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Dealing with Volcanic Ash and Other Low Probability Events

Howard Kunreuther

People have a difficult time dealing with uncertainty, particularly for events that are perceived as highly unlikely to occur. The following two simple strategies are often used: (1) Until a disaster strikes *it will not happen to me.* (2) Immediately after a disaster, focus attention on the consequences.

I found myself behaving in this fashion after arriving in London shortly after the Eyjafjallajökull volcano in Iceland began spewing ash on April 14. At a meeting the following morning, someone asked (perhaps in jest): "Are the airlines insured against volcanic ash?" Everyone in the room (except me) started laughing. It was only then that I learned about the volcano and the flight disruptions and was told that my flight from Philadelphia was one of the last ones to arrive in the UK. My initial thought was "How lucky to be able to get into London just in the nick of time." Everyone at our meeting was convinced that my flight on Sunday would take off as scheduled. Over the next couple of days, I treated the problem as below my threshold level of concern by assuming I would be able to leave London as planned. My only action in this regard was to contact my travel agent to discuss back-up arrangements should my flight on Sunday be cancelled. By Saturday, the situation was sufficiently serious that I found myself focusing on the consequences of the event---my missing classes during the final week of the semester---but felt totally stymied by having no course of action except to wait and see what transpired. Leaving the UK for the continent was extremely difficult, and my travel agent informed me that there were no flights that he could book for me from any other European city until the following Thursday. Fortunately, I was on one of the first planes out of Heathrow on Wednesday April 28th, which mysteriously was half empty, even though the crew told us it had been fully booked. We arrived in Philadelphia 45 minutes early because there were few other planes flying out of London and all the other international flights to the City of Brotherly Love had been cancelled.

The flight disruptions due to the Iceland volcano eruption might have been avoided if the airlines had taken a lesson from Alaska Airlines who had to cope with volcanic ash from Mount St. Helens 30 years ago. After its planes were grounded for days by the eruption in Washington state, the airline developed an effective way to navigate safely around volcanic ash by using computer models to predict the path of ash clouds. It will be interesting to see if the airlines are now more effective in routing flights from Europe in the coming days given a new plume of low-altitude ash that has floated eastward over Spain and south-eastern France during this past weekend.

The current oil spill in the Gulf of Mexico has also brought back memories of a severe oil spill off Santa Barbara, CA in 1969 that shut down offshore oil drilling along the Atlantic and Pacific Coasts. Twenty years later, Congress was on the verge of allowing drilling in Alaska's Arctic National Wildlife Refuge when the Exxon Valdez hit the rocks. An open question today is whether plans for offshore drilling will be shelved, and if so for how long?

These two examples illustrate that crises provide opportunities for undertaking steps to avoid another disaster. The challenge is to overcome our natural tendency to assume that the disaster will not happen again. How can our leaders avoid a NIMTOF (Not in My Term of Office) philosophy when deciding whether to undertake protective measures?

A starting point is to stretch the time horizon when characterizing the likelihood of an event occurring. For example, a 1 in 100 chance of a serious flood occurring next year means that the likelihood of experiencing at least one such flood over the next 25 years is greater than 1 in 5.

But presenting information alone will not do the trick. Data on the likelihood and consequences of low-probability, high-consequence events requires public sector action, such as new regulations. Long-term contracts such as multi-year insurance policies with premium reductions for those who invest in protection coupled with multi-year loans to spread the costs of these measures over 5, 10 or 20 years can encourage property owners to take action now. The insurance premium reductions are likely to be greater than the annual loan payments, making the measure financially attractive.

Strategies need to be designed so that legislators, potential victims and other key stakeholders pay attention to future disasters that are below their threshold level of concern. Then they need to focus on what steps should be taken today rather than hoping the catastrophe will not occur.

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