Chapter 3
Complications in Natural Disasters

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ABSTRACT

Natural disasters are events that occur as a result of environmental risk. Natural disasters may have significant consequences for millions of people and families affected once a year. Natural catastrophes are destructive, affecting a great number of people each year. This abstract explored the effects of such disasters, including humanitarian, facility, wellness, economic, social, and environmental aspects. Furthermore, the amplification of natural disasters by climate change adds another degree of complication. To address these problems, a comprehensive, coordinated strategy including governments, non-governmental organizations, and the international community is required, with a focus on preparedness, early warning systems, and sustainable development practices for effective mitigation and response. To predict natural disasters, several AI and machine learning technologies were created. In this chapter, the authors will discuss the complications of natural disasters and how to predict them using the latest technology.

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1. INTRODUCTION

A natural disaster is a catastrophic event resulting from natural processes of the Earth, leading to significant and often widespread damage to the environment, infrastructure, and human lives. These events are caused by natural forces, such as geological, meteorological, hydrological, or climatological phenomena, and they occur without direct human intervention. Natural disasters can take various forms, including earthquakes, hurricanes, floods, tornadoes, volcanic eruptions, droughts, landslides, tsunamis, wildfires, and epidemics. The defining characteristics of natural disasters include their unpredictability, rapid onset, and the ability to cause substantial harm to communities and ecosystems. They often result in the loss of life, displacement of populations, destruction of property, and long-term socio-economic and environmental consequences. Governments, communities, and individuals engage in preparedness, mitigation, and response efforts to minimize the impact of natural disasters and enhance resilience to future events. Efforts to understand, monitor, and manage natural disasters involve a combination of scientific research, early warning systems, infrastructure development, and community education. The goal is to reduce vulnerability and enhance the ability of individuals and societies to cope with and recover from the aftermath of these natural events. This chapter explored the effects of such disasters, including humanitarian, facility, wellness, economic, social, and environmental aspects. Furthermore, the amplification of natural disasters by climate change adds another degree of complication. To address these problems, a comprehensive, coordinated strategy including governments, non-governmental organizations, and the international community is required, with a focus on preparedness, early warning systems, and sustainable development practices for effective mitigation and response. To predict natural disasters, several AI and machine learning technologies were created. In this chapter, we will discuss in detailed about the complications of natural disasters and how to predict them using the latest technology (Padmaja et al., 2022).

2. CHARACTERISTICS OF NATURAL DISASTERS

Natural disasters exhibit several key characteristics that contribute to their impact and the challenges associated with managing their consequences. Here are some prominent characteristics:

- **Sudden Onset:** Natural disasters often occur with little to no warning, leading to a sudden and immediate impact on the affected areas. Earthquakes, tornadoes, and flash floods are examples of events that can strike rapidly.