

Major earthquake in sichuan essay sample



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In May 2008, a major earthquake hit Sichuan in the south west of China, it was estimated that around 69 000 to 80 000 people were killed and buildings collapsed with people in them information from an OCR science booklet, a news sheet. In my case study, I will be writing about Should we spend more money on predicting for an earthquake than on preparing a town for an earthquake I will do this by discussing different point of views of people if they agree or disagree with the statement above and use their opinion as evidence. In the end of the case study, I will have made my point clear. What is an earthquake, and what causes it An earthquake is a sudden shockwave called a seismic shock (a fast movement of energy that spreads quicker than sound) which is caused by rocks being under stress by the movement of the tectonic plates at plate boundaries and eventually the stress from the rocks build up and reach breaking point. At that point, the stored up energy is released in the form of shockwaves. 1 Arguments that supports the statement David Petley, who is an executive director of the Institute of Hazard, Risk and Resilience in the University of Durham, wrote an article in The Guardian.

Petley (2012) points out an intriguing argument stating that a successful prediction would greatly reduce the loss of life, if not necessarily the economic damage, by permitting dangerous buildings to be evacuated, tsunami-prone areas to be cleared, and hospitals and rescue teams to be prepared and on standby. 2 From this statement it appears that The Guardian believes a successful prediction prevents millions of lives dying or injured by an earthquake, countries wont be economically damaged as houses can get ruined by earthquakes, if people do get injured hospitals and

rescue teams will be ready on standby. However, whether David Petley, from The Guardian, is in favour of prediction will be discussed later on. Dr Michael Blanpied, who serves as an Associate Coordinator of the USGS Earthquake Hazards Program, pointed out that We can create earthquakes under controlled conditions in a laboratory, or observe them close-up in a deep mine, but those are special situations that may not look very much like the complicated faults that exist at depth in the crust where large earthquakes occur.

It is interesting to note that he is saying that we can predict earthquakes but in special situations. 3 Major earthquakes can be predicted months in advance, argues UCLA seismologist and mathematical geophysicist Vladimir Keilis Borok. 4 So he is saying that if we do predict earthquakes in months in advance, countries have enough time get ready and get resources to help them, for example they can get people in their country to get a grab bag which they have to put resources so if there is an earthquake they can go someplace else and not get effected by the earthquake. On the other hand, Blanpied argued that I am dubious that we will ever be able to predict the time of large earthquakes in a useful way. However, we can predict a lot of things about earthquakes that are useful, other than the time of their occurrence, and we can use that knowledge to make ourselves and our communities resilient. 5 Arguments that against the statement Some people might be against David Petleys statement regarding successful predictions leading to a greater loss of life.

However, after reading the full article it is clear that it has an anti-prediction stance stating that an inaccurate earthquake prediction is likely to have

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worse consequences than if there had been no prediction at all. 6 If we were to plan in advance, we could improve the infrastructure by constructing earthquake-proof buildings. Consequently, if earthquakes do happen people will be protected. For example the Transamerica Pyramid in San Francisco, which was built in 1972, is famous for its architecture and the diagonal trusses at its base protect it from both horizontal and vertical forces. 7 In the following paragraphs, I will point out how the argument in favour of prediction is flawed. According to David Petley, we should be clear about what is meant by prediction. He pointed that in this context we mean that in advance of an earthquake a correct estimate is made of its magnitude, location and time of occurrence therefore a useful earthquake prediction needs to include all three. 8 Petley argued In essence this is appealing, but the practical problem lies again with uncertainty in the prediction. Lets say the prediction was perfectly correct in terms of the time and the magnitude, but was 200 kilometres out for the location.

This could have disastrous consequences if the population has been moved from the area of the prediction into the area that is now affected. This could (and probably would) make the impact of the earthquake far more serious than if no prediction had been made. 9 Moreover, it is important to note that although Michael Blanpied pointed out that it is possible to predict earthquakes, he does carry on to argue that we cannot create earthquakes unless in special situations. He also asserts that in order To predict earthquakes, we would need to have a good understanding of how they occur, what happens just before and during the start of an earthquake, and whether there is something we can observe that tells us than an earthquake

is imminent. So far, none of those things are known. 10 He points to a previous earthquake, pointing out that In the 1980s the USGS Earthquake Hazards Program predicted that, within 5 years, there would be a magnitude 6 earthquake on the San Andreas fault near the town of Parkfield but even though many types of instruments were deployed in the area to observe the earthquake and also to try to predict it based on various types of precursory signals the earthquake didn't happen until 2001, which put cold water on the idea of using the timing of past earthquakes to precisely predict future ones.

Also, there were no observed precursors, which dimmed the hope that it would be possible to predict earthquakes from observing the ground. 11 This shows that in the prediction versus preparing debate, that the techniques for predicting in order to monitor earthquakes are not 100 per cent reliable.

Conclusion In this case study, I have shown how despite a lot of research in prediction techniques, such as by mathematical geophysicist Vladimir Keilis Borok, as well as Blanpied, who believes we can predict a lot of things about earthquakes that are useful, other than the time of their occurrence, and we can use that knowledge to make ourselves and our communities resilient. 12 However, Blanpied himself pointed out that What we need is a prediction method that works better than random educated guessing, and despite decades of work on this problem, so far nobody has demonstrated that such a method exists and works. 13 The unreliability of prediction techniques was also pointed out by Jason Zasky (2011), writing for Failure Magazine, who argued that Scientists still have a long way from being able to predict when earthquakes will strike.

As a result, I believe that many of the prediction techniques used to monitor earthquakes in the past have not been fully reliable. I strongly believe that planning and preparing for an earthquake is therefore very important, such as investing in good infrastructure as well as following guidelines for those who live in an earthquake zone for instance the Education for Hazards have a health and safety procedure to follow if you are in earthquake zone depending on whether you are indoors or outdoors. To conclude, even though some may believe that a successful prediction would greatly reduce the loss of life, if not necessarily the economic damage, by permitting dangerous buildings to be evacuated, tsunami-prone areas to be cleared, and hospitals and rescue teams to be prepared and on standby, I believe that because of a lack of reliable prediction techniques, successful planning and preparation will be a better method for reducing the loss of life and as David Petley, from The Guardian, pointed out an inaccurate earthquake prediction is likely to have worse consequences than if there had been no prediction at all.

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