

Using Technology to Monitor Natural Disasters and Earthquakes

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Technology and the Monitoring of Natural Disasters

Natural disasters affecting the different parts of the world are, in most cases, found to be caused by natural phenomena. Modern technology has, in the recent past, given us the opportunity to know prior, where the disasters will hit and the type of catastrophe it will be. This has been of great help to the people since it provides time for preparation for the disaster and gives the leaders in those areas the ability to issue warnings to the residents, in addition to providing help whenever necessary. This is why, in most countries, there are disaster management strategies and appropriate planning for such situations just in case they arise, individuals affected get safety, and in case of casualties, the injured people are helped.

Earthquake Risk, Technology Access, and International Cooperation

Earthquakes are one of the major catastrophes in the world, and they have proven to be the most deadly in the history of disasters. With the knowledge that earthquakes happen all over the world, earthquakes range from small to large. Small earthquakes are often not felt by human beings when they happen since they have a small magnitude that is more or less significant to their results in the world (Bradford, 2013). Big earthquakes are always dangerous and destructive since they have stronger magnitudes that can cause great damage to the structures on the land. For such circumstances, technology has intervened to come up with programs able to monitor earthquakes by giving warnings to the areas under threat with the affected population just in case it comes to happen. Even though earthquakes happen all over the world, research shows that some countries are more often affected than others (Woods, 2017). Countries that always experience earthquakes include Japan, Indonesia, and other countries along that seismic line. Some websites on the internet have proved to be interesting when it comes to monitoring these seismic activities that cause earthquakes, such as www.iris.edu.

The above-mentioned website provides a layout not only for one country but also for the entire universe. It gives detailed information on the activities that have occurred giving information on the latitude, magnitude of the earthquake, depth, region, and longitude (Bradford, 2013). The other

resource with such information over the internet is Earth Alerts. Earth Alerts is a window-based application that gives one an opportunity to monitor all-natural calamities all over the world in real time. Notification alerts, besides images and reports, give the user an opportunity to look at the natural calamities as they occur despite the location of the area being affected. Earthquakes can be monitored in different ways with different instruments. Instruments like creep meters, pore pressure monitors, tilt meters and manometers are all used by scientists to monitor earthquakes (Woods, 2017). Combining political ramifications with technology, developed countries should be in a position to give suggestions on the instruments they use in monitoring and tracking earthquakes so that even more lives can be saved in such countries. Lifesaving information on catastrophes' should always be in the public domain to help save lives since that is the only way technology can affect our societies directly. Earlier warnings telling people to evacuate and find shelter in safer places have, in the past, been of great importance to society.

Providing a common level ground for technology on natural calamities will give the less developed countries an opportunity to cope with the technology in these advanced nations, and sooner, they will be able to acquire these machines and help in their planning for their natural catastrophes (Bradford, 2013). This will take them to a position where they can monitor their own earthquake activities and be able to help in cases where calamities are expected. Tools and tips for dealing with natural disasters such as earthquakes are always made ready in preparation for an occurrence predicted by technological devices. Some of the tips for such calamities listed by OSHA include finding a safe place away from places experiencing these catastrophes. Cover and practice drop were holding on to safer grounds until the safe place you are on stops shaking, and then look out for fires. In places of buildings with elevators, never use the elevators during this time. If you are outside the house, stay out and do not move until everything stops, then inform plan co-workers, get trained first aid personnel for the casualties and discuss everything with the earthquake management workers (OSHA, 2013).

Earth Structure and the Causes of Seismic Events

The ground we stand on is the earth's crust, and it varies in depth from 10km beneath the oceans to around 30km in the continental plates. Under the crust is a region known as the mantle, which consists of molten rocks, also referred to as magma. In the continental plate boundaries, volcanic vents, once in a while, may open up, making magma and hot gases from beneath the earth's surface come out to the surface (Bradford, 2013). Despite the fact that the earth's mantle is usually solid, the hot magma still creates liquid pockets, which can escape to the surface through the fault lines. When it reaches the ground, it is called lava and not magma anymore. Lava, in most cases, has different viscous levels, with the least viscous lava creating shield volcanoes. Highly viscous lava flows downhill for long distances, creating gently sloping volcanoes. They end up creating cone-shaped volcanoes.

With the passing of time, geographical transformations, as well as global climatic changes, are happening at a very rapid rate. Further, natural disasters, in most cases, are instigated by the

occurrence of climatic transformations on Earth (Bradford, 2013). The ordinary processes of the earth are the main factors that affect the earth, hence causing natural disasters like tsunamis, hurricanes, floods, tornadoes, volcanic eruptions, and cyclones. There are various natural phenomena that are typically considered to be responsible for natural disasters. Therefore, this paper seeks to identify the different natural phenomena which are typically responsible for natural disasters, analyze how these phenomena are monitored as well as identify the political ramifications that disaster-preparedness technology causes between more-developed countries and less-developed nations (Woods, 2017).

The studies conducted over the years show that there are numerous frequent natural transformations within the earth's planet, which can result in many different natural disasters and are responsible for creating huge losses to lives, economic losses, injuries and environmental losses. Moreover, the natural disasters remain common in the undeveloped and developed nations (Bradford, 2013). There are various undeveloped countries that are mainly affected by their inability to resist natural disasters or take cautionary measures to avoid the effects of the disasters on the population and economy of a country. Nevertheless, the developed nations have implemented technologies to forecast.

Volcanic Monitoring and Disaster Information Systems

Volcanoes are always monitored through the use of different tools; sometimes, these tools may be applied at once, and in most cases, simply some of the tools can only be applied. The various monitoring techniques applied to watch volcanoes are ground deformation, remote sensing, hydrology seismicity, gas, and geophysical measurements (Woods, 2017). It is important to recognize that when a volcano starts to showcase new, certain unusual signs of movement. Thus, the monitoring information helps people answer critical issues necessary for the assessments and then immediately communicate judicious details concerning volcanic hazards. For instance, before the 2005 movement at Mount Saint Helens, the monitoring apparatus recorded a substantial rise in earthquake activity. Researchers then quickly assessed other monitoring information such as ground deformation, gas as well as satellite imagery to measure whether magma or somewhat fluid was indeed flowing towards the surface.

Going by the history of the volcano as well as the examination of the monitoring information, we could determine the kind of materials that should be flowing towards the surface. Additionally, the probable magma, as well as the composition of a fluid, enabled us to assess the types of hazards that could occur (Department of Economic and Social Affairs, 2002). Thus, the probable sorts of dangers assisted in demining timely warnings, which are needed to prevent deaths and loss of property. For instance, countries that have been affected by volcanic activities include Mexico, Indonesia, and Iceland, among many others. Thus, the political implications regarding the use of technology in a more or less developed nation have stirred controversy. A number of the nations that are normally affected by the volcanoes include the regions of Iceland, Spain, North and South America, Mexico,

Greece, and the Democratic Republic of Congo. According to (), the political consequences that the technology may have on the less developed and the more developed nations might be a big problem.

The Department of Economic and Social Affairs provided a lot of information regarding volcanic activities and their impacts on societies. If the recommendations from the Economic and Social Affairs department are well implemented, then people will begin to see a lot of positive changes (www.johannesburgsummit.org). As a result, this can cause tension between developed countries and developing nations. Each nation should take the right precautions and give its people warnings to ensure people do not lose their lives and property. The developing countries lack the appropriate equipment to apply so that they can give warnings to their people. Nonetheless, less developed nations should use technologies to assess volcanic activities so that they can warn their people appropriately. The only thing they may need is the equipment that is necessary to help read and interpret the activities of volcanoes (Woods, 2017).

Preparedness, Public Warning, and Conclusion

Overall, nations are expected to be disaster-prepared and warn their people of imminent disasters in order to prevent the loss of lives and property. There is a need for adequate information dissemination about these dangers. A tsunami can be described as a giant wave that is created by an underwater earthquake as well as a volcanic eruption. The other name for Tsunamis is tidal waves, although this not a precise description since the tides have very little impact on a massive tsunami waves. The manner Tsunamis are assessed entails the use of a DART buoy method that are set in place, remain monitored while relevant information is given concerning the water conditions.

This system of buoys is the main resource for the monitoring of tsunamis and any other irregular activity within the oceans. Indeed, they can o feedback various activities within the ocean to the satellite, which is then transmitted as well as received thereby giving a notification if required to the persons who can be affected (Woods, 2017). Thus, this may have certain political ramifications since this goes alongside another natural disaster. If a developed nation has funds as well as resources, when a less developed developing nation does not, it stirs a lot of issues with the developing nation because the lives of the people are lost irrespective of the situation. The US military responded to the 2004 tsunami in the Indian Ocean. Their response had a robust strategic impact on Indonesia. Indeed, they made far-reaching modifications in their planned approach to humanitarian assistance.

In summary, it is important for nations to adequately prepare and inform their citizens of imminent disasters. People should be adequately informed about the effects of disasters like tsunamis and volcanic eruptions. Giving advanced warning saves lives and loss of property. Moreover, technology has made it quite easier to assess the impact of volcanic activities and made information available. There should be Tsunami preparedness strategies for any eventuality. . This will give people an opportunity to evacuate the dangerous place and move to a more secure place. The people need to know whether the places they live in have potential tsunami hazards.

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