Chapter 9
Building Resilience: Addressing the Economic, Social, and Environmental Impacts of Natural Disasters in a Changing Climate

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ABSTRACT

With global climate changes, natural disasters occur more often, increase in severity and unpredictability, and represent an unprecedented challenge to global societies. In this chapter, we analyze different types of natural disasters, like earthquakes, hurricanes, floods and wildfires and their indisputable economic, social and environmental impacts. It looks at ways in which climate change is a primary cause behind the worsening of weather patterns and the rising vulnerability of urban and rural communities to these disasters. In addition, this chapter examines global initiatives to boost disaster resilience by reviewing climate adaptation strategies, policy frameworks, technological innovation, and a multi stakeholder approach involving governments, NGOs, private sector actors, and local communities. Case studies of countries like Japan, Bangladesh and the Caribbean show how successful resilience initiatives can heavily dampen the impact of natural calamities on societies.

INTRODUCTION

Natural disasters are becoming more frequent and more severe as global climate change advances. Global challenge on natural disaster is enormous, they happen about

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millions every year and lead to huge damages in economic, social, and environmental aspects. With this increase in frequency and severity there is an increased need to understand the causal factors, characteristics, and impacts of these disasters. This will cover some of the types of natural disasters, their effects on societies around the world, and what contributes to the fact that their number of occurrences is on the rise (Smith 2013).

What are Natural Disasters?

Natural disasters are events of extreme seriousness caused by natural processes of the Earth — the air, water, land—and that cause widespread destruction and suffering by humans. There are different types of disasters we can classify according to their own characteristics and types of impacts. A good example of earthquakes is the sudden release of energy within the Earth's crust, which causes the ground to shake. Earthquakes can result in the collapse of buildings, infrastructure damage and death, as the earthquake in Haiti 2010 proved to be. Tropical storms, or hurricanes, are intense weather systems, powerful winds, and lots of rain. Typically, flooding, property damage and forced displacement follow, with Hurricane Katrina one of the worst in the United States. Floods, caused by excessive rainfall, or storm surges, or dam failure, bring about inundations over large areas, resulting in loss of life, agricultural destruction, and in the contamination of water sources. Another type of disaster, called wildfires, are uncontrolled fires that rapidly spread in forests, grasslands and rural areas in dry conditions and are exacerbated by climate change. The characteristics of each type of natural disaster are different. Earthquakes are sudden and unpredictable, as opposed to hurricanes and floods, which are more seasonal and consequently something of a forecast, capable of some preparation. Wildfires can be caused naturally, or human induced, and frequently get out of control because of environmental conditions such as drought. All these differentials impact how societies react to and rebound from disasters (Arcaya et al., 2020).

Natural Disasters Have an Impact on World Societies in Several Ways

Natural disasters have wide economic, social, and environmental impact. Disasters economically cripple entire regions by means of destruction of infrastructure, stalling of industries and requiring large recovery efforts. The 2010 Haiti earthquake left an estimated $8 billion in damaged in the nation's economy. Natural disasters socially cost lives, displace people, and create long term mental health issues. Often the affected communities wrestle with trauma and their families are displaced in search of shelter and security. Hurricane Katrina, which occurred in 2005, not only