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Managing Disasters 4.0: Need For New Thinking

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SYNOPSIS

The UN Global Assessment Report (GAR) is a comprehensive review and analysis of worldwide progress on disaster risk management (DRM). This year's edition challenges us to move beyond prevailing norms in DRM to consider the complex nature of systemic risk. What does this shift mean and how will it shape DRM policy, research, and practice?

COMMENTARY

IT IS becoming clearer that the drivers of natural and human-induced disasters, as well as opportunities to address them, often lie within socio-economic development. This awareness is leading to a better understanding of how to reduce and manage existing risks. We are seeing more disaster risk-informed development policies and Disaster Risk Management (DRM) plans geared towards sustainable development over the last decade. However, our way of living is also evolving and so are the dangers and threats emerging in our societies.

We now live in a networked world made up of interdependent systems that allow capital, goods, information, labour, and services to continuously flow. This creates opportunities for work efficiencies and human development enabling people to access different forms of wealth and wellbeing. But the same systems we depend on for everyday life are exposing us to intensified risks and generating unknown ones that could lead to new kinds of disasters. Managing systemic risk to sustain social progress and safeguard economic growth at a time of great change is more necessary than ever.

Age of Systemic Risk

Systemic risk, in the context of DRM, refers to the potential harm and damage to people and assets that could occur from complex interactions between humans and their natural and man-made environments. It is often described in two ways from a DRM standpoint:

First, as "new, emerging, and larger dangers and threats": These arise when unsustainable development like unrestrained population growth and unplanned expansion of cities blend with global issues such as irregular migration and global warming. Our DRM approaches and tools need to go beyond capturing linear and singular risks. Mainstream DRM thinking and methods often deal with risks one at a time as it progresses from one stage to another. This is no longer enough.

Second, as the "growing potential" for one disaster to trigger or worsen another: This cautions us to consider that disasters moving forward will likely have cascading and compounding effects. We have seen this last year in Central Sulawesi where a shallow earthquake off the coast simultaneously triggered near-field tsunamis, major landslides, and extensive soil liquefaction.

Dealing with complexity, including the disasters that develop within and among our systems, is perhaps one of the biggest challenges of our time.

Embracing Complexity

The increasing dependencies of our social, economic, and physical systems presents opportunities and challenges to DRM. Deeper connections between such systems heightens mobility and allows for greater integration among regional DRM actors. But the ever-expanding interactions of these systems is also producing instabilities and uncertainties that put larger numbers of people and assets at-risk to disasters.

On one hand, less restrictive movement of capital and labour is making travel and foreign contacts easier, and the spread of creativity and innovation around the globe faster. The Internet continues to facilitate more direct access to other cultures, knowledge, and resources. Tightly coupled global supply chains are contributing in reducing manufacturing and logistical expenses.

On the other hand, global transportation networks that are expanding in reach and volume capacity can amplify biological and social contagion. Containing the spread of infectious diseases and diffusion of negative sentiments that could trigger panic and disorder becomes more challenging.

The growing dependence of contemporary societies to critical infrastructure is also making them more susceptible to technological hazards. Communication and power networks that could strengthen social ties are also increasing people's vulnerability to abrupt failures, intentional disruptions, and targeted attacks.

The enhanced connectivity of global markets are increasing the economic costs and transnational impacts of disasters as we have witnessed in the 2011 Tōhoku earthquake and tsunami. After the disaster, production and consumption in several countries had to be suspended for days to weeks.

It seems that systemic risk is an unavoidable consequence of modernisation. How can we better manage systemic risks and complex disasters in an interconnected world? There are many perspectives and no single and straightforward answer. But we know enough to know that we cannot hope to manage what we do not seek to understand.

Disaster Risk Management 4.0?

The value of DRM – its potential to save lives, lessen suffering, reduce damages and losses – depend on its applicability and relevance. Much of it has to do with how well it is aligned to the transforming risk environment and disaster context.

The evolution of DRM to-date can be summarised in three stages. The first stage, *centrality*, refers to top-down and centralised efforts back when DRM relied only on a few key actors. The second stage, *diversity*, pertains to bottom-up and participatory DRM that aims to raise awareness and expand partnerships.

The third stage, *agency*, indicates the aspiration to localise DRM and make it more inclusive and sustainable. Now, we are on the brink of the fourth stage, complexity, representing DRM that seeks to address disasters that do not have clear-cut and strictly defined causes, occurrences, and effects.

We need a Disaster Risk Management 4.0 that will enable us to survive and thrive as we move further into Industrial Revolution 4.0. This calls for fresh and novel approaches and tools that will allow us to integrate DRM policies, studies, and practices required in a networked world.

The DRM community will not be able to grasp this new disaster problem by using old thinking and methods that break it down into parts and address those in siloes. Before we can effectively cope with and adapt to present-day and future dangers and threats, we must understand the structures and behaviours of the systems we are embedded in first.

UN Secretary General António Guterres explains this well: "If I had to select one sentence to describe the state of the world, I would say we are in a world in which global challenges are more and more integrated, and the responses are more and more fragmented, and if this is not reversed, it's a recipe for disaster."

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