

# Oxford Revise | Geography | Answers

## Chapter 3 When does extreme weather become hazardous?

All exemplar answers given are worth full marks.

1

- (a) heavy rainfall leading to flash flooding and landslides; strong winds causing damage to buildings
- (b) The social impacts of tropical storms include deaths and injuries from flooding and falling buildings. Contaminated water supplies from damaged sewage pipes often leads to sickness and diseases. The economic impacts include farmers losing money because their crops are destroyed by flooding. There are the costs to the government for repairing destroyed or damaged infrastructure such as power lines, roads, schools, hospitals, and railways.
- (c)
  - (i) There do not appear to be any embankments to protecting the properties from a storm surge.
  - (ii) The size of detached properties suggest that they were expensive.; People living in these expensive houses would have lots of expensive goods to replace and so the cost of the damage would be high.
- (d)

### Emerging and developing countries (EDCs)

These countries will often not be very prepared for the arrival of a natural weather hazard because of poverty or that the government has not developed a disaster plan. Death and injury rates will be high because the buildings are flimsy and not very well built or reinforced. The poor drainage and sewage systems means that drinking water easily gets contaminated, causing sickness and disease outbreaks. People will suffer stress because they lose family members or must be evacuated to places they do not know. Many will be made homeless and are unlikely to have insurance money for a new home. People will lose their jobs if their place of work is destroyed. Farmers will lose money if they depend on selling their crops and people may not be able to get enough food, leading to famine and malnutrition. The government will be faced with huge repair costs for roads, schools, and hospitals, and they may have to rely on foreign aid because they do not have enough money from taxes to cover the cost. Environmentally, many unique habitats will be lost or destroyed by saltwater flooding. Soil contaminated with sea water will not produce the same yield as before the weather hazard. If the areas suffer a drought then there will be poor harvests, reducing the amount of food produced. There may be an increase in coastal erosion, meaning farmland is lost and places inland may lose natural protection from beaches, and the area becomes even more vulnerable to future weather hazards.

### Advanced countries (ACs)

These countries are often very well prepared for the arrival of a natural weather hazard because the country has enough resources to have built some protective structures such as sea walls. Schools and business have an evacuation plan in place and people are trained in what to do when there is an extreme weather hazard. Death and injury rates will be low because the buildings are very well built or reinforced. The drainage and sewage systems are kept in good repair or are reinforced so that that drinking water is not easily contaminated, reducing the possibility of sickness and disease outbreaks. People will suffer stress because they lose family members or must be evacuated to places they do not know. Those that are made homeless will have insurance money to repair or build a new home. People will lose their jobs if their place of work is destroyed, but there will be a system of social and welfare benefits to help them when they are unemployed. Farmers will lose money if they depend on selling their crops, but this is unlikely to mean that people will not be able to get enough food because the country will be able to get food from other sources. The government will be faced with huge repair costs for roads, schools, and hospitals, but they will have enough money from taxes to cover the cost. Environmentally, many unique habitats will be lost or destroyed by saltwater flooding. Soil contaminated with sea water will not produce the same yield as before the weather hazard. If the areas suffer a drought then there will be poor harvests, reducing the amount of food produced, but the impact will be reduced because there will be irrigation systems in place. There may be an increase in coastal erosion and farmland is lost, and places inland may lose natural protection from beaches, so the area becomes even more vulnerable to future weather hazards.

- (e) The consequence of a drought will depend upon the country's level of development. Inevitably, low-income developing countries (LIDCs) and emerging and developing countries are likely to suffer much more than those in advanced economies. There is the possibility of famine and death in LIDCs, but in ACs there will be economic consequences for farmers with water shortages for crops and livestock, reducing yields. There may be hosepipe bans, making it difficult to water gardens and wash cars, and an increased danger of wildfires.
- (f)

This question is level-marked:

Level	Marks	Description
3	5–6	<ul style="list-style-type: none"> <li>• Thorough knowledge, understanding or analysis of the issue, process or concept.</li> <li>• Uses well-developed ideas and line of reasoning is clear and logically structured.</li> <li>• Information presented is relevant and substantiated.</li> </ul>
2	3–4	<ul style="list-style-type: none"> <li>• Reasonable knowledge, understanding or analysis of the issue, process or concept.</li> <li>• Uses developed ideas and line of reasoning with some structure.</li> <li>• Information presented is mostly relevant and supported by some evidence.</li> </ul>
1	1–2	<ul style="list-style-type: none"> <li>• Basic knowledge, understanding or analysis of the issue, process or concept.</li> <li>• Uses simple ideas with no developed points made.</li> <li>• Information is basic, unstructured, and supported by limited evidence.</li> </ul>
	0	No response or no response worth of credit.

**Example answer: UK drought of 2012**

The main cause of the drought was climate change which has resulted in the UK experiencing more extreme weather events. Drought conditions developed because of changes in the jet stream during 2010 and 2011, which extended into the early spring of 2012. This resulted in the normal north-west to south-east rainfall distribution across the country becoming much more marked. The north-west of the UK had wetter conditions than normal at the time when the rest of the country was having much lower rainfall. This led to very severe drought. This drought was one of the worst on record, particularly in southern England. The drought in 2012 was largely because of the unusually dry winds from Europe causing low rainfall between April 2010 and May 2012. Most areas received less than 85% of average rainfall, with some areas receiving less than 75%. Only Scotland and Northern Ireland approached average rainfall totals. There were also warmer temperatures than usual, which meant there was higher evaporation from reservoirs and soils dried out.

**Questions referring to previous content.**

**2**

**(a)** B

**(b)** The conditions necessary for tropical storm to form are only found 5–15° north and south of the equator, where ocean temperatures are above 26.5°C. This is where two Hadley Cells converge, causing hot, humid, unstable air to rise, condense and form storm clouds. Near the equator, the spinning effect of the Earth's rotation is very high. The trade winds and westerlies determine the movements of these storms. Trade winds move them north-east to west in the northern hemisphere and south-east to north-west in the southern hemisphere. Westerlies move them from the south-west to the north-east in the northern hemisphere and west to east in the southern hemisphere.

**(c)** This question is level-marked:

Level	Marks	Description
3	5–6	<ul style="list-style-type: none"> <li>• Thorough knowledge, understanding or analysis of the issue, process or concept.</li> <li>• Uses well-developed ideas and line of reasoning is clear and logically structured.</li> <li>• Information presented is relevant and substantiated.</li> </ul>
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	0	No response or no response worth of credit.

Example answer: *There is little evidence to show that tropical cyclones overall are becoming more frequent. In some areas the numbers are increasing, but in other parts of the world they have become less common. There is evidence that the intensity of tropical cyclones has increased in recent years and that is because of climate change. As the earth gets warmer, there is more energy available for the formation of tropical cyclones.*