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Mitigation Strategies Brief: Mount St. Helens 1980 Eruption

The Mount St. Helens' volcanic eruption remains one of the most deadly in history. Mount St. Helens is located in Washington state, and after a string of earlier, smaller explosions, the volcano erupted on May 18, 1980. The eruption killed at least 57 people, and the resultant blasts, ash, and mudflows destroyed hundreds of square miles of the surrounding environment and infrastructure. In terms of preparedness and response, there were a number of shortcomings surrounding this disaster. Local law enforcement did a poor job of dissuading sightseers, and the state government repeatedly delayed the expansion of the no-entry zone. Moreover, FEMA was in its infancy when the catastrophe took place, having only been in existence for one year. The aftermath of the eruption, however, led to advancements in the field of volcanology. Volcano sciences and technology are much more developed, and the field as a whole is more interdisciplinary, with experts across various environmental sciences working together collaboratively.

Multiple forms of structural and nonstructural mitigation strategies were employed during the eruption, with varying degrees of success. Regarding structural mitigation, most strategies took place *after* the explosion. Some forms of structural mitigation include the construction of dams, and levees along the Cowlitz River; the use of dredges to clear surrounding waterways; and expert monitoring of Mount St. Helens when it re-entered its active period. Regarding nonstructural mitigation, the utilized strategies included a state of emergency declared by then-Governor Dixy Lee Ray, and the establishment of restricted zones in which civilians were not permitted entry. Though the damage from Mount St. Helens was severe, the eruption served as a catalyst for numerous developments. The Washington State Emergency Management Division now possesses a Volcanic Region Coordination Plan for Mount St. Helens and Mount Adams. To counteract the subsequent debris and flooding in the years following the eruption, the Portland District Corps of Engineers built pumps, a major diameter tunnel, and a sediment retention structure along Spirit Lake and the North Fork Toutle River. Stronger volcano forecasting technology has been developed over the last fifty years. Volcano scientists now work more closely with geologists and seismologists, among others, to get a more comprehensive understanding of volcanic activity and trends. This leads to stronger predictive power and, resultantly, much earlier warnings to the general public for more effective evacuations.

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