The SEI Initiative on Transforming Development and Disaster Risk

There is a growing recognition globally that development is crucial to reducing vulnerability to disasters, but it is also a major driver of disaster risk. The Sendai Framework for Disaster Risk Reduction (DRR) identifies rapid urbanization as a key concern in this context, as it concentrates large populations in what are often high-risk areas, such as coastlines, with the poorest people often in slums.

In the Asia-Pacific region, for example, the average number of people exposed to yearly flooding more than doubled from 1970 to 2010, from 30 million to 64 million.[1] Urban areas are now home to 46% of the population, and half a billion live in slums, in precarious dwellings without access to safe water or sanitation.[2] When disasters strike, the impacts on them can be devastating.

The SEI Initiative on Transforming Development and Disaster Risk (TDDR) seeks to integrate disaster risk reduction around the world with equitable, sustainable and resilient development by transforming the relationship between development and DRR. It will carry out context-specific research on a range of environmental risks, aiming to generate knowledge to support changes in governance, policy and practice.

The goal is to improve understanding of how risks are created and how they accumulate, recognizing that disaster risk and development are closely interlinked. The role of climate change is another key consideration, as it poses additional layers of risk and may complicate future DRR efforts.

Three key gaps in disaster risk reduction

Despite tremendous progress in knowledge and technology for understanding and dealing with disaster risks, the basic dilemma between development and disaster risks remains unchanged. That is, globally, development is more often a root cause of disaster risk, rather than a means to reduce it. The reasons are manifold, but we see three key gaps:

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Crews search through the rubble after the Nepal earthquake in April 2015.

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A slum in Manila, the Philippines, where lives and property are highly exposed to flood risks.

- A failure to adequately understand the complexity of vulnerability creation;
- A failure to be scale-appropriate and apply what we know to the scale at which fundamental change is required; and
- A fixation within contemporary DRR research and practice on the goal of "reducing" risk, rather than understanding the trade-offs that underpin decision-making processes at all levels (from individual and community to society at large).

Addressing these fundamental gaps requires both a development perspective on risk, and a risk perspective on development. The need to articulate this dual perspective and explore supportive analytical approaches and tools are the primary motivations underlying this Initiative.

We will apply the social-ecological systems (SES) framework[3] to diagnose how disaster risk in development can be understood and acted upon. This means looking at feedbacks between social and ecological systems; the geographical, cultural, personal and professional identities bound up in these linked systems; and the subjective perspectives of different system actors.[4]

The SES framework provides a useful analytical entry point for illuminating the connections between socially desirable forms of natural resource use and socially undesirable natural hazards. For example, development can increase risk in the long term by increasing greenhouse gas emissions that drive climate change; in the near term, it can exacerbate risks by removing natural storm-surge barriers such as mangroves in favour of aquaculture farms or beachfront properties. Disasters, meanwhile, can hinder and even reverse the benefits of development.

Disasters strike both developed and developing countries. Development is a key factor in reducing vulnerability – for example, by improving basic infrastructure, increasing income, or increasing literacy so people can better under-


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An earthquake rescue drill in Madrid, Spain.

stand evacuation notices and early warning information. However, disaster preparedness has generally lagged behind the introduction of new vulnerabilities, so large advances in DRR knowledge and practice have, at best, slowed the rate of increase in disaster impacts.

In many places, emergency response capacity has improved even as resilience has weakened – a common outcome of development. The integration of economies globally has also meant the faster transmission and far-reaching impacts of disasters: for example, the 2011 flooding in Thailand inundated several industrial zones and affected global supply chains.

Our research will build on these insights in three interlinked research work packages:

- Understanding development and disaster risk reduction in a social-ecological systems framework;
- Understanding equitable social-ecological resilience; and
- Understanding adaptive processes for governance of social-ecological systems.

The Initiative builds on SEI's partnerships and considerable expertise and experience in research, capacity building and policy support on vulnerability, risk, resilience, adaptation and environmental governance. Our goal is to generate new knowledge on responses to disaster risks, synthesize and integrate existing knowledge, and contribute scientific insights, guidelines and recommendations to support key policy processes in DRR and development.

The timing of the Initiative will also allow us to monitor and assess progress in DRR during the first two years of implementation of the Sendai Framework, to provide critical reflections on project experiences, lessons learnt and good practice, and to identify opportunities, challenges and limits in building equitable social-ecological resilience.

Understanding development and disaster risk reduction in a social-ecological systems framework

In the social-ecological systems (SES) framework, both hazards and resources are understood to be products of human-environment interactions. Linking risk and resource management is a key first step, to try to minimize and balance the harmful (hazards) in the process of maximizing the useful (resources). Yet over the past several decades, DRR research has drifted away from such a balanced view. While the need to mainstream DRR in development has been widely emphasized, research on disaster risk has been largely removed from mainstream decision-making processes in which resource exploration and use remain the dominant concern and rationale.

We argue that the DRR research community must pay more attention to development decision-making processes, and the risk perception, behaviour and choices of different actors, in order to better understand the rationale of development decisions. We expect the findings of this research work package to enrich vulnerability and resilience analysis, highlighting trade-offs and promoting a development perspective on risk, and a risk perspective on development.

We will focus on two widely observed "syndromes":

The "pace-mismatch": as countries develop, the capacity to cope and deal with disasters also increases. However, the pace of risk governance capacities lags behind the rapidly increasing exposure of people and assets that accompanies economic growth.

The "vulnerability-resilience paradox": as countries develop, they tend to reduce the vulnerability to "normal" hazards in the short-term while eroding resilience to surprises and "extreme" events in the long-term.

We examine how and to what extent trade-offs are addressed in the vulnerability and resilience literature; identify sets of critical issues and repeated patterns, such as issues of scale and equity; and assess how the coupled infrastructure system framework can be applied to achieve sustainability in a resource management context, to minimize hazard and risk.

Understanding equitable social-ecological resilience

A resilience perspective highlights how development choices shift systems in relation to critical thresholds. Development pathways change the capacity of social-ecological systems to provide a desirable quality of life despite external disturbances. Adaptation or development actions that aim to increase resilience to specific disaster risks, or to increase the overall resilience of the system, nearly always engage trade-offs in


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The New Jersey National Guard assists displaced people in Hoboken, NJ, after Hurricane Sandy in 2012.

which some people will gain more than others – building resilience alone does not result in equitable development.

Building on the first work package of the TDDR Initiative, we will seek to understand how social-ecological resilience can be resolved with normative concerns around power, competing value systems, social equity and justice. We will use critical social theory to ensure the relevance of systems thinking to development practice, articulate the distinct claims of different schools of thought, and connect them to practice and policy. In particular, we will examine the processes that create vulnerability and risk for marginalized groups and the challenges they face in preparing for and responding to the risk. Through this improved understanding, this work package will explore the concept of "equitable social-ecological resilience", and will ask whether the trade-offs between risk and development can be captured through the normative pursuit of resilience.

Understanding adaptive processes for governance of social-ecological systems

Adaptive processes are defined as systematic approaches for improving governance and management policies and practices by learning from the outcomes of management strategies that have already been implemented. Adaptive processes stem from the recognition that interactions between people and ecosystems in social-ecological systems are inherently unpredictable, that current knowledge is unlikely to be sufficient for future management, and that governance and management thus need to be adaptable to new information and changing circumstances.

However, while adaptive governance has been extensively theorized in relation to natural resource management, to date there has been little progress in how adaptive governance can secure the integration of disaster risk and development. We will investigate what adaptive governance might look like in this context, and explore what institutions and processes at the global, regional, national and sub-national scales would be needed to support an adaptive governance approach to disaster risk and development.

Through analysis of case studies of adaptive governance in the context of DRR and/or climate change adaptation, and underpinned by a review of current knowledge of adaptive governance, we will characterize adaptive governance arrangements for DRR and development. This will form the basis of a critical review of the Sendai Framework and its initial implementation, and potentially of adaptation in the context of the outcomes of the Paris Climate Change Conference.

Communications

Effective communications is a core aspect of this Initiative. It is our intention to work closely with key boundary partners to co-design our research, test our findings, and tailor outputs to suit the needs of different audiences.

The post-2015 international policy arena presents unique opportunities. A new global agreement on DRR, the Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted in March,[5] after intense negotiations and a significant rethinking of DRR efforts. In September 2015, the United Nations adopted the new Sustainable Development Goals (SDGs),[6] and in December, world leaders will meet in Paris

A boy bathes outside his tent in Cité L'Eternel, a poor neighbourhood of Port-au-Prince, Haiti, after the earthquake of 2010.

with the aim of reaching a new comprehensive climate agreement. This Initiative is well placed to contribute to discussions in all three realms, and to illuminate connections between development, DRR, and responses to climate change.

Our engagement and influencing is structured via a communications strategy which is embedded into the Initiative through a dedicated work package. We plan to produce multiple publications, multimedia materials (including data visualizations and videos), blogposts and opinion articles. We will also host workshops and meetings to connect with key audiences and partners.

The Initiative will also tap into SEI's expertise in communications and policy engagement as well as web and other media expertise. For instance, SEI's weADAPT platform[7] will enable links to thousands of articles and case studies, hundreds of organizations, and an active user community from more than 190 countries. weADAPT is already used to enhance SEI expertise and learning on development and disaster risk, and the Initiative will manage a theme on weADAPT, to share relevant SEI work and engage with other researchers and practitioners around the world.

Synthesis

A key aspect of this Initiative is to synthesize knowledge on the interconnections between disaster risk and development, including new research from the Initiative, prior SEI work, and the broader literature. Our approach is to integrate knowledge from different domains including DRR, vulnerability, adaptation, resilience, livelihoods, and social capital, and to advance conceptual thinking, theory, methods and tools for reducing risk and building resilience.

We will determine how social, geopolitical, economic, environmental constraints that people encounter in their everyday lives affect disaster risk, identify trade-offs and synergies between development and risk reduction, and identify governance arrangements that can support the realization of equitable resilience. We will also draw links between systemic approaches and the practical actions required on the ground. SEI is well placed to deliver on enhancing thinking and clarifying a complicated and fragmented policy area.

The outcome of this work package will be a new and innovative synthesis framework that will provide practical guidance

Building local capacity is a key aspect of building resilience. Above, local men build a retaining wall on the banks of the Harirod River in Herat, Afghanistan. Floods have been worsened by unpredictable weather, mismanagement of natural resources, and infrastructure that has encroached on the natural riverbed.

on how development can be transformed from a root cause of disaster risk to an opportunity and means for reducing risk. The framework will explicitly address issues of scale and will be contextualized, so it can be applied and transferred across different socio-cultural settings and provide a link between action solutions and socio-political organization.

Endnotes

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2 UNESCAP (2013). *Statistical Yearbook for Asia and the Pacific 2013*. United Nations Economic and Social Commission for Asia and the Pacific, Bangkok. http://www.unescap.org/stat/data/syb2013/.

3 Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, 16(3). 253–67. DOI:10.1016/j.gloenvcha.2006.04.002.

4 See, e.g., Calgaro, E., Dominey-Howes, D. and Lloyd, K. (2014). Application of the Destination Sustainability Framework to explore the drivers of vulnerability and resilience in Thailand following the 2004 Indian Ocean Tsunami. *Journal of Sustainable Tourism*, 22(3). 361–83. DOI:10.1080/09669582.2013.826231.

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5 See http://www.wcdrr.org/preparatory/post2015.

6 See https://sustainabledevelopment.un.org/?menu=1300.

7 See http://www.weadapt.org.

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