

Handout 7.1: Homework Assignment 7.1

Using the Internet or other sources available to you, find three reports or articles on an earthquake disaster for the following cases:

1. An earthquake case history where the damages were clearly increased due to the amplifying effects of poor soils
2. An earthquake case history where the damages were largely associated with the effects of soil liquefaction
3. A case where the “cascading” effects of earthquake disasters were clearly illustrated – that is, find a case where the secondary and tertiary effects caused more problems than the primary effects of ground shaking associated with the earthquake itself.
4. A case where lives were obviously saved due to the day and time of day that the event occurred.

Each of these cases should be different from those presented in the lecture to illustrate the various effects (i.e., do not cite the 1964 Niigata Earthquake for soil liquefaction effects because this was the case presented in the lecture). For each case, prepare a brief (3/4-page) informative abstract that summarizes the specific aspects of the project related to each of the issues above. (Note that an *informative* abstract contains important ideas and conclusions from the complete article. A *descriptive* abstract, on the other hand, simply states what the article is about in terms of its subject and scope). Be sure to properly cite your source(s).

Handout 7.1: Homework Assignment 7.1 (Answers)

Using the Internet or other sources available to you, find three reports or articles on an earthquake disaster for the following cases:

1. An earthquake case history where the damages were clearly increased due to the amplifying effects of poor soils.

The 1985 Mexico City Earthquake stands out as the most infamous example of soil amplification. The event was centered more than 250 miles away from the city that was underlain by deep soft sediments that amplified motions greatly and caused tremendous damage. Also, the 1999 Kocaeli Earthquake in Turkey was a prime example of soil amplification where the shaking intensity in the town of Adapazari, underlain by deep soft sediments, was much higher than surrounding regions. This town area was devastated and was a major source of lives lost in the event.

2. An earthquake case history where the damages were largely associated with the effects of soil liquefaction.

The 1995 Kobe, Japan Earthquake was a case where liquefaction was chiefly associated with much of the infrastructure damage, especially liquefaction of loose sand fills on man-made islands and ports.

3. A case where the “cascading” effects of earthquake disasters were clearly illustrated – that is, find a case where the secondary and tertiary effects caused more problems than the primary effects of ground shaking associated with the earthquake itself.

Almost all events in well-developed countries have a significant portion of losses due to secondary effects. The 1906 San Francisco event, although discussed in the lecture is a prime example as fire was the main concern. This was nearly repeated in the 1989 Loma Prieta Earthquake.

4. A case where lives obviously were saved due to the day or time of day that the event occurred.

The 1989 Loma Prieta Earthquake occurred at 5:30 pm and many people were not yet in their homes. In fact, many were at the World Series baseball game that was scheduled to begin later that evening – this event obviously saved many lives.