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Guatemala Fuego Volcano Eruption: A Case Study

Introduction

The eruption of Guatemala's Fuego volcano in June 2018 resulted in the evacuation of 31,000 Guatemalans, at least 15 injuries, and at least 99 deaths.¹ The events leading up to the eruption revealed flaws in emergency preparedness and led to international funding to increase volcano monitoring capacity.²

Facts of the Case

On June 3, 2018, at approximately 18:00 GMT³, Guatemala's Volcán de Fuego, or Volcano of Fire, erupted, releasing an ash plume reaching 14,763 feet,⁴ and sending flows of pyroclastic material into nearby towns of San Miguel Los Lotes and El Rodeo.³ While the volcano is located in the Ring of Fire and has a long history of previous eruptions, the 2018 eruption led to more fatalities than ever previously recorded.³ The total economic loss caused by the 2018 eruption is \$219 million or Q1,635 million quetzals.² Direct damage accounts for 56.6% of the cost, while opportunities sacrificed due to immediate impacts account for 28.6% and loss in infrastructure accounts for 6.2% of the total.² Of the infrastructure cost, transportation accounts for nearly 70%, which is largely attributed to the removal of debris and damage caused to National Route 14.²

Epidemiological aspects of the event

As stated above, the eruption led to at least 99 confirmed deaths¹ and 15 injuries, including 12 children who suffered severe burns.⁴ The majority of deaths and serious injuries affected Guatemalans living in villages on the slopes of the volcano, specifically attributed to the pyroclastic flow and clouds of debris.³ While the World Bank conducted a forensic analysis of the disaster risk, formal data on short-term and long-term health effects such as the number of burns, reported respiratory illness from volcanic ash inhalation, mental health impacts, and loss of function due to trauma are not readily available.

Management of the event

Accounts report that evacuation notices reached resident Guatemalans with little to no warning. El Rodeo resident accounts reported the country's disaster agency sent pickup trucks with workers "yelling at people to leave." However, at the time of their arrival, "the lava was already [t]here."⁵ Of the residents who were reached, many chose to shelter in their homes due to a lack of proper knowledge of pyroclasts and the risk associated with their settlements.² Video footage of people gazing at the pyroclastic flow traveling down the mountain demonstrates the lack of awareness of its danger and how fast it spreads.² A positive, proactive response to the ash produced by the eruption, which reached the capital of Guatemala City (25 miles from the explosion), was the closure of Guatemala's international airport to avoid loss of life due to unsafe conditions in terms of sky visibility.⁴

Communications of the Event

Communication channels between scientists and local and national authorities were insufficient, resulting in delayed evacuation messaging.² Authorities warned Guatemalans not to use roads close to the volcano, to ensure drinking water was not contaminated, and warned of the lingering threat of mudslides containing volcanic material.⁴ However, how and when those messages reached the public is unclear. The World Bank Forensic Report noted a documented delay in public messaging attributed to suboptimal monitoring conditions given rainy and cloudy conditions, improper reporting capacity due to a lack of available volcano scientists, and insufficient communication channels.²

Summary & “Take Away” Message

While emergency preparedness and evacuation plans would ideally include considerations to evacuate special populations, including the elderly and those with physical or cognitive disabilities or impairments, the threat of danger must first be conveyed to the public. The lack of sufficient community outreach is evident in the public response during the 2018 eruption. Guatemala must build and support efforts focused on educating the public about the threat posed by volcanic eruptions and how to respond in such scenarios. Additionally, special consideration should be given to routes of evacuation in emergency situations as well as consideration to building and rebuilding on Volcán de Fuego. Emergency communication channels should be strengthened and tested regularly to ensure timely messaging to the public.

References:

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