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## Networked World: Re-envisioning Disaster Risk

*By Angelo Paolo L. Trias*

### SYNOPSIS

*The key to managing disaster risks is to understand them. To do that, we need approaches that allow us to make better sense of a [complex](#) risk environment and disaster landscape so as to navigate it successfully. Network science and foresight methods can help us gain insight on how different risks link up and develop into disasters in an increasingly interconnected world.*

### COMMENTARY

ALBERT EINSTEIN once said: "We can't solve problems by using the same kind of thinking we used when we created them." Conventional disaster risk management (DRM) approaches often fall into this trap. While we are getting to know more about natural disasters, the ways in which we identify and analyse risks seem to be lagging behind. This limits our capacity to manage them more effectively.

There is greater awareness that disasters are becoming more [systemic](#), reinforcing vicious cycles of inequity and poverty. There is also broader recognition that its impacts largely depend on the choices we make about how we live and relate to our environment – both natural and man-made. Yet we still overfocus our DRM efforts on external threats rather than dangers lurking within. And we continue to prepare our responses to future catastrophic scenarios based on past events.

### Seeing the Links: Disasters and Networks

Such approaches allow us to make analytical distinctions and to learn from experience. However, their usefulness is getting limited in an [interconnected](#) world. Network science and foresight methods can enable us to make sense of complexity

in a world where everything seems to be increasingly linked including drivers of disaster risks.

Experience and research taught us that disasters do not simply occur because people are in harm's way. They also result from people's vulnerability and lack of capacity to withstand and pull through after a disruptive and damaging event. Knowing about this human dimension of disasters made us more aware of the role of our behaviour in shaping risks.

However, years of focusing on natural hazards have conditioned us to look at risks coming from the outside instead of those emerging from the inside – those driven by our decisions and actions. A practical way to grasp today's disaster risks is to visualise it as a web of networks.

Network science is an emerging discipline and academic field concerned with the study of complex networks behind interacting systems that modern societies rely on – whether environmental, social, political, economic, and technological. Using networks can enhance DRM efforts because it provides the lens to describe, analyse, and interpret the world in terms of relationships.

### **Locating the Disaster Risks**

It can help us locate where disaster risks intersect and the different means to address them. For instance, examining [interconnections](#) of risks shed light on the how global trends interact to create or worsen natural disasters.

Such network studies allow us to explore how socio-economic inequalities, the destruction of ecosystems, and misuse of emerging technologies can make people become more susceptible to disasters. A wider understanding of their links could be useful in crafting holistic risk-informed policies that cuts across sectors.

It can also assist us in figuring out how mutually dependent systems we are embedded in are structured and the ways they relate with each other. For instance, studying the [governance](#) of DRM projects via networks reveal how imbalanced structures of power relations between donor governments, implementing organisations, and recipient countries can limit localisation efforts.

DRM can be seen as an ecosystem that is jointly governed by various actors interacting with each other to direct, coordinate, and implement DRM activities. A deeper knowledge of the nature of relationships – where interests may converge and diverge – could be useful in identifying more efficient means for achieving shared objectives and use of available resources.

The use of networks to study DRM is not new. But it is yet to gain more traction in practice.

### **Stretching the Imagination**

Conventional DRM approaches are preferred even if they are struggling to cope with the increasing intensity and uncertainty of disasters in a new climate reality for two reasons.

First, the best time to get action on disaster risk is usually right after a disaster. This is when citizen engagement, pressure on government, and media attention are quite high. It offers a 'window of opportunity' to implement changes in both policy and practice.

Second, disaster risks are often analysed in a linear manner. A hazard is identified and assessed. Then, the likelihood of it turning into a disaster and potential impacts are analysed. Finally, steps are taken to mitigate, prepare for, respond to, and recover when it strikes.

Both are problematic because they anticipate disasters based on past and known risks – which time and again turn out differently than expected. We have to stretch our imagination and actively seek what lies ahead and start making changes today, not after a tragedy.

One way to do this is to utilise consequence-driven analysis as promoted by the [Disaster Analytics for Society Lab](#) which involves imagining disastrous outcomes, tracing back the series of events leading to it, and asking: why didn't this happen before? Simply put, it is a way to [proactively think](#) about how things could go wrong before it happens to catch DRM issues before they become bigger problems instead of learning after the fact – a pre-mortem.

## **Futures Thinking**

Another is futures thinking advocated by the International Federation of the Red Cross and Red Crescent Societies (IFRC) through the [IFRC's Solferino Academy](#). It involves scanning the horizon, spotting trends, and developing scenarios to challenge notions of what is an appropriate DRM response in the future. The [Forecast-based Financing](#) project is a good example of how to apply this thinking into action.

This approach is useful for revisiting how we develop DRM strategies because it raises the critical question: should we create plans by assessing what risks we face now and taking steps to a desired state, or should we start with a clear DRM goal and reflect back on steps needed to manage future risks?

A report of the UN's Economic and Social Commission for Asia and the Pacific (UNESCAP) points out that, "understanding risk is at the heart of building resilience to disasters". We are arguably getting better at this task. Although not complete and perfect, we are slowly amassing knowledge and tools to make sense of our interconnected world.

The biggest challenge of DRM is grasping complexity and anticipating what lies ahead. We need to invest and do more, here and now, for uncertain disastrous events that could happen in the future.

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