



GEO.PH10 Tropical Storms: Effects and Responses in a Case Study

AQA 8035 · Calculators not allowed · about 50 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** State the year when Typhoon Haiyan struck the Philippines (named case study: Typhoon Haiyan, also called Yolanda).

(Total for Question 1 is 1 mark)

- 2** State the main region of the Philippines that was worst affected by Typhoon Haiyan.

(Total for Question 2 is 1 mark)

- 3** Give one primary (immediate) effect of Typhoon Haiyan on the Philippines.

(Total for Question 3 is 2 marks)

- 4** Give one secondary (long-term) effect of Typhoon Haiyan on communities in the Philippines.

(Total for Question 4 is 2 marks)

- 5** Distinguish between a primary effect and a secondary effect, using Typhoon Haiyan as your context.

(Total for Question 5 is 3 marks)

- 6** Table A shows the number of people killed in four provinces affected by Typhoon Haiyan, based on illustrative, simplified figures for practice.

Province	Estimated deaths
Leyte	3,200
Samar	1,500
Iloilo	400
Eastern Samar	1,200

Using Table A, describe the pattern of deaths across these provinces.

(Total for Question 6 is 3 marks)

- 7** The Philippines government reported that about 4,100,000 people were displaced by Typhoon Haiyan. If the Philippines population at that time was about 100,000,000, calculate the percentage of the population displaced. Give your answer to one decimal place.

(Total for Question 7 is 2 marks)

- 8** Estimate the proportion of the total economic loss that was attributed to damage to infrastructure and housing if total losses were about 5.8 billion US dollars and housing and infrastructure losses together were about 2.3 billion US dollars. Give your answer as a percentage to the nearest whole number.

(Total for Question 8 is 2 marks)

- 9** Explain TWO short-term (immediate) responses used after Typhoon Haiyan to reduce loss of life and meet urgent needs.

(Total for Question 9 is 4 marks)

- 10** Describe TWO long-term responses to Typhoon Haiyan that aimed to reduce future vulnerability and help recovery.

(Total for Question 10 is 4 marks)

- 11** Give one example of international aid that was provided after Typhoon Haiyan.

(Total for Question 11 is 1 mark)

- 12** Explain how the storm surge associated with Typhoon Haiyan increased the number of fatalities in coastal communities.

(Total for Question 12 is 3 marks)

- 13** Suggest one reason why rebuilding homes to higher standards after Typhoon Haiyan can be difficult for affected communities.

(Total for Question 13 is 2 marks)

- 14** Give TWO ways that improved early-warning systems and community education can reduce the impact of future tropical storms.

(Total for Question 14 is 2 marks)

- 15** Use the named case study Typhoon Haiyan (Philippines, November 2013) and other relevant knowledge to answer this question.

'Assess the effectiveness of the responses to the tropical storm you have studied.'

(Total for Question 15 is 12 marks)

Mark scheme · GEO.PH10 Tropical Storms: Effects and Responses in a Case Study

Question 1

- **B1** 2013
- **Answer: 2013.**

Question 2

- **B1** Eastern Visayas (for example, Leyte and Samar provinces)
- **Answer: Eastern Visayas (for example, Leyte and Samar provinces).**

Question 3

- **B1** one correct primary effect, e.g. many deaths, homes destroyed, buildings damaged, storm surge flooding, or immediate power and water supply failure, oe
- **B1** linked detail or example, e.g. around 6,300 people killed or about 1 million homes damaged/destroyed, oe
- **Answer: Example: Many deaths and widespread destruction of homes; for instance, around 6,300 people were confirmed killed and about 1 million houses were damaged or destroyed.**

Question 4

- **B1** one correct secondary effect, e.g. loss of livelihoods, food shortages, disease outbreaks, long-term economic loss, displaced people needing temporary shelter, oe
- **B1** linked detail, e.g. agriculture losses reduced income for months, or estimated economic losses of about 5.8 billion US dollars, oe
- **Answer: Example: Long-term loss of livelihoods and food shortages; agriculture was badly damaged and overall economic losses were estimated at about 5.8 billion US dollars.**

Question 5

- **B1** definition of a primary effect, e.g. an immediate result of the hazard event such as deaths, buildings destroyed, or flooding, oe
- **B1** definition of a secondary effect, e.g. an effect that occurs later as a consequence, such as disease, unemployment or long-term economic loss, oe
- **B1** clear application to Haiyan, e.g. primary: storm surge flooded coastal towns and destroyed homes; secondary: disrupted farming caused food shortages and loss of income, oe
- **Answer: A primary effect is an immediate result of the storm, for example Typhoon Haiyan's storm surge flooding coastal towns and destroying homes. A secondary effect happens later because of the initial damage, for example loss of crops and livelihoods leading to food shortages and long-term economic problems.**

Question 6

- **B1** statement of overall pattern, e.g. Leyte had the largest number, while Iloilo had the fewest deaths, oe
- **B1** support with data, e.g. Leyte 3,200 compared with Iloilo 400 and intermediate values for Samar and Eastern Samar, oe
- **B1** brief interpretation, e.g. coastal provinces closer to the landfall suffered higher death tolls, oe
- **Answer: Deaths were uneven, with Leyte having the highest number (3,200) and Iloilo the lowest (400); Samar and Eastern Samar had intermediate totals (1,500 and 1,200), suggesting areas closer to the storm landfall suffered more deaths.**

Question 7

- **M1** $4100000 / 100000000 \times 100$ seen, oe
- **A1** 4.1% cao
- **Answer: 4.1%.**

Question 8

- **M1** $2300000000 / 5800000000 \times 100$ seen, oe
- **A1** 40% cao
- **Answer: 40%.**

Question 9

- **B1** short-term response 1 named, e.g. search and rescue operations and emergency evacuations, oe
- **B1** linked detail, e.g. international and local teams rescued people from flooded areas and evacuated survivors to temporary shelters, reducing immediate fatalities, oe
- **B1** short-term response 2 named, e.g. distribution of emergency aid such as food, clean water, medical supplies and temporary shelter, oe
- **B1** linked detail, e.g. international aid agencies and the Philippine government provided water, medical teams and tarpaulins which helped prevent disease and meet urgent needs, oe
- **Answer: Examples: 1) Search and rescue and emergency evacuation were carried out by local agencies and international teams, removing injured people from danger and moving survivors to safer shelters. 2) Rapid distribution of emergency aid, including food, clean water, medical supplies and temporary shelter materials, helped prevent further deaths from starvation or disease and met urgent needs.**

Question 10

- **B1** long-term response 1 named, e.g. rebuilding homes and infrastructure to higher standards, oe
- **B1** linked description, e.g. reconstruction programmes included stronger building materials and raised foundations to resist future storm surge and winds, oe
- **B1** long-term response 2 named, e.g. improved early-warning systems and community education, oe
- **B1** linked description, e.g. investment in weather monitoring, sirens and training for evacuation reduced future risk by improving preparedness, oe
- **Answer: Examples: rebuilding to higher standards, such as stronger materials and raised foundations, to make houses and infrastructure more storm-resistant; and improving early-warning systems and community education, including better meteorological equipment, sirens and evacuation training so people can leave dangerous areas earlier.**

Question 11

- **B1** any one correct example, e.g. search and rescue teams from other countries, emergency food parcels from international agencies, temporary shelter kits from the Red Cross, or financial donations from foreign governments, oe
- **Answer: For example, emergency shelter kits and food parcels provided by international agencies such as the Red Cross, and search and rescue teams or military assistance from other countries.**

Question 12

- **B1** statement that storm surge caused rapid flooding of coastal areas, often with little warning, oe
- **B1** linked detail, e.g. surge waves up to several metres swept through towns and destroyed shelters, making escape difficult, oe
- **B1** consequence, e.g. people were swept away or trapped, and infrastructure such as roads and communications failed, hindering rescue and increasing fatalities, oe
- **Answer: The storm surge caused rapid and deep flooding of coastal towns, often with little warning. Waves several metres high swept through homes and shelters, making escape difficult. Roads and communications were destroyed, delaying rescue and increasing the number of people swept away or trapped and killed.**

Question 13

- **B1** a valid reason, e.g. higher costs of stronger materials and construction, limited available funds for poor households, or slow delivery of reconstruction funding, oe
- **B1** linked detail, e.g. many families cannot afford to pay for stronger designs and must rely on limited government or donor aid, slowing or preventing improved rebuilding, oe
- **Answer: For example, stronger building materials and raised foundations cost more, and many affected families and local governments lacked the funds to rebuild immediately to higher standards, so improved rebuilding was slow or incomplete.**

Question 14

- **B1** way 1, e.g. earlier warnings allow people more time to evacuate to safe areas or shelters, oe
- **B1** way 2, e.g. community education teaches people where to go and what to do, reducing panic and improving the effectiveness of evacuations, oe
- **Answer: Early warnings give people more time to evacuate to higher ground or shelters, and community education teaches people how to respond and where to go, reducing panic and making evacuations more effective.**

Question 15

- **Level 4** (10-12): A well-developed, balanced assessment that evaluates short-term and long-term responses to Typhoon Haiyan with specific, accurate case detail and figures; evaluates strengths and weaknesses, and reaches a clear, justified judgement on overall effectiveness and on lessons learned for future storm management.
- **Level 3** (7-9): A clear assessment that discusses both short-term and long-term responses to Typhoon Haiyan with some case detail; considers advantages and limitations and provides a supported conclusion, though depth or range of evidence may be limited.
- **Level 2** (4-6): Some relevant points about responses to Typhoon Haiyan are made, with limited case detail; strengths or weaknesses are identified but the assessment is largely descriptive and the judgement is only partially supported.
- **Level 1** (1-3): One or two simple, relevant points about responses are made with little or no case detail and no overall judgement.
- **Level 0** (0): No relevant content.
- **Indicative content:**
 - Short-term responses were rapid search and rescue, evacuation where possible, and large-scale international humanitarian aid providing food, water, temporary shelter and medical assistance; these reduced immediate suffering and prevented larger disease outbreaks in many areas.
 - Limitations of short-term responses include initial problems with distribution because roads, ports and airports were damaged, communication networks failed and some remote communities were hard to reach, delaying aid and rescue and increasing early mortality in some places.
 - Long-term responses included reconstruction programmes to rebuild homes and infrastructure to higher standards, investment in early-warning systems, and livelihood recovery programmes for farmers and fishers. These aimed to reduce vulnerability and support economic recovery.
 - Costs and governance issues limited long-term effectiveness: rebuilding to higher standards was expensive and slow, many households remained in temporary shelters for months, and there were challenges coordinating donor funds and local government capacity.
 - Evidence and figures to use in support: approximate confirmed deaths around 6,300, about 4.1 million people displaced, roughly 1 million homes damaged or destroyed, and estimated economic losses around 5.8 billion US dollars; use these to judge scale and the match between response and need.
 - Evaluation might argue that international aid and local efforts saved many lives and provided essential relief, but that weaknesses in infrastructure, poverty and logistical problems limited how quickly and fully communities recovered, so responses were partly effective but not sufficient to prevent long-term hardship.
 - A strong conclusion should weigh the overall success in saving lives and delivering aid against the shortcomings in reaching all communities quickly and in funding comprehensive resilient reconstruction, and may recommend better pre-disaster planning, stronger local capacity and faster mechanisms for delivering reconstruction funds.