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1

91007



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD  
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## Level 1 Geography, 2015

### 91007 Demonstrate geographic understanding of environments that have been shaped by extreme natural event(s)

9.30 a.m. Thursday 12 November 2015

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate geographic understanding of environments that have been shaped by extreme natural event(s).	Demonstrate in-depth geographic understanding of environments that have been shaped by extreme natural event(s).	Demonstrate comprehensive geographic understanding of environments that have been shaped by extreme natural event(s).

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.**

Low  
Merit

TOTAL

14

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**INSTRUCTIONS**

In the box below, name ONE type of **extreme natural event**, and an environment **case study (studies)**.

Type of extreme natural event:

Earthquakes

Name of case study (studies):

Christchurch <sup>(or)</sup> and Napier

Canterbury / Christchurch

Refer to these when answering ALL of the questions in this booklet.

**QUESTION ONE: Natural Processes**

Read the geographic concept below and refer to it when answering this question.

**Geographic Concept**

Processes are a sequence of actions, natural and / or cultural, that shape and change environments, places, and societies. Processes vary in time and space. Processes vary in magnitude (size) and frequency.

Extreme natural events occur **above** the earth, **on** the earth's surface, or **below** the earth's surface.

- (a) Where do the extreme natural events listed below occur (above, on, or below the earth's surface)?

Earthquake: below

Flood: on

Tropical Cyclone: above

- (b) In the box below, draw an annotated diagram, or a series of annotated diagrams, to fully explain the processes that caused the extreme natural event that you named on page 2.

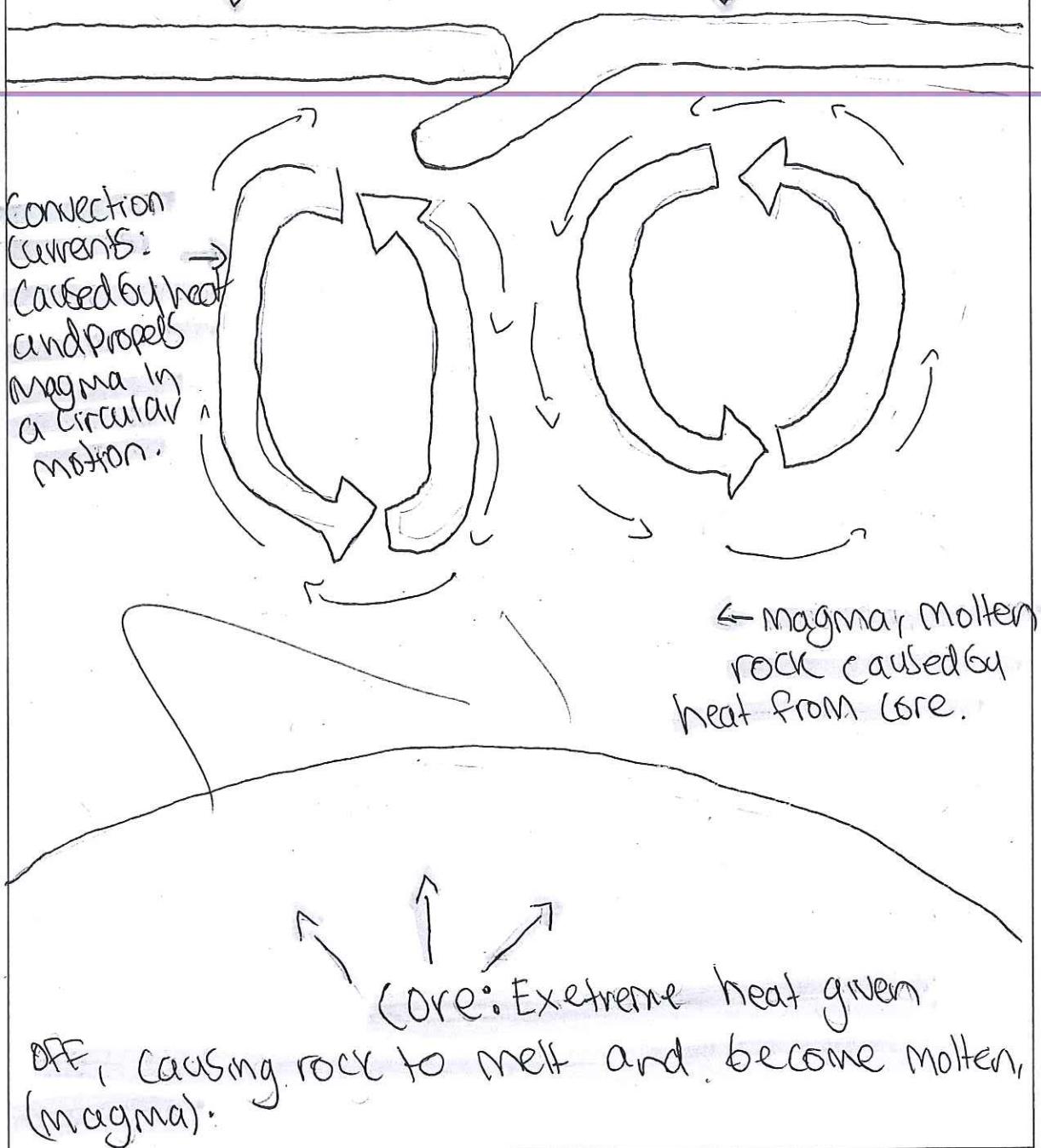
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Add notes on your diagram(s) to explain how the processes work for your chosen environment case study (studies).

Tectonic plates move/grind/subside against each other due to the movement of the magma under the earth's surface which is caused by convection currents. This movement of the plates results in friction and a build up of pressure which is eventually relieved in the form of seismic waves, which creates earthquakes. This process can be seen in the case of Christchurch and Napier.

Overriding tectonic plate:  
eg: Indo-Pacific Plate

Subsiding tectonic plate:  
eg: Pacific Plate



A3

Only some supporting  
case study.

## QUESTION TWO: Vulnerability of Environments to Extreme Natural Events

Read the geographic concept below and refer to it when answering this question.

### Geographic Concept

**Environments** may be natural and / or cultural. They have particular characteristics and features which can be the result of natural and / or cultural processes.

Some **natural and cultural characteristics (features)** make an environment more vulnerable to extreme natural events.

Natural Characteristics (Features)	Cultural Characteristics (Features)
Location	Time and history of settlement
Geology	Preparedness
Landforms	Buildings
Relief	Infrastructure
Oceans and coastlines	Economic activities
Climate	Level of technology
Rivers and lakes	Level of development

Fully explain how at least ONE natural and ONE cultural characteristic (feature) of your environment(s) make it more vulnerable to your extreme natural event from page 2.

You may use characteristics (features) from the table above, or other examples.

In your answer, include specific, relevant evidence from the extreme natural event case study (studies) you named on page 2.

Natural characteristic (feature): The natural characteristic of the landform of the Southern Alps, is one that makes the region of Canterbury ~~much~~ more vulnerable to the extreme natural event of ~~been~~ earthquakes. This is because the large mountain range is actually the result of the continual subsiding of the Pacific plate underneath the Indo-Pacific plate. This has created ~~the~~ the Alpine fault (Southern Alps). The ~~is~~ fault runs 600km along the plate boundary, and resides just inland from the Canterbury region. It is the largest active fault in New Zealand and puts the Canterbury region and city of Christchurch at continual risk. ~~like~~ Another smaller fault called

The Greendale fault also poses danger to the Canterbury people, as it runs directly under the region, and atop it lies a river bed of gravel. This gravel results in a huge amount of loose movement when earthquakes strike, and can result in higher damage to both the natural and cultural environment of the region. As well as this, NZ resides in the Southern Wester part of the Pacific Ring of Fire, where 80% of the world's deadliest earthquakes occur.

Cultural characteristic (feature): A cultural characteristic that ~~upset~~ specifically ~~Christchurch~~ made Christchurch more vulnerable to earthquakes was the fact that, ~~up until~~ the earthquake on the 4th of September 2010, the city was a flourishing business district with an evergrowing CBD. The economy of Canterbury as a whole was extremely diverse, and ~~managed~~ had growing industries within the departments of agriculture, forestry, fishing, tourism, and even coal and hydro-power. A growing economy then lead to a growing population, ~~and~~ ~~in~~ Canterbury <sup>was</sup> becoming the second most populated region in the country, <sup>(up to 2010)</sup> and ~~in~~ <sup>2012</sup> 75% of the regions total population living in the city of Christchurch. This was sure to affect things when the 2010 and <sup>early</sup> ~~2011~~ 2011 earthquakes struck. The death toll of the earthquakes was 185 people, the 2nd most deadliest event in NZ history (~~after~~ after Napier, 1931's earthquake of 7.8 magnitude that killed 256 people), half of which were killed in the collapse of the CTV building in the CBD. (This was after the second earthquake of 6.3 magnitude <sup>around</sup> on the 22nd of Feb, 2011, just 4 months after the September earthquake).

### QUESTION THREE: The Human Response to the Extreme Natural Event

Read the geographic concept below and refer to it when answering this question.

#### Geographic Concept

**Change** is a normal process in cultural environments. During an extreme natural event, change can be unpredictable or erratic, and can occur at varying rates, at different times, and in different places.

Fully explain how different groups of people have responded to the effects of your chosen extreme natural event(s).

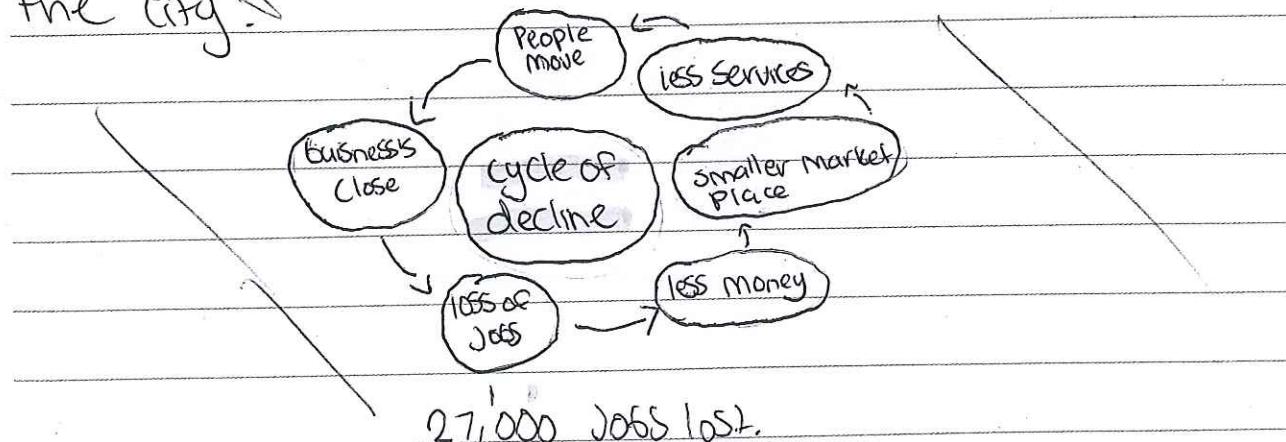
In your answer, include specific, relevant evidence from:

- the geographic concept of change
- your extreme natural event case study (studies).

The concept of change applies to the human response to the extreme natural event of earthquakes, especially within the case of Canterbury. The changes in the natural, and cultural environment of Canterbury due to the 2010 and 2011 earthquakes were drastic.

Houses, property and public spaces were damaged. An example being the extensive damage to the historic heritage building, the Christchurch Cathedral. A specific group of people who responded to these kinds of changes was the Christchurch population. After the 2011 earthquake, the city was in economic turmoil, and thousands decided to move from the region.

This then resulted in the cycle of decline within the city:



Another group who responded to the earthquakes in the Canterbury region was the charity, ~~the~~ The Salvation Army. The charity recruited many volunteers and at one point in the ~~the~~ early recovery stages ~~of~~ ~~they~~ after the earthquake, were producing 500 food parcels a ~~day~~ day. The organisation feed, on average, 5000 people a day and all up collected \$6.2 million for the city / region. These numbers are extremely high, especially for a non-government funded, independent organisation. This level of support ~~was~~ for those affected, was sought about in the change of levels of hardship. Immediately after the earthquake, the situations the Canterbury public were forced into were more than enough motivation for the charity to up their volunteers, collectors and organisers.

Clear explanation -  
case study  
Some detailed  
M5

QUESTION  
NUMBER

**Extra space if required.  
Write the question number(s) if applicable.**

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High  
Merit

TOTAL

16

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**INSTRUCTIONS**

In the box below, name ONE type of **extreme natural event**, and an environment **case study (studies)**.

Type of extreme natural event:

Volcanic Eruption

Name of case study (studies):

Mount Tarawera - 10th June 1886

Mount Pinatubo - 12th June 1991

Refer to these when answering ALL of the questions in this booklet.

**QUESTION ONE: Natural Processes**

Read the geographic concept below and refer to it when answering this question.

**Geographic Concept**

**Processes** are a sequence of actions, natural and / or cultural, that shape and change environments, places, and societies. Processes vary in time and space. Processes vary in magnitude (size) and frequency.

Extreme natural events occur **above** the earth, **on** the earth's surface, or **below** the earth's surface.

- (a) Where do the extreme natural events listed below occur (above, on, or below the earth's surface)?

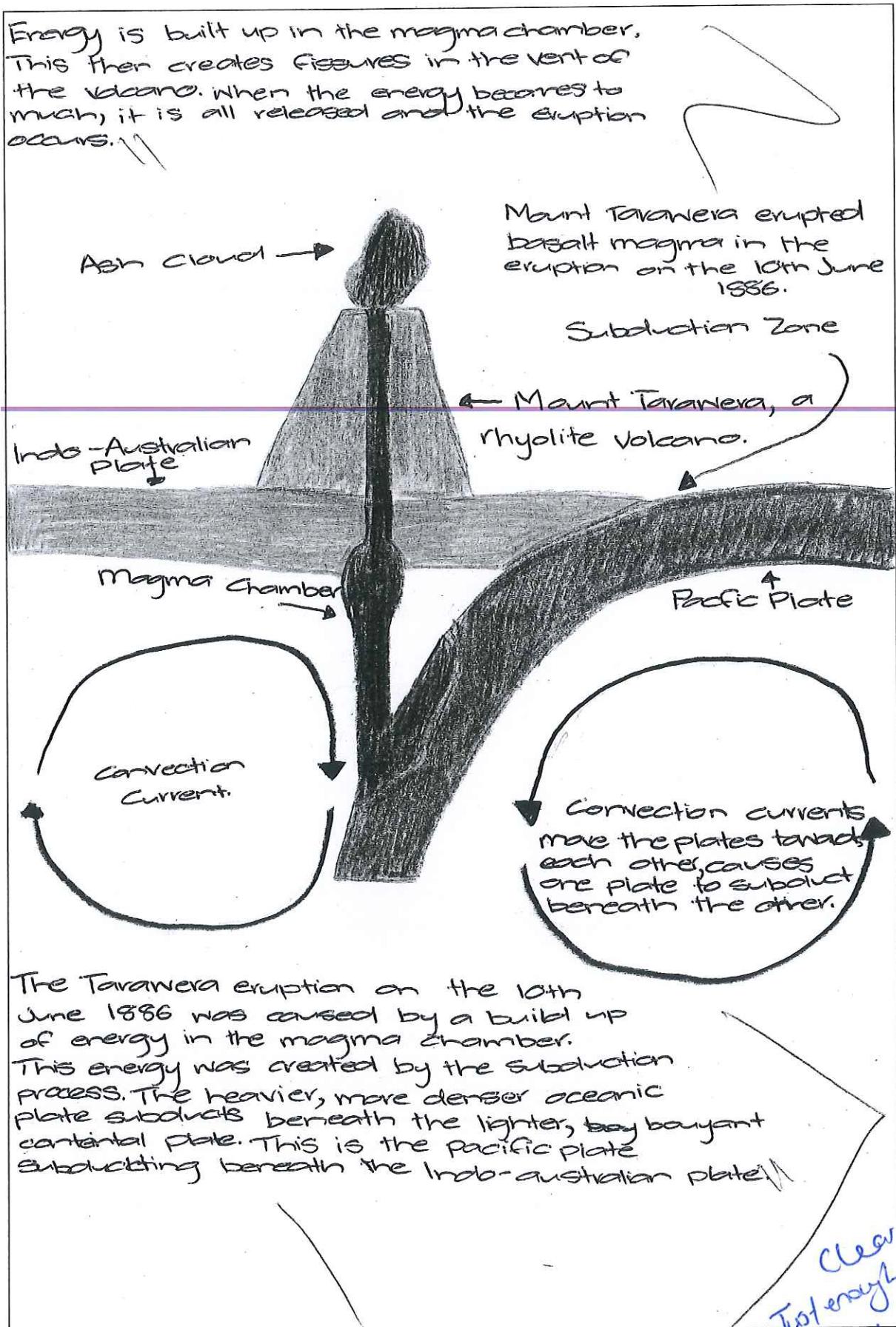
Earthquake: Below the surface

Flood: On the surface

Tropical Cyclone: Above the surface

- (b) In the box below, draw an annotated diagram, or a series of annotated diagrams, to fully explain the processes that caused the extreme natural event that you named on page 2.

Add notes on your diagram(s) to explain how the processes work for your chosen environment case study (studies).



## QUESTION TWO: Vulnerability of Environments to Extreme Natural Events

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Read the geographic concept below and refer to it when answering this question.

### Geographic Concept

**Environments** may be natural and / or cultural. They have particular characteristics and features which can be the result of natural and / or cultural processes.

Some **natural and cultural characteristics (features)** make an environment more vulnerable to extreme natural events.

Natural Characteristics (Features)	Cultural Characteristics (Features)
Location	Time and history of settlement
Geology	Preparedness
Landforms	Buildings
Relief	Infrastructure
Oceans and coastlines	Economic activities
Climate	Level of technology
Rivers and lakes	Level of development

Fully explain how at least ONE natural and ONE cultural characteristic (feature) of your environment(s) make it more vulnerable to your extreme natural event from page 2.

You may use characteristics (features) from the table above, or other examples.

In your answer, include specific, relevant evidence from the extreme natural event case study (studies) you named on page 2.

Natural characteristic (feature): The landforms and location.

The landforms that surround the Mount Tarawera make them vulnerable. In the Mount Tarawera eruption on the 10th June 1886 the landforms were changed. the surrounds of Tarawera were destroyed. The pink and white terraces were the main landform that ~~were~~ made them vulnerable. The terraces were described as a ~~shai~~ staircase. These were created by silica that run down the sides of the volcano. These silica came from the boiling geysers. As the silica cooled, it crystallised creating the staircase of the pink and white terraces. The terraces were also created as part of volcanic process. Therefore this made

them vulnerable. The location of Mount Tarawera also made it vulnerable. Because Mount Tarawera was situated in the TVC - in the Okataina zone it made it very vulnerable. The subduction zone that Mount Tarawera was situated on also made it vulnerable ~~to~~ to a volcanic eruption.

Cultural characteristic (feature): Economical Activities.

Mount Pinatubos eruption in June 1991 affected the economical activities. The city of manila, who are situated south-east of Mount Pinatubo. They were vulnerable because they relied on the people who lived in the alluvial plains to supply them with food for them and also food to export to other countries. The alluvial plains were very vulnerable. This is because the economy of the people living there relied on the good soils and land to survive. The ground of the alluvial plains was very fertile and good for growing crops and feeding animals. The plains were very flat land. So therefore were very vulnerable to lahars or phreaticlastic flows that may have occurred.

Clear explaining.  
One answered lacked  
detailed evidence  
nb.

MS

**QUESTION THREE: The Human Response to the Extreme Natural Event**

Read the geographic concept below and refer to it when answering this question.

**Geographic Concept**

Change is a normal process in cultural environments. During an extreme natural event, change can be unpredictable or erratic, and can occur at varying rates, at different times, and in different places.

Fully explain how different groups of people have responded to the effects of your chosen extreme natural event(s).

In your answer, include specific, relevant evidence from:

- the geographic concept of change
- your extreme natural event case study (studies).

Different groups of people responded to the Mount

Pinatubo eruption even before it happened. As the

warning signs grew the more these people responded.

The first group to respond was the PHCOVOLS and

the citizens of the USAC. The PHCOVOLS were a

organisation that was set up by the government

to monitor any changes to the volcano. This helped

people to plan evacuation plans and response plans.

The USAS was a United States organisation that

joined the Philippine government to prepare, and

get through the eruption. The first response was

evacuating the Aeta people from the mountain

slopes. This changed the Aeta people because they

had been removed from a tradition. As the warnings

signs of a volcanic eruption became greater. The

more that the people were evacuated. Before the

full eruption had occurred on the 12th June 1991

people that lived within a 20km radius of Mount

Pinatubo were evacuated. This was important because

with them responding to the eruption before it //

happened it saved many lives. After the eruption the whole of the Philippines came together to help with the clean up. The Manila city responded positively by taking in refugees who had lost their home and everything that they owned. //

In the Mount Tarawera eruption there weren't any responses until after the eruption. Scientist were sent to study the eruption and why the signs weren't been known of. Many of the families relatives who were killed joined hands and started the recovery of there loved ones bodies. //

One group weaker  
class exploring  
ms

QUESTION  
NUMBER

**Extra space if required.  
Write the question number(s) if applicable.**

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