

# Illustrate hazards essay sample



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For several generations, Southern California was seen as America's promised land. Now it seems that Los Angeles is cursed by natural disasters. Los Angeles is prone to a number of physical hazards including earthquakes, brush fires, flood, drought and smog. The lifestyle and economic activities of the inhabitants create or worsen some of these. Los Angeles, with a population in excess of 13 million, has become known as 'Hazard City'. A hazard created by the physical environment is earthquakes. Los Angeles has been built over a myriad of transform faults.

Although the most violent earthquakes are predicted to occur at any point along the San Andreas fault between Los Angeles and San Francisco, earth movements frequently occur along most of the lesser-known faults. A recent earthquake to have had a big effect on Los Angeles occurred in February 1994. It registered 6.7 on the Richter scale, lasted for 30 seconds, and was followed by aftershock lasting several days. The quake killed 60 people, injured several thousand, caused buildings and sections of freeways to collapse, ignited fires following a gas explosion, and left 500 000 homes without power and 200 000 without water.

An example of a hazard from the modified physical environment includes photochemical smog. The name originates from the fact that most of the less desirable properties of such fog, result from chemical reactions induced by sunlight. Emissions from the many cars and industrial concerns, when combined with the fog to which the basin is naturally high prone, create smog. Smog appears 'cleaner' than fog produced by the burning of coal in the sense that it does not contain the very large particles of soot. However,

the eye irritation and damage to plant leaves that it produces still make it unpleasant.

Photochemical smog occurs particularly where there is large-scale combustion of petroleum products, as in cities dominated by the motor car, which applies to Los Angeles. A portion of the exhaust emissions is converted into harmful substances like ozone by the effects of sunlight. Their especial notoriety in Los Angeles is due to a meteorological setting dominated for long spells by subtropical anticyclones with weak winds, clear skies and a subsidence inversion, combined with the general topographic situation partially bounded by hills and the enormous vehicle density of the city.

Smog in Los Angeles can be a major health problem. During the 1990 Olympics there was great concern for athletes competing in the longer-distance races such as the marathon. Another example of a hazard from the modified physical environment is the occurrence of brush fires. Much of the Los Angeles basin is covered in drought-resistant (xerophytic) chaparral, or brush vegetation. By the autumn, after six months without rain, this vegetation becomes tinder dry. Santa Ana's are hot dry winds, which owe their high temperatures to adiabatic heating as they descend from the mountains.

Their heat and extreme low humidity cause discomfort to humans and increase the dryness in vegetation. A careless spark or electrical storm can prove sufficient to set off serious fires. In September 1970 a fire, 56km in width, swept down from the Santa Monica Mountains into Malibu. 72 000 hectares of brush and 295 houses were destroyed together with the loss of

three human lives. In addition to these physical hazards there are many others related to the social and economic composition and life-styles of the area, such as the racial riots in Watts in 1965 and in central Los Angeles in 1992.

Watts became known as a deprived area in the 1960's when riots occurred as a consequence of discrimination over housing, education and employment. The situation has altered relatively little since then. The riots in 1992 occurred following the acquittal of police officers that had beaten a black motorist. The riots, arson and looting that took place were the worst on record. A death toll of 54 was accompanied by more than 5, 000 fires, serious damage to 10, 000 buildings, property damage of \$1 billion, and 14, 000 arrests.

The riots were a signal that problems in inner-city slums had not diminished. There are methods used to try and prevent certain hazards from causing large amounts of damage, but these methods sometimes contribute into causing a further hazard. For example, the use of high-pressure sprinkler systems to lower fire risk must be carefully monitored so that it does not lead to the soil erosion, which often occurs in combination with floods when a slope is laid bare by fire.

Seepage from sprinklers and irrigation channels (needed to counter problems of drought and to meet the enormous demand for domestic use of water), plus seepage from swimming pools associated with the people's life-style, removes the saline minerals which act as an adhesive to the quicklays on which many recent residential suburbs have been built. Once removed

the clays become unstable and may collapse during an earthquake, leading to catastrophic landslides on built up areas. Although, within fairly broad limits, areas liable to suffer from earthquake damage can be identified, predicting the timing of an earthquake is far harder.

It has been found that the decay pattern of waves produced by small tremors can give clues. A wave trace from a small tremor which is not going to be followed by a major slip fades slowly. This changes when stresses within the rocks are high, in this case the trace rapidly dampens. However, until further progress can be made people must rely on coping with earthquakes that occur without warning. Buildings can now be designed to withstand a certain degree of motion but it is not economically possible to build a completely earthquake proof structure.

Old tall buildings that have not been built to earthquake resistant standards pose the biggest threat. The choices are to strengthen the structure, reduce the intensity of use or demolish. All three solutions are expensive. For future buildings, planning can help. Areas of greatest risk could be avoided, land zoned as high risk could be used for low density, earthquake resistant designs could be used, and insurance could be obtained. After a hazard has occurred, the public and voluntary relief agencies repair the damage and help restore quality of life.

Public movement, pressure groups and interest groups monitor new products and processes that warn and inform the population about the hazard.

Pressure is put on the government and businesses for action to avoid the hazard in the future. Various business organisations may focus their

activities on such hazard prevention; it may be monitoring systems to measure air pollution. Business may also be involved in insuring people and property against hazard, while public and voluntary organisations may meet the cost of hazard relief by providing compensation or aid.

There are also the public movements, which direct the government's attention to particular hazards. There are the consumer movements in Los Angeles with its demands for greater car safety and the removal of lead from petrol. There is potential conflict between those living in the area and those visiting from outside whom in their ignorance may trigger off the event. These visitors have to be informed and warned. Information, preventative controls, management and relief all cost money. There is conflict as to whether those who live in the area should bear all the costs or whether those outside the area should also pay.

The Government may play down a potential hazard as it may place public order ahead of public safety and see the disorder produced by the realisation of a hazard as presenting more danger to life and property than the hazard itself. Although people know about the threat of multiple hazards in Los Angeles they still continue to live there. This maybe because they do not have the money needed to migrate elsewhere, or have family roots in the area. People may not want to remain in these conditions, but because of their circumstances, are forced to do so.