CARIBBEAN CASE STUDY REVEALS HOW TO MANAGE VOLCANO RISK

Speed read

- Advice on the threats active volcanoes pose should admit to its limitations
- Involving social scientists' broader view of risk can also improve advice
- The study examined the 15 years that Montserrat's volcano was active

[SANTIAGO] Volcanologists advising governments on active volcanoesshould acknowledge the uncertainties in their risk estimates and work with social scientists to more effectively communicate the threat to local people, concludes a case study from Montserrat, in the British West Indies.

Amy Donovan and Clive Oppenheimer, geographers from the University of Cambridge, United Kingdom, studied the interaction between science and policy over the 15 years that the Soufriere Hills Volcano on the small Caribbean island remained active.

The Soufriere volcano first erupted in July 1995, spouting lava until March 1998 and then sporadically from November 1999 until February 2010. There were no eruptions on record there before this activity and the capital city, where most islanders lived, was on the volcano's flanks.

Two-thirds of the population left in the three years after the first eruption. In 1995, an observatory was set up to monitor the erupting volcano and, from 1997, a team of international scientists carried out regular risk assessments.

"Volcanic risk assessment was really pioneered there," Donovan tells*SciDev.Net.*

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Amy Donovan and Clive Oppenheimer, University of Cambridge

The paper is based on the analysis of scientific reports on the volcano and interviews with local people scientists and policymakers carried out between 2008 and 2010.

It found that when the volcano first erupted, there was scarce information about the event’s magnitude and likely progression. Also, there were no institutions providing scientific advice or dedicated government bodies to manage the resulting crises. And recommendations from a 1980s report that could have helped plan in advance for an eruption were largely ignored.

It adds that the volcanic crises would have been easier to manage had a volcanic observatory been in place prior to the eruption and scientists working there had been known to local officials and the public. It also highlights the importance of establishing an advisory mechanism that can kick-in when an emergency occurs.

The study also says it is important to make clear the limitations of the science. This was noted early in the Montserrat eruption and was appreciated by local people interviewed as part of the research, it says.

“It is important to put numbers on risk, and acknowledge the uncertainties on the numbers — but it is also important to discuss different types of uncertainty,” the study says. “Frequently, the uncertainties on scientific risk assessments are so high that people do not take them seriously (if they look at them!), and this can discourage scientists from [writing] such reports.”

Another conclusion, says Donovan, is that scientists must be clear about the structure and remit of institutions involved in managing the volcanic crises and about their legal position, to avoid the fate of the Italian scientists convicted of manslaughter for underplaying the risk of an earthquake at L’Aquila, Italy.

She also advises volcanologists to involve social scientists in the advisory process.

“Social scientists have a much broader view of risk than is generally taken by physical scientists in risk assessment, who may reduce it to a probability, sometimes with a high level of uncertainty,” she tells*SciDev.Net.*

“Social science could aid, for example, in the framing of questions used in risk assessment, providing information about the population and its expectation, and advising on how to communicate risk assessment,” she adds.

Angelo Castruccio, a geologist at the University of Chile, tells hat one of the main problems the Montserrat study identifies is the limited mutual understanding shown by all those involved in the upheaval the volcano caused.

“The inhabitants did not understand that volcanology is, generally speaking, an inexact science,” he says. “Or scientists and authorities did not understand fully the ways and habits of the people.”

The lessons he derives from the case study are that scientists, authorities and local people must work to understand each other as clearly as possible; each group must have clearly defined functions and limits; and measures must be in place in case there is a crisis.

Source : http://www.scidev.net/global/disasters/news/caribbean-case-study-reveals-how-to-manage-volcano-risk.html