

Abstract

The study of the socioeconomic effects of earthquakes, volcanoes, and tsunamis has become even more important following recent natural disasters that have occurred. The large socioeconomic effects from the damage caused by natural disasters have attracted attention to the topic from the media and general public. These natural disasters include the 2010 earthquake in Haiti, the 2010 eruption of Eyjafjallajökull in Iceland, and the 2004 Indian Ocean tsunami. It is important to understand these effects, as well as their causes, in order to prepare for the future.

This thesis covers a study of the general socioeconomic effects of earthquakes, volcanoes, and tsunamis. First, a basic understanding of geology and seismic waves are provided as a background to what causes these types of natural disasters. The measurement of seismic activity, which includes both qualitative and quantitative scales, is explained along with the equipment used for direct measurement. This is followed by chapters that describe earthquakes, volcanoes, and tsunamis. Each of the respective chapters explains what causes the natural phenomenon to occur, the hazards that are involved, and ways to mitigate the hazards. Case studies of the respective natural disasters are also provided to demonstrate the damaging effects of the natural disasters. Finally, an overview of the socioeconomic factors that are involved with natural disasters is presented. This includes social, infrastructure, and economic factors. The socioeconomic effects of well known and recent occurrence of an earthquake, volcano, and tsunami are examined. To conclude, the threat of a future natural disaster is discussed. Supplemental material, presented in the appendices, includes various intensity scales, graphical calculation of Richter magnitude, a volcanic explosivity index table, and tables of the effects of various natural disasters.