

THE NEPAL EARTHQUAKE 2015 AND ITS CONSEQUENCES

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Abstract

Nepal is a hilly country located on the southern lap of Himalayas. Its own identity in the world, Mt. Everest is the highest peak in the world. An earthquake is a major demonstration of the power of the tectonic forces caused by endogenetic thermal conditions of the interior of the earth. It is a natural phenomenon. An earthquake originates at the focus, deep inside the earth, and releases huge energy in the form of waves transmitted through the surface layer of the earth. Movement of the earth itself also creates earthquakes. Earthquakes are hard to predict because we know they will eventually happen just not when. Earthquake can ranges in size from those that are so weak that they cannot be felt to those violent enough to loss people and destroy the whole cities.

There are two types of earthquake; Tectonic and volcanic earthquake. In Nepal tectonic earthquake erupted in 25 April and 12 may, 2015 (also known as Gorkha Earthquake), killed nearly 9000 people and injured nearly 22000 people. Its epicenter was east of Gorkha district at Barpak. Due to the eruption of earthquake, hundreds of thousands of people were made homeless with entire villages flattened across many district of the country i. e., Gorkha, Kathmandu, Lalitpur, Bhaktapur, Dhading, Dolkha, Rasuwa and Sindhupalchowk.

Key words

Hilly; Identity; tectonic; phenomenon; epicenter

Introduction

Nepal is a federal republican country located in the south-east Asia. Its own identity in the world, Mt. Everest, the

highest peak in the world, lies in Nepal is the 11th most earthquake prone country in the world. There is limited information about past earthquake in Nepal. According to DP Net Nepal, the first recorded

earthquake took place in 1255 A.D. and one-third population of the Kathmandu valley was killed. The magnitude of the earthquake was around 7.7 Richter scale. The 1934 AD earthquake is the major past earthquake in Nepal. It was 8.4 Richter scale and also known as Great Nepal -Bihar earthquake. It took place on January 16th at 2 PM. Earthquake is a natural phenomenon. An earthquake is a major demonstration of the power of the tectonic forces caused by endogenetic thermal conditions of the interior of the earth (Strahler & Strahler, 1976). An earthquake is the sudden shaking of the earth's surface, ranging from a feeble tremor to wild motion of the ground. It originated at the focus deep inside the earth and releases huge energy in the form of waves transmitted through the surface layer of the earthquake. Earthquakes are hard to predict, because we know they will eventually happen just not when (Maslen, 2015). The earthquake is a form of energy to wave motion transmitted through the surface layer of the earth in widening circles from a point of sudden energy releases the focus (Ritcher, 1935). Earthquake can also trigger landslides and occasionally volcanic activity (Strahler & Strahler, 1976).

There are two types of earthquake: Tectonic and Volcanic earthquake. Tectonic earthquake are associated with faulting and volcanic eruption. Tectonic earthquake are classified in to 3 categories on the basis of depth of focus;

1. Shallow earthquake: Having focal depth is less than 70 km.

2. Intermediate earthquake : focal depth is greater than 70 km and less than 300 km
3. Deep Earthquake: focal depth is greater than 300 km and less than 700 km.

The shallow earthquake with few expiations, are more destructive. The one which occurred recently in Nepal 2015 was a shallow earthquake along a fault line generated by the tectonic movement in the Himalayas.

The 25 April and 12 may 2015 Nepal earthquake (also known as the Gorkha earthquake) killed nearly 9000 people and injured nearly 22,000. The 25 April 2015 Nepal earthquake occurred at 11.56 am Saturday with a magnitude of 7.8 Richter scale and the 12 may 2015 Nepal earth scale occurred at 12.50 pm. Nepal standard time (NST) Tuesday with a magnitude of 7.3 Richter scale. Its epicenter was east of Gorkha district at Barpak and its hypocenter was at a depth of approximately 8.2 km (5.1 mile). It was the worst natural disaster to strike Nepal since the 1934 AD Nepal-Bihar earthquake. The earthquake occurred at Gorkha, Sindhupalchowk, Okhaldhunga, Kathmandu, Lilitpur, Bhaktapur.

Objectives of the Study

The main objectives of the study “the Nepal earthquake 2015 and its consequences” are as follows.

- a) To analyze the consequences of Nepal earthquake, 2015.
- b) To show the impact of earthquake on human life and property and

c) To find the suggestion, recommendation and control measures of earthquake eruption.

Methods and procedure

The topic “The Nepal earthquake 2015 and its consequences” is based on text books or reference books, research articles, magazine, daily newspapers etc. This paper is presented not collecting data but by the help of library use, The Gorkhapatra, The Rising Nepal, news bulletin, national newspaper and self-study . This paper is very important phenomenon in the present study.

Result and Discussion

The earthquake is natural hazard in the earth. The Nepal earthquake of 25 April and 12 may 2015 was very dangerous. Its epicenter was east of Gorkha district at Barpak and its hypocenter was at a depth of approximately 8.2 km (5.1 miles). Thousands of people and animals died due to the eruption of earthquakes. It was the worst natural disaster to strike Nepal since the 1934 Nepal-Bihar earthquake.

The 2015 Earthquake severely affected in terms of human death, injuries and loss and damage of building, public infrastructure and heritages of Nepal. Out of 75 district of the country, it has primarily affected 31 districts. There are seven ‘severely hit’ districts between the epicenter of the two major earthquakes of April, 25 in Gorkha and May, 12 in Dolkha. The Seven ‘crisis hit’ districts include the Kathmandu valley and adjoining districts in the south-east and west. The 2015 Earthquake and the

aftershocks affected about eight million people , almost one-third of Nepal’s Population (NPC,2015) . it took 8962 human lives and 22267 people , damaged houses and important infrastructure but also severely affected the water sources in rural areas.

Nepal had not faced an earthquake of comparable magnitude for over 80 years, 1 million peoples were homeless. Entire villages were flattened across many districts of the country. Buildings which has stood for centuries were destroyed at UNESO World Heritage sites in the Kathmandu valley, including some at Kathmandu Durbar Square, Patan Durbar Square, Bhaktapur Durbar Square, Changu Naryan temple Swambhunath stupa and Bhimsen Dharahara, Geo-Physicists and other experts had warned for decades that Nepal was vulnerable to a clearly earthquake particularly because of its geology , urbanization and architecture.

Consequences of Nepal Earthquake 2015

An earthquake (also known as a quake or tremor) is the shaking of the surface of the earth resulting from the sudden release of energy in the earth’s lithosphere that creates seismic waves. Earthquakes can range in size from these that are so weak that they cannot be felt to those violent enough to toss people around and destroy whole cities. The seismicity or seismic activity of an area is the frequency, type and size of earthquakes experienced over a period of time (Dube, 2015).

At the earth's surface, earthquakes manifest themselves by shaking and displacing or disrupting the ground. Earthquakes are mostly by rupture of geological faults, but also by other events such as volcanic activity, landslides, mine blasts and nuclear tests (Dube, 2015).

Nepal is the eleventh most earthquake prone country in the world (Sati, 2010). Hundreds of thousands of people were made homeless. So many historical heritage buildings, art and architectures destroyed due to eruption of 25 April and 12 May Earthquake, 2015 of Nepal. To date, approximately 9070 casualties and 23447 injuries have been recorded. It is estimated that the lives of eight million people, almost one-third of the population of Nepal have been impacted by this earthquake. Out of 75 districts of the country, 31 districts have been hugely affected with about 2.8 million people displaced.

Although the most important direct shaking effected are not the only hazard associated with earthquakes, other effected such as landslides, liquefaction and tsunamis have due to played important part in destructive produced by earthquakes. Fire are probably the single most important consequences of earthquakes (Dube, 2015).

Impact of Earthquake on Human life and property

Earthquakes impact on both individuals and communities and have social, economic and environmental consequences. The primary effects

of earthquakes are ground shaking, ground rupture, landslide, tsunamis and liquefaction fires are probably the single most secondary effects of environment including surface faulting tsunamis, soil liquefactions, ground resonance, landslide and ground failure, either directly linked to the earthquake source or provoked by the ground shaking (Wikipedia). Some of the common impacts of earth quakes include structural damage to building, fire damage of bridges and a lot of properties and human beings and cattle. Due to earthquakes social effects, economic effects and other effects occurred. Earthquake often caused dramatic changes on the earth's surface. The Gorkha earthquake of 25, April 2015 enormously effected human, socio-economic and other multiple sectors and left deep scars mainly in the economy, livelihood and infrastructure of the country.

Suggestion, recommendation and control measures of earthquakes in Nepal 2015

Earthquakes are natural phenomenon. We cannot tell from the initial shaking if an earthquakes will suddenly become intense on the earth so way. Drop, cover and hold on the immediately stay on your knees, bend over to protect vital organs hold on until the shaking stops shelter if it shifts. No either hold or to you hand and neck with both arms and hands (Dube, 2015).

In the light of the elastic rebound theory it has been discovered that release

of strain could be made by injecting third to lubricate fault planes.

Some suggestions and recommendations are given below.

Stay outside, do not seek shelter in a building away from buildings, bridges, electricity pylons large trees and other things that could collapse or fall keep away from the shores of bodies of water strong shaking.

No-one can control earthquake, although emergency precautions before the quake and security measures during the quakes can be taken prevent damage and loss of life and property. Earthquakes are too powerful to stop or control earthquakes. We can however prevent earthquakes caused by human activates. Earthquakes stop when there is not enough energy to keep them going. The energy released by the sliding fault needs to be enough to overcome the friction holding rocks in place. Once the earthquake comes up against much friction, it will stop. Some precautionary measures are as follows;

- Seek Shelter under stable tables or under door frames.
- If outside, stay away from buildings bridges and electricity pylons and move to open areas.
- Avoid areas at risk from secondary processes, such as landslides, rock fall and liquefactions.

Conclusion

An earthquake is a sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the Earths. Earthquake shakes the

ground surface, can cause buildings to collapse, disrupt, transport and services and can cause fires. Earthquakes are hard to understand and are dangerous to live through human life and property. Earthquakes are frightening and destructive natural disaster. Earthquake occurs mainly as a result of plate tectonics, which involves blocks of the earth moving about the earth surface.

Nepal is the eleventh most earthquake prone country in the world. Nepal sits on the boundary of the two massive tectonic plants that collided to build the Himalayas. April 25, 2015 Saturday's catastrophic earthquake in Nepal occurred 11:56 a.m. with a magnitude of 7.8 Richter scales. Its epicenter was east of Gorkha district of Barpak. A second major earthquake occurred on 12 may, 2015 Tuesday at 12.50 pm with a movement magnitude of 7.3 Richter scale. The 25 April, 2015 Nepal earthquake (also known as Gorkha earthquake) killed nearly 9000 people and injured nearly 22,000. Thirty one districts of Nepal have been largely affected by the earthquake of 2015 and 11 district are mostly affected as Gorkha, Dhading, Kathmandu, Lalitpur, Bhaktpur, Dolkha, Sindhupalchock, Kavreplanchowk, Ramechhap, Nuwakot and Rasuwa districts are mostly affected by the earthquakes. It is estimated the lives of 8 million people almost one-third of the population of Nepal have been affected by this earthquakes (United States Geological Survey (USGS), 2015). Earthquakes of Nepal 2015 destroyed many temples, churches, mosques, art and architecture, collapse due to the eruption of earthquakes.

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