMATION FOR CANDIDATES

- The following abbreviations may be used:
- MEDC – More Economically Developed Country
- LEDC – Less Economically Developed Country
- EU – European Union which includes the United Kingdom

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

Resource 1a - World map to show the location of Bangladesh



© Map Resources

Resource 1b – Bangladesh and its neighbouring countries



© Map Resources

Resource 2 – Information about Bangladesh from Global Eye Magazine

(Global Eye is a geographical magazine for secondary schools)

Bangladesh is:

- the world's largest exporter of jute
- the largest supplier of shirts and T-shirts to Europe
- rich in natural gas



The map shows Bangladesh in green, surrounded by India (orange) to the north and west, and Myanmar (Burma) (yellow) to the east. The Bay of Bengal is to the south. Major cities marked include BANGPUR, DHAKA, and CHITTAGONG. The word 'Bangladesh' is written in large white letters across the map.

EYE ON

BANGLADESH

Cont.

© Global Eye Magazine

EYE ON

BANGLADESH

Bangladesh means 'the land of the Bengali'. It includes the largest river delta in the world, where the waters of the River Ganges and the River Brahmaputra flow into the Bay of Bengal.

More than half of Bangladesh's total land area is under cultivation: most of this is planted with rice. Pulses, wheat, jute, oil, seeds, sugar, tea, spices, vegetables and fruit are also grown.

Across the floodplains, **rice fields stretch as far as the eye can see**, a patchwork of paddies, punctuated by villages on tree-covered mounds raised to escape flood waters. **In the hills the ground is carpeted with tea bushes** planted under the cover of widely placed shade trees.

All over Bangladesh, the roads are **crowded with bicycles, rickshaws and people**, many of whom carry heavy loads.

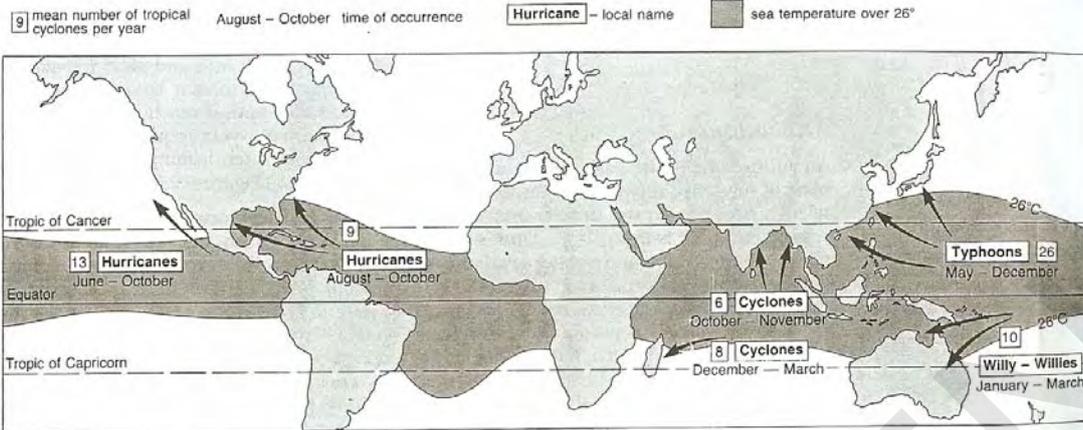
65% of Bangladesh can be accessed by inland waterways, making boats an important means of transport for both people and cargo.

© Global Eye Magazine

Statistical data comparing Bangladesh and the UK

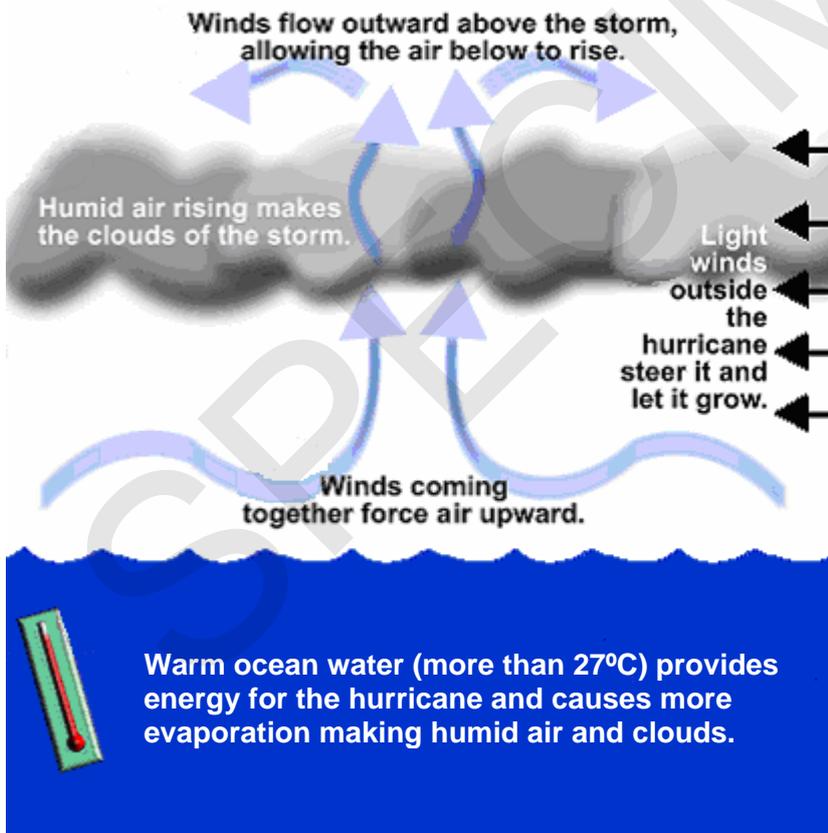
	Bangladesh	UK
People		
Population in millions	150.4	60.8
Life expectancy (years)	62.84	78.7
Infant mortality (per 1000 births)	59	5
Communications		
TVs (per 1000 people)	17	950
Radios (per 1000 people)	49	1446
Economy		
GDP (US\$ per capita)	2300	31800
Employment (%)		
Agriculture	63	1.4
Industry	11	18.2
Services	26	80.4

Resource 3 – World map to show where tropical storms occur



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Resource 4 – Why do tropical storms occur?



Resource 5 - Methods used to predict tropical storms and lessen their impact

a) tropical storm detecting buoy



© David Day

b) tropical storm detecting satellite



© NASA

c) satellite image of Tropical storm Sidr



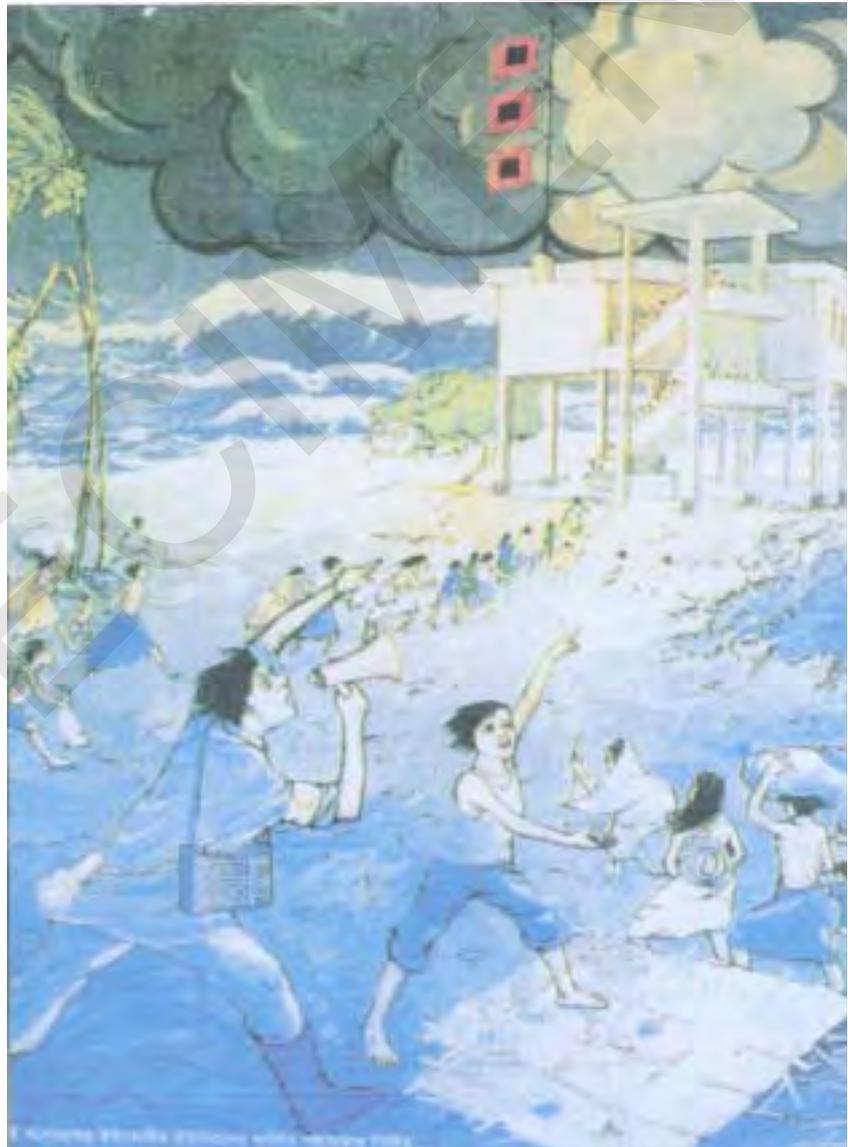
© NASA

d) cyclone shelter



© Murdoch University

e) Poster telling people to use tropical storm shelters



© Wide World Magazine

THE TIMES Saturday November 24 2007

Thousands saved by megaphone messengers

► Bicycle volunteers reduce cyclone deaths

► Warning system gets its first serious test

Jeremy Page
South Asia Correspondent

An army of volunteers with bicycles and megaphones may have saved tens of thousands of lives when Cyclone Sidr devastated coastal Bangladesh last week.

The simple early-warning system, made up of 40,000 men and women trained in disaster response, was triggered when authorities gave warning that the worst cyclone to hit the country in a decade was tearing in from the Bay of Bengal. The volunteers, trained by the Red Crescent, the Muslim arm of the Red Cross, then raised the alarm in the villages, many by riding around on bicycles and shouting through megaphones.

As a result, an estimated 3.2 million people were removed from their homes and more than a million were inside shelters when Cyclone Sidr struck, according to the United Nations and other agencies. More than 3,500 people were killed and about two million displaced, but UN and Red Cross officials estimate that without the warning system the cost could have been as great as that caused by a cyclone of similar intensity in 1970, which killed 300,000 people.

"Although there are still a lot of casualties, this is a real success story," said Maryam Golnaraghi, chief of disaster risk reduction at the World Meteorological Organisation (WMO), a United Nations agency. "Without

this, it would have been the equivalent of what happened in 1970. We're talking about two to three thousand dead versus hundreds of thousands," she told *The Times*.

She and other experts said that the cyclone had been the system's first serious test and that it could now be a model for developing countries and remote areas of the developed world.

The idea of an early-warning system arose in the 1960s in Bangladesh, then East Pakistan, which is one of the world's poorest and lowest-lying countries and suffers annual floods and cyclones. It gathered momentum after the 1970 cyclone and another in 1991

that killed 190,000 people. Because of political tension in the region, it did not take off until the mid-1990s when the WMO teamed up with the Red Cross and national governments to create a joint mechanism.

National meteorological departments now monitor cyclones by satellite, share information and send warnings to disaster management authorities, which pass them to village volunteers. Bangladeshi authorities were thus warned of the impending disaster by the Tropical Cyclone Centre in Delhi 72 hours before Sidr made landfall, and were sent updates every three hours. The Ministry of Food and Disas-

ter Management then issued a warning, which it passed on by radio to the network of thousands of volunteers.

"There's no doubt it made a huge difference in saving lives," said Anthony Spalton, a senior officer in the disaster preparedness and planning department of the International Federation of Red Cross and Red Crescent Societies. "It's literally people on bicycles with megaphones or flags and wind-up radios."

The Bangladesh Red Crescent Society alone had moved out 600,000 people, using 5,000 hand-held loudhailers, 10,000 torches, 1,000 bicycles and 143 VHF radios that it had issued

to its volunteers. Each megaphone cost only £25, Mr Spalton said.

He also attributed the relatively low casualties to schemes that had taught villagers to reinforce their homes, store food in high places and take their animals with them. More had to be invested in early-warning systems to allow information gathered through technological means to be communicated to the most vulnerable. "Technology is only as good as the reach of the message," he said.



Early warning allowed millions of people to leave home before the cyclone struck

Resource 6b - Newspaper information about tropical storm Sidr

Adapted From The Times 16 November 2007

Bangladesh: tropical storm kills more than 500 people

Relief workers were struggling today to get essential food and medicines to hundreds of thousands of survivors after a tropical storm devastated a huge area of Bangladesh killing more than 500 people. Most of the deaths during the storm, which had wind speeds of 150mph (240kph), occurred when trees fell on flimsy bamboo and tin-built houses. Police said that the death toll and the number of casualties would rise. Five metre waves washed away hundreds of thatched homes, destroying crops and killing livestock. Television news reports said that more than a hundred fishing boats in the Bay of Bengal had failed to return home overnight. Many small boats were without radio equipment and may not have heard the storm warnings. Electricity poles were uprooted, disrupting communication and power supplies. Evacuees sheltered in schools. "We have been virtually blacked out all over the country," said a disaster management official in southern Mongla, one of the worst-affected areas.

Teams of rescuers were dispatched to carry out relief operations in the worst-hit areas in the country's southwest but relief work was hampered because power and phones were down in many areas. Thousands of people had been left homeless. Mollik Tariqur Rahman, a local businessman in the affected area said that 80 per cent of the homes in his village had been flattened.

"I cannot describe how devastating it was. It was like doomsday, the most frightening five hours of my life. I thought I would never see my family again," he said.

A navy spokesman said five ships had been dispatched with supplies of food, medicine and relief materials. The European Commission said it was releasing 1.5 million euros in emergency relief aid to the country.

"Preliminary indications are that the most pressing needs will be food, safe drinking water, emergency shelter, clothing, blankets and medicine," John Clancy, Commission spokesman, said.

Officials in one of the world's poorest nations, with a population of 140 million, were spared more serious human casualties because of an early warning system and network of cyclone shelters introduced after the 1991 disaster. Bangladesh has the worst record of tropical storm, storm surges in the world. As tropical storms sweep up the Bay of Bengal, the funnel shape of the coastline squeezes storm surges over a very low coastline. The warm seas in the Bay of Bengal are also a notorious breeding ground for tropical storms, particularly at this time of year, when clusters of thunderstorms can turn into a ferocious rotating storm. As storm surges overwhelm the coastline they tear through a labyrinth of waterways in the enormous river deltas. The region is densely populated, with many people living on chars – islands of sand and silt that gradually shift with the surrounding waters. Much of the land is barely a metre above sea level and a third of Bangladesh lies less than six metres above sea level. The people living here are among the poorest in the country. Although great efforts have been made to give good storm warnings and build shelters on higher land, this is still inadequate for the estimated five million people in the high-risk areas.

The potential problem of cyclones in this area is growing worse as rising sea levels, caused by global warming, increase the threat of storm surges and flooding. The delta region is also subsiding, partly because groundwater is being abstracted for agriculture.

Resource 6c – Newspaper article November 19th 2007

Adapted from The Times, November 19th

Bodies are floating in the rivers and paddy fields. It's unbearable'

As many as 10,000 people may have died and millions have been made homeless after a tropical storm tore a trail of destruction through Bangladesh, officials said yesterday. Three days after 150mph Cyclone Sidr flattened villages along the coast of Bangladesh, the Army and aid workers are still struggling to reach remote villages. The Bangladeshi Red Crescent Society has cautioned that the final toll could be far higher than the 3,113 deaths estimated by the Army last night. The Red Cross believes that 900,000 families — roughly seven million people — are affected by the devastation. Survivors on the isolated southern coast, where many areas were still out of reach for aid convoys, gave warning that they would soon die unless help came.

Sattar Gazi, a 55-year-old farmer, said: "I lost six of my family members in the cyclone. I am afraid that the rest of us will die of hunger. For the corpses, we don't even have clothes to wrap them in for burial . . . we are wrapping the bodies in leaves." His village, on the Bay of Bengal, was smashed by a 6m (20ft) wave.

Abdul Zabbar, a 30-year-old teacher, said that the situation in the area — already one of the most impoverished places on Earth — was unbearable. "There is no food and drinking water," he said. "Bodies are still floating in the rivers and paddy fields." His colleague Jay Rafique who has taught at the local school for 30 years said that the rice harvest — representing four months of food — had been washed away. Officials said that the humanitarian situation in coastal districts such as Barguna, 200km (130 miles) south of Dhaka, the capital, was catastrophic. Many more victims are expected to be found in remote areas, including around poor fishing villages in the string of small islands off the coast.

Aid efforts were being hampered by roads blocked by fallen trees and the sheer scale of the devastation. Douglas Casson Coutts, of the World Food Programme, said: "In the remote areas it is slow-going, they are almost chopping trees as they go along." He added that officials were working with the military to organise air drops to the most inaccessible districts. Most of the deaths were caused by the giant wave that engulfed coastal villages, as well as flying debris and falling trees that crushed flimsy bamboo and tin homes. However, thanks to an effective early warning system at least 1.5 million coastal villagers fled to shelters before the storm. Pledges of aid have come in from around the world, providing hope that the relief operation will soon swing into high gear. Britain has offered \$5 million, while the US is providing rescue helicopters and has said that it will send \$2 million.

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Resource 5:

a) Ocean Alliance (www.oceanalliance.org) . Tropical Atmosphere Ocean (TAO) Buoy. © David Day

b) © NASA http://www.nasa.gov/worldbook/artificial_satellites_worldbook.html

c) © NASA http://www.nasa.gov/mission_pages/hurricanes/archives/2007/h2007_sidr.html

d) © Murdoch University

http://www.istp.murdoch.edu.au/ISTP/casestudies/Case_Studies_Asia/sandwip/sandwip.html

e) © Wide World Magazine

Resource 6:

a) From *Thousands saved by megaphone messengers* by Jeremy Page, South Asia Correspondent, 24th November 2007; © The Times

b) From *Bangladesh: tropical storm kills more than 500 people* adapted from © The Times, 16th November 2007

c) From *Bodies are floating in the rivers and paddy fields. It's unbearable* adapted from © The Times, 19th November 2007

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