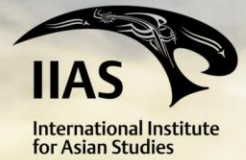




UNITED NATIONS
UNIVERSITY
UNU-EHS
Institute for Environment
and Human Security



CROSSING BORDERS

GOVERNING ENVIRONMENTAL DISASTERS IN A GLOBAL URBAN AGE IN ASIA AND THE PACIFIC

5-6 NOVEMBER 2015
WWW.ARI.NUS.EDU.SG

Organized by Asia Research Institute, National University of Singapore, in collaboration with Institute for Environment and Human Security, United Nations University (UNU-EHS), and Urban Knowledge Network Asia, International Institute of Asian Studies (UKNA-IIAS). Sponsored by Singapore Ministry of Education grant on 'Governing Compound Disasters in Urbanizing Asia'.

Disasters are not readily contained within neatly drawn territorial boundaries. Both in their immediate impacts and in their compounding cascades, a disaster such as a chemical spill in a river or dangerous air pollution originating from a major metropolitan region can quickly spread across national borders. People displaced by an environmental disaster who are offered insufficient assistance at home can also migrate in great numbers across borders, mostly within nation-states but increasingly internationally. Often, too, compound disasters emanate from a single disaster, such as nuclear power plant meltdown that flows over borders to interrupt global supply chains, or a pandemic like Avian Flu or Ebola that generates high social and economic impacts around the world. As even remote regions are incorporated into a globalizing urban matrix of anthropogenic transformations of nature, the melting of the Himalayan glaciers associated with global climate change irreversibly alters seasonal access to water. This in turn exaggerates droughts, flooding, landslides and other seemingly more localized disasters which impact on food production for urban populations transcending administrative partitions across continental Asia and the Pacific.

The purpose of this multidisciplinary conference is to examine the ways in which environmental disasters with compounding effects are being governed as they traverse sovereign territories across rapidly urbanizing societies in Asia and the Pacific. While cross-border disasters are becoming ever more frequent in our global age, the division of the world into nation-states has meant that environmental disruptions continue to be treated as domestic concerns. Yet when disasters do spill over territorial boundaries, governance structures and mechanisms must be improvised if disasters are to be mitigated. In many cases, borders heighten problems of cooperation and collaboration, even in such basic actions as information sharing. Further, local governments are rarely included in international cross-border disaster cooperative efforts, which tend to ignore local knowledge about how to generate resilience to disaster impacts.

Yet cross-border agreements and intercity networks aimed at managing disasters collaboratively do exist, just as national and local governments reach beyond their own jurisdictions to provide assistance when disasters occur or when environmental migrant populations appear. Non-governmental organizations are also offering assistance across borders. As processes of decentralized governance to sub-national administrations continue to make headway in Asia and the Pacific, cities and towns, rather than nation-states, could emerge as new engines of policy innovation in building social resilience to future disasters. Transborder networks of cooperation around progressive approaches to environmental conservation, the politics of land ownership and social justice are bringing people into conversation across administrative divides and encouraging new voices in disaster governance activities. Such mobilities offer potential spaces of hope through which to build more inclusive and effective governance regimes across international borders.

Questions that will guide the conference proceedings to speak to related themes across disciplinary and geographical boundaries include:

- What are the major kinds of disasters that are crossing borders in Asia and the Pacific today, and in what ways should they be conceptualized as problems of inclusive and collaborative governance, in contrast to tasks for expert-driven disaster management?
- What kinds of innovations in disaster governance are appearing to provide redress for social and economic impacts of compound disaster reaching across national borders, and how well are they working?
- How do governance structures and institutions respond to environmentally displaced people who move across borders? Do their innovations facilitate a return to home localities or provide secure living arrangements elsewhere? What are the long-term prospects for people who forcibly migrate due to environmental disasters?

- How do shared experiences of cross-border disasters highlight or transform power relations among localities? Can collaborative networks across borders translate into more inclusive forms of governance in the preparation for, response to and recovery from environmental disasters?
- Can we use the lens of compound cross-border disasters such as those affecting global supply chains to think about urban networks as part of a changing planetary ecology? How can insights gained from this perspective nurture linkages between knowledge and action in forging meaningful collaborative relations across borders? Can such collaborations also contribute to international agreements on reducing anthropogenic impacts on global climate change?

CONFERENCE CONVENORS

Dr Michelle MILLER

Asia Research Institute
National University of Singapore
E | arimam@nus.edu.sg

Prof Mike DOUGLASS

Asia Research Institute, and Lee Kuan Yew School of Public Policy
National University of Singapore
E | arimike@nus.edu.sg

Dr Matthias GARSCHAGEN

Institute for Environment and Human Security (UNU-EHS)
United Nations University, Germany
E | garschagen@ehs.unu.edu

Dr Paul RABÉ

Urban Knowledge Network Asia (UKNA)
International Institute for Asian Studies (IIAS), the Netherlands
E | paulrabe@gmail.com

THURSDAY, 5 NOVEMBER 2015	
09:30 – 09:45	REGISTRATION
09:45 – 10:00	WELCOME AND INTRODUCTORY REMARKS
	<p>MIKE DOUGLASS Asia Research Institute, and Lee Kuan Yew School of Public Policy, National University of Singapore</p> <p>MICHELLE MILLER Asia Research Institute, National University of Singapore</p> <p>MATTHIAS GARSCHAGEN Institute for Environment and Human Security, United Nations University, Germany</p>
10:00 – 11:15	KEYNOTE ADDRESS 1
<i>Chairperson</i>	GREGORY CLANCEY , National University of Singapore
<i>10:00</i>	<p>Recognising Global Interdependence through Disasters ANTHONY REID, Australian National University</p>
<i>10:45</i>	Questions & Answers
11:15 – 11:45	MORNING TEA BREAK
11:45 – 13:15	PANEL 1
<i>Chairperson</i>	RITA PADAWANGI , National University of Singapore
<i>11:45</i>	<p>Crossing Colonial Borders: Governing Natural Disasters in Historic Context FIONA WILLIAMSON, National University of Malaysia</p>
<i>12:00</i>	<p>The Resilience of Islands: Borders and Boundaries of Risk Reduction KARL KIM, University of Hawaii, USA</p>
<i>12:15</i>	<p>Climate Resilient Towns and Cities in the Pacific Region DARRYN MCEVOY, RMIT University, Australia</p>
<i>12:30</i>	<p>Governing Cross-border Effects of Disasters in Urbanizing Asia: What Does the Literature Tell Us? MATTHIAS GARSCHAGEN, United Nations University, Germany</p>
<i>12:45</i>	Questions & Answers
13:15 – 14:15	LUNCH

14:15 – 15:30	SPECIAL PANEL – DISASTER GOVERNANCE IN THE MEKONG DELTA
<i>Chairperson</i>	JEROME WHITINGTON , National University of Singapore
14:15	Environmental Disasters in the Mekong Subregion: Looking Beyond Water Security Focusing on a Nexus Analysis ANDREA HAEFNER , Griffith University, Australia
14:30	Urban Transformations and Changing Local Patterns of Risk: Implications for Application of System and Regional Perspectives in the Mekong Region RICHARD FRIEND , Institute for Social and Environmental Transition, Thailand PAKAMAS THINPHANGA , Institute for Social and Environmental Transition, Thailand
14:45	Artificial Environmental Disasters: Hydropower Dams, Degradation, Displacement and Myanmar-Thai Cross-border Impacts CHAN KWOK-LEUNG STEVE , Singapore Institute of Management University
15:00	Questions & Answers
15:30 – 16:00	AFTERNOON TEA BREAK
16:00 – 17:15	PANEL 3
<i>Chairperson</i>	TYSON VAUGHAN , National University of Singapore
16:00	All These Acronyms: A Critical Analysis of Japanese “Innovation” in the Aftermath of Fukushima DOUGLAS M. MILLER , University of Washington, USA
16:15	Mapping Institutional Change: Emergency Management in the Soviet Union and Independent Central Asia EVANGELINE MCGLYNN , Harvard University, USA
16:30	A Capacity Approach to Cross-border Disaster Governance in East Asia: Evidence from Disease Control and Prevention Networks in Singapore and Taiwan ALLEN LAI , ESSEC Business School Asia-Pacific, Singapore
16:45	Questions & Answers
17:15	END OF DAY 1
17:45 – 20:00	CONFERENCE DINNER (For Speakers, Chairpersons & Invited Guests)

FRIDAY, 6 NOVEMBER 2015	
09:30 – 09:45	REGISTRATION
09:45 – 11:00	KEYNOTE ADDRESS 2
<i>Chairperson</i>	JONATHAN RIGG , National University of Singapore
<i>09:45</i>	Disasters across Borders: Borderlands as Spaces of Hope and Innovation in the Geopolitics of Environmental Disasters JOHN HANNIGAN , University of Toronto, Canada
<i>10:30</i>	Questions & Answers
11:00 – 11:30	MORNING TEA BREAK
11:30 – 13:00	PANEL 4
<i>Chairperson</i>	CHRISTOPHER COURTNEY , National University of Singapore
<i>11:30</i>	Trans Border Approach: Towards Flood Risk Management BHANU PRATAP MALL , Poorvanchal Gramin Vikas Sansthan, India
<i>11:45</i>	Zaps and Taps: Geomagnetic Storms and Cascading Disasters across Borders ROBERT JAMES WASSON , National University of Singapore
<i>12:00</i>	Trans-boundary Ecological Linkage and Population Movement: Narratives and Counter Narratives from India and Bangladesh SARFARAZ ALAM , Banaras Hindu University, India
<i>12:15</i>	Cross-boundary Disaster Risk Management: Lessons from the Pearl River Delta ALAIN GUILLOUX , City University of Hong Kong
<i>12:30</i>	Questions & Answers
13:00 – 14:00	LUNCH

14:00 – 15:15	SPECIAL PANEL – GOVERNING TRANSBOUNDARY AIR POLLUTION
<i>Chairperson</i>	ELI ELINOFF , National University of Singapore
14:00	Singapore’s Transboundary Haze Pollution Act of 2014: Can it Really Work to Prevent the Haze? ALAN KHEE-JIN TAN , National University of Singapore
14:15	Governing Transboundary Haze Disaster among Indonesia, Singapore and Malaysia: Time to Move from High Politics to Low Politics SITI DAULAH KHOIRIATI , Gadjah Mada University, Indonesia
14:30	China-based Air Pollution & Epistemic Community Building in the Northeast Asian Region MATTHEW A. SHAPIRO , Illinois Institute of Technology, USA
14:45	Questions & Answers
15:15 – 15:45	AFTERNOON TEA BREAK
15:45 – 17:00	PANEL 6
<i>Chairperson</i>	ERIC KERR , National University of Singapore
15:45	Post-environmental Disaster Management: Rehabilitation, Recovery and Reconstruction – “Whole-of-the-world Governance” and the ASEAN Context KOH KHENG-LIAN , National University of Singapore
16:00	The Empowerment of Local Community Groups as a New Innovation in Cross Borders Disaster Management Frameworks YENNY RAHMAYATI , Swinburne University of Technology, Australia
16:15	Cities as Aid Agencies? Experience from Selected Asian Cities KRISTOFFER B. BERSE , University of the Philippines
16:30	Questions & Answers
17:00 – 17:30	CLOSING REMARKS
	MIKE DOUGLASS Asia Research Institute, and Lee Kuan Yew School of Public Policy, National University of Singapore MICHELLE MILLER Asia Research Institute, National University of Singapore
17:30	END OF CONFERENCE

Recognising Global Interdependence through Disasters

Anthony Reid

School of Culture, History and Language, Australian National University
anthony.reid@anu.edu.au

Only during the last century and a half have the humans in any one part of the world known or cared much about the natural disasters suffered by fellow-humans in other parts of the world. What they knew of them, often from sacred literature, was as divine punishment for human sin – the Great Flood or the destruction of Sodom and Gomorrah in the three Abrahamic religions. The Northeast Asian sense of state responsibility for disaster relief may be older, but in Europe it was the shock of the 1755 Lisbon earthquake that began the modern Western trends, both for state responsibility and for empathy across borders. Victims began to appear inherently innocent. Any organized trans-national relief took much longer to appear. Anxiety about epidemics began the pattern of sharing data very hesitantly from 1851, while the Red Cross began its concern for war casualties in 1863 but extended this to natural disasters only after 1900. Those who lost their crops and livelihoods in disasters such as the Tambora eruption of 1815 or the Chinese famine of the 1870s had little survival alternative than to sell themselves and/or their children into slavery. A century later, the Great Kanto (Tokyo-Yokohama) earthquake of 1923 became the first natural disaster to evoke a genuinely global humanitarian response.

This lecture will review this remarkable transition, but also consider the scientific leap of the last 30 years, in which the causes of natural disasters have begun to be understood as themselves global in character. Only in the 1980s did science connect the dots between the cooling and darkening around the planet, the tephra deposits in the icecaps, and crop failures affecting millions in eastern Europe, southwestern China, Bengal and New England in 1816, with the massive eruption of Gunung Tambora the previous year (whose bicentenary we celebrate). It begins to be possible to understand the planetary rhythm sufficient to distinguish longer-term trends such as global warming from cyclical disasters such as floods, typhoons, earthquakes and tsunamis. The good news is that whereas the wars that dominated headlines and body counts in the 20th century typically divide and generate hatred, the natural disasters taking their place in the 21st have tended to unite humans in compassion and concern for planetary management.

Anthony REID is a Southeast Asian historian, once again based at the Australian National University after serving as founding Director of the Center for Southeast Asian Studies at UCLA (1999-2002) and of the Asia Research Institute at NUS, Singapore (2002-7). Since 2004 he has been increasingly interested in the impact of natural disasters on Southeast Asian history. His books include *The Contest for North Sumatra: Aceh, the Netherlands and Britain, 1858-98* (1969); *The Indonesian National Revolution* (1974); *The Blood of the People: Revolution and the End of Traditional Rule in Northern Sumatra* (1979); *Southeast Asia in the Age of Commerce, c.1450-1680* (2 vols. 1988-93); *An Indonesian Frontier: Acehnese and Other Histories of Sumatra* (2004); *Imperial Alchemy: Nationalism and Political Identity in Southeast Asia* (2010); *To Nation by Revolution: Indonesia in the 20th Century* (2011); and *A History of Southeast Asia: Critical Crossroads* (2015).

Crossing Colonial Borders: Governing Natural Disasters in Historic Context

Fiona Williamson

National University of Malaysia,
International Institute for Global Health, United Nations University, and
University of East Anglia, UK
f. williamson@uea.ac.uk

Just as the disasters that face cities today should not be considered in isolation, so too should the lessons of the past be made available today. Using the major flood events of the Straits Settlements c. 1850-1950 as a close lens into disaster response and management, this paper takes an historic perspective on the complex dynamics of climate, science, urban planning and disaster. It will focus on a region where the history of floods has been under researched yet, floods have played a major part in developing urban planning strategies over the long-term. Under British administration, the mechanisms of disaster response in Singapore and Kuala Lumpur were frequently reactive but, over time, urban governors also developed strategies and coping mechanisms to manage the reoccurring problem. These ideas were formed by first-hand experience but also from the exchange of knowledge across borders, especially scientific knowledge about tropical climates, deforestation, climate change and urban resilience. Crossing borders in this paper then, signifies the transglobal history of ideas and information across colonial spaces and the incorporation of international and local knowledge across geographical boundaries. Exploring the history of major floods, governmental responses, and contemporaneous scientific research, this paper will argue that by understanding context and precedent in dealing with past urban disasters, we can better understand and produce efficient approaches to disaster management in the future.

Fiona WILLIAMSON is Senior Lecturer in History at the National University of Malaysia and Fellow of United Nations University International Institute for Global Health (UNU-IIGH) and the University of East Anglia (UEA), and regional manager for the Atmospheric Reconstruction Circulations over the Earth Initiative (ACRE). Current projects involve working with Southeast Asian meteorological services in order to locate, recover, and digitise historic weather observations, and a series of initiatives to better understand the climatic and environmental histories of the Indian Ocean world. Her research interests range from the history of natural disasters, climate change and urban development in the Straits Settlements, to the global history of British colonial science.

The Resilience of Islands: Borders and Boundaries of Risk Reduction

Karl Kim

Department of Urban & Regional Planning, and National Disaster Preparedness Training Center,
University of Hawaii, USA
karlk@hawaii.edu

Notions of space and time are keenly understood on small islands. It is the isolation from other communities which encourages awareness of risks as well as strengthens identity and the need for collective, collaborative action. Islands are not only exposed to many man-made and natural hazards and threats, the challenges of effective emergency response, humanitarian relief, and disaster recovery are exacerbated by location and limited transportation resources. In addition understanding the geographies of risk and vulnerabilities, the capacity to cope with and manage natural and human caused threats and hazards is necessary for survival and sustainability. While islands have long developed mechanisms for managing internal social and political affairs, the challenges with globalization have created new opportunities and challenges. While international trade and tourism have long exposed island communities to external forces, with climate change, sea level rise, and other global hazards, islands need more than ever before to develop robust systems for emergency management, risk reduction, mitigation and adaptation. In addition to national systems for coordinating response and recovery, issues related to civilian-military interactions and exchanges between international organizations play out in the planning, exercises, and management of disasters. In addition to the place-based culture and systems of governance, institutional and organizational requirements are drawn into the mix, requiring effective communications, coordination and harmonization of procedures, policies, and approaches to risk management. There is a need for both generally agreed upon principles and standards as well as a capacity to learn and adapt to localized knowledge and systems. While disasters are seen as rare events, they actually reflect and embody many of the underlying characteristics, problems, and capabilities of the affected communities. Based on experiences in Hawaii, Samoa, Indonesia, and other small island communities, the resilience of islands is investigated. Cultural knowledge, traditional systems of community resource management, and efforts to sustain local knowledge, wisdom and practices amidst growing disparities in wealth, power, and access to information and technology suggest the need for greater awareness, improved training and capacity building, and stronger commitments on the part of island and international communities to disaster risk reduction. The presentation suggests strategies and opportunities for not just building resilience on island communities, but also applying the approaches to risk reduction and resilience to other communities. With the growing scale of disaster impacts, and increased demands for outside resources, disaster managers, planners, emergency response personnel, humanitarian relief workers and those involved in longer term recovery need to understand and manage the crossing of borders and boundaries of risk reduction.

Karl KIM is Chair of the U.S. Federal Emergency Management Agency, National Domestic Preparedness Consortium (<https://www.ndpc.us/>) and the Executive Director of the National Disaster Preparedness Training Center (<https://ndptc.hawaii.edu/>). At the University of Hawaii he is the Director of Disaster Management and Humanitarian Assistance Program (<http://www.durp.hawaii.edu/Disaster%20Management.html>). He is Professor and former Chair of the Department of Urban & Regional Planning at the University of Hawaii, where he also served as Vice-Chancellor for Academic Affairs. He leads an annual training academy for Senior Executives on the Science of Disasters at the Emergency Management Institute and has conducted training programs funded by USAID and several foundations in Indonesia, Philippines, and Vietnam as well as many Pacific Island nations.

Climate Resilient Towns and Cities in the Pacific Region

Darryn McEvoy

Climate Change Adaptation Program, RMIT University, Australia
darryn.mcevoy@rmit.edu.au

Pacific communities are already highly exposed to a complex mix of natural and climate-related hazards, and are also acutely sensitive to related impacts due to poor standards of housing, inadequate infrastructure services, and a general lack of adaptive capacity. A changing climate and rapid urbanisation will further exacerbate the challenges that Pacific societies will need to adapt to in order to ensure resilient urban communities into the future. Indeed, although of lesser profile than Asian urbanisation drivers, rapid migration is occurring from the provinces to the main cities of the Pacific with migrants typically locating in the peri-urban informal settlements that surround the major cities (and hence are not identified by the urban census). However, these communities—with rudimentary housing and lacking basic services—are often the most vulnerable to disasters, as well as to longer term stresses that will become more pronounced with climate change. Adaptation in such contexts, i.e. relocation from high-risk areas, will be further complicated by land tenure arrangements and the tensions between municipal (inside the city boundary) and customary land ownership (outside). Drawing from action research being carried out for the UN-Habitat Cities and Climate Change Initiative, this paper will report on the resilience challenges facing two Pacific cities, Port Vila in Vanuatu and Honiara in the Solomon Islands, and the ongoing development of climate adaptation plans for each city. Analysis will consider the implications of regional and in-country migration for changing levels of risk, the influence of land tenure arrangements on adaptation outcomes, and the enabling role of community-centred adaptation in overcoming some of the barriers to adaptation.

Darryn MCEVOY is a research professor in climate change adaptation, specialising in urban resilience. He currently acts as chief investigator to a number of participatory action research projects in Australia and the Asia Pacific region. Examples include the development of a climate adaptation plan for RMIT University, community resilience to flooding in Queensland, reviewing the natural disaster risk assessment for Tasmania, and conducting vulnerability assessments and adaptation plans for UN-Habitat in Honiara (Solomon Islands) and Port Vila (Vanuatu). He is a member of the international scientific committee for “Urbanization and Global Environmental Change”, a global adviser for the Global Compact Cities Program, and was previously Deputy Director for the Victorian Centre for Climate Change Adaptation Research (VCCCAR: 2009-2014).

Governing Cross-border Effects of Disasters in Urbanizing Asia: What Does the Literature Tell Us?

Matthias Garschagen

Vulnerability Assessment, Risk Management and Adaptive Planning Section,
United Nations University Institute for Environment and Human Security, Germany
garschagen@ehs.unu.edu

Along with many other changes, Asia has been experiencing a continuous urbanization and regional as well as global integration over the last decades. As the same time, Asia's growing cities increasingly bear the risk for disasters related to natural hazards such as floods or typhoons. Anecdotal evidence, therefore, suggests that the cross-border effects of disasters are rising in relation to, for example, economic production, trade, migration, remittance flows or transportation. However, apart from a number of popular examples (e.g. the price hike in hard-drives following the 2011 flood in Bangkok), these effects gain attention only slowly and thus remain poorly understood.

The paper reviews the existing literature on cross-boundary effects of disasters in Asia and their governance, paying particular attention to the role of urbanization. It considers scientific literature as well as reports by global, regional and national organizations and business actors, including, for instance, the insurance industry, trade associations and disaster risk management agencies. In addition, it analyses secondary statistical data, specifically examining the effects of selected, past disasters in East, South and Southeast Asia.

The analysis shows that current knowledge on cross-border effects of disasters in Asia is very uneven in terms of, both, regions and themes. The paper therefore clearly identifies knowledge gaps and research needs. Apart from a better understanding of the material and physical cross-border effects, e.g. on food prices or migration flows, these pertain especially to the question of how disaster risk can be better mitigated and managed in an integrative manner. Even established regional platforms such as ASEAN face severe challenges in capacitating and implementing their policy frameworks for regional disaster preparedness and response. The paper explores key barriers and offers first heuristics for the formulation of recommendations.

Matthias GARSCHAGEN is the Head of Vulnerability Assessment, Risk Management and Adaptive Planning (VARMAP) at United Nations University – Institute for Environment and Human Security (UNU-EHS). He holds a PhD in Geography from the University of Cologne, Germany. His research focuses on urban vulnerability and social resilience in the context of natural hazard and climate change impacts, particularly in South and Southeast Asia. He is especially concerned with the governance of urban adaptation efforts in dynamically transforming countries and with the question of how shifts in vulnerability can be assessed in a forward-looking manner using novel scenario techniques. Over the last years, he has been taking on a leading role (principal investigator and work package leader) in several international research projects. His research findings have been published (authored and co-authored) in high-ranking international journals, e.g., on the concept of adaptive urban governance (in *Sustainability Science*), on the relationship between global urbanization and climate change vulnerability patterns (in *Climatic Change*) or on the applicability of urban resilience concepts in a cross-cultural perspective using a theoretical lens of organizational institutionalism (in *Natural Hazards*). From 2012, Matthias Garschagen has been an invited contributing author to the IPCC's Fifth Assessment Report, in the chapter on Impacts, Adaptation and Vulnerability in Asia (WG2, chapter 24).

Environmental Disasters in the Mekong Subregion: Looking Beyond Water Security Focusing on a Nexus Analysis

Andrea Haefner

School of Government and International Relations, Griffith University, Australia
a.haefner@griffith.edu.au

There are 261 transboundary river and lake basins worldwide, which cover nearly half of the earth's land surface. This accounts for approximately 60% of the global freshwater flow, and over 90% of the world's population lives in a country that shares a river basin. Freshwater resources are scarce and different nations, actors and users compete for limited sources in transboundary river basins; often conflicting with each other. For instance, in the Mekong River Basin, current hydropower and navigation developments in certain countries impact on traditional sources of income such as fisheries and rice production in downstream countries.

This paper focuses on the Mekong River and especially the challenge of handling environmental disruptions and disasters such as floods, pollution spills and hydropower dam constructions not solely as national concerns but as a regional challenge which needs to be dealt with on several government levels including the role of Intergovernmental Organisations and NGOs. A special focus is on the interlinkage of environmental disasters and the water, energy and food nexus (Nexus). This is increasingly important as resources are limited, populations increase and people move from rural to urban areas further increasing the demands on limited resources which will be demonstrated with the Xayaburi Dam case study. Current developments further increase the risks of environmental disasters such as floods and droughts in the region impacting on the millions of livelihoods depending on the river for food, accommodation and employment.

Andrea HAEFNER holds a BA of Arts from the University of Applied Science, Germany and a Master of Arts (International Relations and Asian Studies) from Griffith University in Brisbane, Australia. From there she also received her PhD which focuses on cooperation and conflict in transboundary river basins analysing the Mekong, Danube and La Plata River Basins. Overall, her research focuses on international relations in the Asia Pacific region, with a specific interest in the Mekong subregion, especially in regards to non-traditional security issues focusing on environmental security and water governance. Andrea works in the School of Government and International Relations at Griffith University, is a program coordinator and course leader for the Master of International Relation and is also an Earth System Governance Fellow. Andrea Haefner previously worked for the German local government and in international organisations in Southeast Asia. Her book titled "Negotiating for Water Resources: Troubled Bridging Waters" is forthcoming with Routledge in 2016.

Urban Transformations and Changing Local Patterns of Risk: Implications for Application of System and Regional Perspectives in the Mekong Region

Richard Friend

Institute for Social and Environmental Transition, Thailand
richard@i-s-e-t.org

Pakamas Thinphanga

Institute for Social and Environmental Transition, Thailand
pakamas@i-s-e-t.org

This paper focuses on the Mekong region – a part of the world that is going through one of the most dramatic periods of urbanisation and economic integration, while also being highly vulnerable to climate change and natural disasters. Drawing on climate vulnerability assessments conducted in cities in Thailand and Vietnam under a regional programme, the paper illustrates the significance of approaching disaster risk and climate change through the combination of systems and people-oriented approaches, rather than territorial approaches for understanding the regional and trans-boundary dimensions of climate vulnerability and disaster risk. The paper considers the ways in which urbanisation creates new patterns of vulnerability and risk that go beyond spatial impacts of specific events. In addition to the agglomeration of assets and resources in specific physical locations, contemporary urbanization depends on complex systems of physical infrastructure and technology for generating services around water, food, energy, transport, and communications. Increasingly these urban systems networked and interlinked, increasingly at regional scales. The ways in which urban people interact with systems to derive benefits are significant factors in shaping both wellbeing and vulnerabilities. Fragility or failure in such systems can have far-reaching implications beyond the location of a specific event. Approaching urban systems as interlinked and networked, we consider cascading impacts of shocks and crises at multiple scales, often beyond the administrative boundaries of cities stretching across national boundaries, and how vulnerabilities and risks are distributed unevenly across different groups of people. In this paper, we argue that such an approach to risk allows for identification of a range of multiple scale policy interventions, including those at the trans-boundary scale for disaster social protection, disaster risk reduction and climate change adaptation; and ultimately for setting a policy agenda for inclusive, transformative urban futures.

Richard FRIEND is a Senior Scientist with the Institute for Social and Environmental Transition (ISET) and Director of the Regional Office in Bangkok, involved in projects on regionalization, urbanization and climate change. He has a PhD in Development Studies based on extensive anthropological fieldwork in southern Thailand. He has been working in the Mekong Region for 20 years in areas related to human development, governance and natural resource management leading regional implementation and capacity building programmes as well as research networks, working for international NGOs, donors, inter-governmental organizations and independent think tanks. He has published widely, most recently writing on governance and poverty dimensions of urban climate resilience. He was also lead author for the United Nations 2011 Human Development Report for Cambodia entitled – “*Building Resilience; The Future of Rural Livelihoods in the Face of Climate Change*”.

Pakamas THINPHANGA is a Senior Scientist at the Institute for Social and Environmental Transition (ISET) and a consultant to the Thailand Environment Institute Foundation (TEI). She has been involved in a number of urban climate resilience projects. She is a Co-Director of the Urban Climate Resilience in Southeast Asia Partnership (UCRSEA), a five-year project focusing on building research capacity in regionalization, urbanization, climate change and vulnerability assessment, supported by the IDRC and SSHRC of Canada. The project is implemented in Cambodia, Myanmar, Thailand and Vietnam, linking with universities in Canada. As a programme manager at TEI, she led the Urban Climate Resilience Programme and was responsible for the implementation of the Asian Cities Climate Change Resilience Network (ACCCRN) and Mekong-Building Climate Resilient Asian Cities (M-BRACE) projects in Thai secondary cities.

Artificial Environmental Disasters: Hydropower Dams, Degradation, Displacement and Myanmar-Thai Cross-border Impacts

Chan Kwok-Leung Steve

School of Human Development and Social Services, Singapore Institute of Management University
stevechankl@unisim.edu.sg

Rivers run through national borders. They are more than water resources for inhabitants living along river bands. Transportation, irrigation, fishing and other economic activities in catchment areas all rely on the river. In fact, rivers form the lotic ecosystem, with which wildlife, fishes, plants and micro organisms maintain an interdependent relationship. However, human beings erect river dams blocking the flow and redirect its tributaries. Flooding control is no longer the main reason for building a dam, but hydropower generation. The construction of a river dam has transnational environmental and economic consequences. Large dams create huge reservoirs which induce earthquakes. Sediment reduces loads in the downstream, leading to degradation of river bed. The barrages also contribute to loss of fisheries at downstream of the river. Unfortunately, not all stakeholders are involved in the decision making process of dam construction, especially those vulnerable minority ethnic residents in downstream areas. This paper reviews the big river dam projects near Myanmar-Thai border, including the controversial Hat Gyi dam on Salween River. The affected river and its tributaries run through Shan and Kayan States of Myanmar. Many villagers of these minority ethnics were displaced. Some became environmental refugees fled to Northern Thailand. Ironically, Thai Electricity Authority is one of the transnational hydropower investors. Urban development in the region lifts up electricity demand and exploits river ecosystems across borders. Upstream nations, energy demand and urban development determine dam constructions at the expense of downstream livelihood, ethnic minorities and the river ecosystem. This governance model of river dams does not achieve sustainable development.

CHAN Kwok-Leung Steve is the Head of Programme, School of Human Development and Social Services, Singapore Institute of Management (SIM) University. He is also a Visiting Scholar of the Asian Research Center for Migration, Chulalongkorn University, Thailand. He is the principal investigator for the research project, "Transnational Activities, Social Networks and Labour Migration: A Study of Myanmar Migrant Workers in Singapore and Bangkok", funded by the Centre for Applied Research, SIM University. He taught environmental studies and ecology subjects at the Department of Political Science, Lingnan University of Hong Kong. His research interests cover public policy, environmental politics, economic sociology, development studies and migration. He earned his PhD at the School of Social and Political Science, University of Melbourne.

**All These Acronyms:
A Critical Analysis of Japanese “Innovation” in the Aftermath of Fukushima**

Douglas M. Miller

Henry M. Jackson School of International Studies, University of Washington, USA
dqs@uw.edu

The nuclear disaster at the Fukushima Dai-ichi Nuclear Power Plant on March 11, 2011 caused an environmental catastrophe spanning the Pacific. The nature the domestic institutional disarray created an optimal stage for the US to send both armed forces for the immediate cleanup for the disaster stricken areas, as well as sending officers from the US Nuclear Regulatory Commission to work with the Japanese Government for containing the overheating reactors. Despite US intervention and subsequent institutional restructuring, the newly christened Japanese Nuclear Regulatory Authority and other “innovations” have not indeed transformed post-disaster governance in Japan. Rather, these institutions have largely continued seamlessly from their predecessors with deliberate lack of initiative to transform crisis governance. Feldman and Fish (University of Pennsylvania) argue that transnationalization of disaster management has failed to normalize, as nations who face environmental disasters are prone to conducting crisis management independent from transnational bodies and that domestic laws stifle implementation of transnational regulatory framework. However, one critical issue is oft overlooked: the largest obstacle to cross-border disaster governance occurs when national policy disincentivizes transnational disaster management. Japan’s continuity is manifest of this disincentivization.

Douglas M. MILLER is a PhD (International Studies) student, at the Henry M. Jackson School of International Studies, University of Washington, and a professional Japanese-English translator. His primary research interest is the nature of Japanese civil society organizations and how they react to environmental disasters. This includes how social movements arise and decline, as well as sociolinguistic analyses of policy wording in the crisis communications done by the government. Douglas holds a Bachelor’s in Political Science from Temple University and a Master’s in International Studies, specializing on Japan, from the University of Washington.

Mapping Institutional Change: Emergency Management in the Soviet Union and Independent Central Asia

Evangeline McGlynn

Harvard Graduate School of Design, Harvard University, USA
emcglynn@gsd.harvard.edu

In a bureaucracy as thorough as that of the USSR, the absence of any devoted disaster response institution is surprising. The paper will examine the history of formalized emergency management in the Central Asian states from its beginnings in the late Soviet Union on through the present day and implications on future cross-border cooperation, focusing on two critical shifts in policy: the first with the establishment of formal emergency management institutions at the time of the dissolution of the Soviet Union, and the second the coming changes in management based on increasing environmental vulnerability of the Central Asian states in the present day.

This paper will argue that the key driver of institutional change toward emergency management at the end of the Cold War was the reconceptualization of risk. This shift occurred as a result of a string of large-scale disasters elsewhere in the Soviet Union coinciding with the increased transparency brought on by *perestroika*. These extra-regional events served to drive bureaucratic cultural change, arguably more so than the ever more vulnerable spaces in Central Asia. In the present day, a similar shift in understanding of risk is underway in Central Asia, where it is apparent that the increasingly visible effects of global climate change are not bound to sovereign boundaries. Consequently, the future of effective emergency management in contemporary Central Asia requires mainstreaming of this change risk thinking, where climate change is a post-modern disaster to be dealt with in a fundamentally different way than disasters of the past.

Evangeline MCGLYNN is a masters student at the Harvard Graduate School of Design, pursuing a research degree in Design Studies with a focus on risk and resilience. Prior to her enrollment in the GSD, Evangeline worked in the humanitarian sector as a regional GIS and IM specialist in Central Asia and the Middle East where she was part of the international response to the 2010 violence in Osh and later the Syrian Refugee Crisis among other humanitarian projects. Evangeline holds a BS from the University of Wisconsin-Madison in Cartography/GIS as well as a certificate in Russian, Eastern European, and Central Asian Studies. She has also worked in the software industry as an interaction designer. Evangeline's research interests include finding ways to facilitate more inclusive disaster response, particularly in regions vulnerable to social conflict.

A Capacity Approach to Cross-border Disaster Governance in East Asia: Evidence from Disease Control and Prevention Networks in Singapore and Taiwan

Allen Lai

Institute of Health Economics and Management, ESSEC Business School Asia-Pacific, Singapore
allen.lai@essec.edu

This paper reports on a qualitative study into disaster governance capacity of policy elites (politicians, medical professionals, public managers, and academicians) from 20 lead public health organizations that are active in cross-border communicable disease control networks in Taiwan and Singapore. This paper intends to answer two questions: what governance capacities were developed in lead organizations for effective collaboration in disease control measures? To what extent, and why, are capacities required for governance outcomes different or the same among groups of policy elites and between nations? It is hypothesized that variations of governance outcomes depend on the emergence, and the extent, of an organization's capacity along an analytical framework. However, because current literature in disaster governance is unclear about which factor drives critical capacities to achieve policy outcomes and why, I developed an analytical framework of governance capacity to explain the variations in the policy outcomes. This paper concludes with a number of determinants that are most pivotal in relation to policy outcomes among groups and between nations. This research holds several implications for cross-border governance scholarships and collaboration studies in particular. The conceptual framework of governance capacity suggests an innovative approach to examine and assess activities in Asian context, and explains the variations in disaster response.

Allen LAI is the Director of the Institute of Health Economics & Management Asia-Pacific, ESSEC Business School, where he heads institutional efforts in fostering knowledge transfers between academic, policy makers and business communities on health policy issues in the Asia-Pacific region. Dr Lai brings with him a wealth of experience and expertise in health management and policies. He is a medical doctor and surgeon by training and has been working at National Taiwan University Hospital and Taipei City Hospital between 1999 and 2007. Dr Lai's research areas are in health organization behaviour, health policy and analysis, and collaborative management, and public health crisis. He obtained his MSc in Preventive Medicine from National Taiwan University, MPA and PhD from the Lee Kuan Yew School of Public Policy, National University of Singapore and has published more than 40 peer review journal articles, op-eds, and book chapters.

Disasters across Borders: Borderlands as Spaces of Hope and Innovation in the Geopolitics of Environmental Disasters

John Hannigan

Department of Sociology, University of Toronto, Canada
john.hannigan@utoronto.ca

Political geographers have identified a disjuncture between the notion of a borderless world in an age of globalization and the reality of state borders that are rapidly hardening due to economic protectionism, competition over new sources of petrochemical and mineral resources, anti-immigration sentiments, and concerns over terrorism. This is very much the case for the Asia Pacific region, which has become increasingly central to global commerce, politics and security. How then can inclusive and collaborative disaster governance networks and structures that extend across national borders be successfully created and sustained? In this presentation, I build on Chris Rumford's (2011) proposal that we shift our emphasis from "seeing like a state" to "seeing like a border". This entails thinking of borders as spaces in their own right (including "spaces of hope"); recognizing "bordering" activity as equally the business of state and non-state actors (NGOs, ordinary citizens); and treating "borderlands" as dynamic sites of discursive contestation and claims-making. To provide insight into the challenges of governing environmental disasters extending across national borders, I draw upon recent research (as reported in my book, *The Geopolitics of Deep Oceans*) on sovereignty claims and clashes (especially in the Arctic, South China Sea and the Indian Ocean), transnational ocean governance, and escalating threats to deep sea and coastal ecosystems from overfishing, oil and gas drilling, underwater mining, and global climate change.

John HANNIGAN is Professor of Sociology and Associate Chair, Graduate Studies (Sociology) at the University of Toronto, where he teaches courses in cultural policy, urban political economy and environmental sociology. He has published three books: *Environmental Sociology* (1995, 2006, 2014), *Fantasy City: Pleasure and Profit in the Postmodern City* (1998) and *Disasters without Borders: The International Politics of Natural Disasters* (2012). *Fantasy City* was nominated for the 1999-2000 John Porter Award of the Canadian Sociology and Anthropology Association. *Environmental Sociology* has been translated into Chinese, Japanese, Korean and Portuguese. In his most recent book, *The Geopolitics of Deep Oceans* (Polity Press, 2015), Dr Hannigan argues that our understanding of the deep depends on whether we see it primarily as a resource cornucopia, a global political chessboard, a shared commons, or a unique and threatened ecology. He is currently co-editing the *SAGE Handbook of New Urban Studies* (with Greg Richards).

Trans Border Approach: Towards Flood Risk Management

Bhanu Pratap Mall

Poorvanchal Gramin Vikas Sansthan, India
drbhenu53@gmail.com

Shalini Jain

Asian Disaster Reduction and Response Network, India
shalini@seedsindia.org

Unplanned urbanization and climate change are exacerbating exposure to disaster risk in Asia and Asia-pacific region. An increasing number of disasters are generating consequences that extend beyond political boundaries. Hence transnational approaches to disaster management (DM) need to be articulated and practiced to minimize the losses from disasters. The unmet needs of vulnerable communities provide an opportunity to the communities to envisage creative alternative approaches blending science and technology. Recognition and sharing of these grassroots innovations can help promote partnership amongst various actors needed to strengthen disaster resilience. This piece of study by the Asian Disaster Reduction and Response Network (ADRRN) involves documenting and disseminating local grassroots innovative practice applicable for averting cross border disaster in countries in Asia.

“Trans border Approach: Towards Flood Risk Management” strongly advocates for establishing cross-border community based early warning systems between communities in Nepal and India along the Karnali (Nepal) and Ghaghra (India) rivers. It emphasizes on creating “people centered” system and empowered communities to act appropriately so as to minimize the losses from disaster. This innovation is being implemented by Poorvanchal Gramin Vikas Sansthan (PGVS), member organisation of ADRRN partnering with local and regional CSOs lending social, technical and financial support. Last year, almost 70% of the losses from floods could be avoided due to issuance of last mile early warning, especially in the areas, where this is operational. Convinced of the reliability of this approach, the (tehsil offices) local government has integrated it within their system to advise, instruct and engage the local communities. The national governments of both countries have now agreed to deliberate on this crucial issue with increased cooperation.

ADRRN strongly believes that mainstreaming this local innovation in international forums would help its promotion and replication in an increasingly complex and interlinked world. Pilots are planned to build greater outreach, for areas with similar conditions of natural cross border hazards within Asia. This venture has the potential to facilitate wider outreach and exchange of knowledge of good practices not only to the member countries of the ADRRN network in Asia but across continents.

Bhanu Pratap MALL is a qualified medical doctor from Osmania University, Hyderabad, India. He is also earned higher medical degrees from the University of Singapore. He has been associated with development sector from last 27 years, working in the capacity of Secretary, of Poorvanchal Gramin Vikas Sansthan (PGVS) until now. Under his able leadership, PGVS is successfully implementing Community based early warning system in India and Nepal. As part of this initiative, other civil society organizations are also being trained to replicate this practice in their own areas. Apart from this, PGVS under his guidance is effectively implementing disaster management programs at all levels with various stakeholders and also facilitating initiatives in mainstreaming Disaster Risk Reduction.

Shalini JAIN is working as Research & Advocacy incharge with Asian Disaster Reduction and Response Network (ADRRN). She has done her M.Phil in Sociology from Annamalai University and has been working in the development sector for last 17 years. She started her career in 1998 with a Women’s Organization working on gender issues. Joined Sustainable Environment & Ecological Development Society in 2007 and has been working on Disaster Management until then. Under Asian Disaster Reduction and Response Network (ADRRN), she is handling strategic objective: SO1: Promoting grassroots innovation by combining scientific knowledge with local wisdom. This involves field level research for the documentation and dissemination of grass root innovations. She has lead number of field researches and written reports and issue based papers. She received widespread praise for her paper “Strengthening Risk Governance and Accountability” for exploring ways to strengthening risk governance and accountability to reduce disasters in Asia Pacific region.

Zaps and Taps: Geomagnetic Storms and Cascading Disasters across Borders

Robert James Wasson

Institute of Water Policy, Lee Kuan Yew School of Public Policy, National University of Singapore
sprjw@nus.edu.sg

Large geomagnetic storms originate in the sun and have disrupted satellite operations and shut down electricity grids with impacts on communications, transportation, financial services, navigation, emergency services, hospitals, and water supply. So far these impacts have been localized and did not last for more than a few days. However when the 1859 Carrington storm (or a larger storm) is repeated the impacts could be global and last for many months to years. Failure of electricity grids will impact water supply and quality leading to impacts on households, agriculture and industry. Cross-border issues will arise where power lines move electricity between countries, such as in mainland SE Asia and China, and increasingly in S Asia. A major storm could lead to social disruption and migration across borders as food and water supplies dwindle, and also nuclear reactor meltdowns with widespread fallout. The calculated return period of a Carrington-scale event is 150 years and for smaller storms 35 to 70 years. An existing global monitoring system can provide some hours of warning that will allow vital facilities to be protected, but the monitoring system needs to be improved. Transformers will be destroyed without “hardening” by installing line series capacitors on transmission lines connecting at least critical facilities; but this will be financially challenging in less developed nations. Vulnerability assessments are lacking, as are operational management strategies. Less national and international interconnectedness of grids may also be required. These and other governance challenges will be emphasized.

Prior to joining the National University of Singapore (NUS) in 2011 Professor **Robert James WASSON** was at different times Director of the Centre for Resource and Environmental Studies, Dean of Science and Head of the Department of Geography and Human Ecology at the Australian National University, then Deputy Vice Chancellor Research and International at Charles Darwin University, Australia. He was trained in geomorphology and his research interests are: causes of change in river catchments; environmental history; extreme hydrologic events in the tropics; cross-disciplinary methods; and the integration of science into both public and private sector policy. He has done research in many Asian countries and is now a Senior Research Fellow in the Institute of Water Policy at the Lee Kuan Yew School of Public Policy, NUS. His current research is on disaster governance, particularly of floods in India and Thailand, and is extending his interests to interconnected water-related cascading disasters in Asia.

Trans-boundary Ecological Linkage and Population Movement: Narratives and Counter Narratives from India and Bangladesh

Sarfaraz Alam

Department of Geography, Faculty of Science, Banaras Hindu University, India
sarfarazalam05@gmail.com

India and Bangladesh share their largest international boundary with each other. This boundary was drawn in 1947 largely on the basis of religious demography. Issues of ecology, economy and patterns of population movement in the region were completely overlooked. As a result, despite the existence of international boundary, spatial continuities in distributions and flows of ecological and socio-economic traits are clearly visible in the region. There also exists a strong functional correlation between these traits. Any change in the ecosystem (e.g. pollution of transnational rivers) on one side often produces adverse socio-economic impact on the other side as habitat destruction, economic decline and population displacement. The crossing of international boundary by some of these environmental refugees is a major irritant for bilateral relations. Thus, the discordance between political and ecological boundaries between India and Bangladesh is a perfect setting for many bilateral conflicts. Among these, disputes over sharing and management of trans-boundary rivers and population movement are particularly prominent. These apparently simple cases of inter-state disputes frequently generate strong narratives and counter narratives on both sides of the boundary which become major hindrances in resolving bilateral problems.

This paper examines responses of these states and various non-state actors to the shifting geographies of trans-boundary rivers in India and counter population movement from Bangladesh. It also seeks to explain underlying motives behind varied responses and their implications. Finally, the paper suggests that management of these problems would, above all, require an appreciation of ecological and socio-economic integrity of the region.

Sarfaraz ALAM has a PhD in Political Geography from School of International Studies, Jawaharlal Nehru University, New Delhi. Presently, Dr Alam is working as Assistant Professor in the Department of Geography, Faculty of Science, Banaras Hindu University, Varanasi. He has briefly served in IGNOU as a Reader in Geography (School of Sciences). Dr Alam has also worked in the Institute for Defence Studies and Analysis (IDSA), New Delhi and JP University, Chapra (Bihar). He teaches students of undergraduate and post graduate classes. His research interests include environmental conflict and security in South Asia and geography education. He is also involved in a sponsored reserach project on the theme of geography education in schools of India. Presently, he is writing a book on Geography, Environment and National Security of Bangladesh to be published by Cambridge Scholars Publishing, UK.

Cross-boundary Disaster Risk Management: Lessons from the Pearl River Delta

Alain Guilloux

Development Studies, City University of Hong Kong
aguillou@cityu.edu.hk

Disaster risk management issues have increasingly been conceptualized as governance problems, with inclusiveness and cooperation as key determinants. While reducing disaster risk within a single country is challenging, in particular where multiple jurisdictions and governance levels overlap, handling disaster risk across borders may be an even more complex task. Cross-border cases of environmental disasters are generally addressed in more effective ways where supra-national institutions, such as the European Union, are in a position to establish common rules. The lack of similar, rule-based intergovernmental institutions across the Asia-Pacific region has led to sub-optimal results, as evidenced in particular with recurring haze episodes affecting Singapore, Indonesia and Malaysia. Megacities around the world, especially coastal ones, are often regarded as areas at a high of disaster but no megacity straddles international borders. In this paper I focus on an atypical case: the Pearl River Delta – more specifically the Pearl River estuary. The area extending from Hong Kong to Guangzhou, is the second most populated urban area worldwide. One of the key hubs of the global economy, in particular in terms of logistics, manufacturing and finance, the PRD has been flagged as high-risk, in particular with regard to hydro-meteorological disasters. While the largest part of the region falls directly under the Peoples' Republic of China jurisdiction, an entirely different set of laws and institutions, largely inherited from British colonial rule, applies to the Hong Kong Special Administrative Region (HKSAR) and is set to remain distinct until 2047. This paper examines disaster risk governance and response across the Pearl River Delta, the factors that hinder tighter cross-border cooperation, and possible future scenarios.

Alain GUILLOUX holds a PhD from University of Hong Kong, and Master in Management from Ecole des Hautes Etudes Commerciales – Paris. He has over 20 years of experience as a volunteer, programme officer, project evaluator, policy analyst, CEO, Board member and treasurer in humanitarian aid, development, philanthropy and NGO management. He is currently a visiting Assistant Professor at the Department of Asian and International Studies in City University of Hong Kong since 2010. He teaches programme management, policy and advocacy, disaster management, and research methods, primarily in the Master of Social Sciences / Development Studies programme. His research focus on humanitarian action, disaster management, foreign aid, humanitarian interventions, and global and regional governance, primarily in the context of East and Southeast Asia.

Singapore's Transboundary Haze Pollution Act of 2014: Can it Really Work to Prevent the Haze?

Alan Khee-Jin Tan

Faculty of Law, National University of Singapore
alantan@nus.edu.sg

As we meet here in 2015, transboundary smoke or “haze” pollution from Indonesian forest and land fires is choking the region. What can the victim states do? In Singapore’s law books is its new Transboundary Haze Pollution Act, which came into operation on 25 September 2014. The Act is a dramatic piece of legislation that creates extra-territorial liability for entities engaging in setting fires abroad that cause transboundary smoke or “haze” pollution in Singapore. The impetus for the Act’s enactment can be traced to the serious haze pollution from Indonesia that hit Singapore in June 2013. The Act is at once ambitious and controversial in that it seeks to impose liability based on a series of legal presumptions - that a particular entity owns a certain tract of land abroad if there are maps showing such, and that it is the burning on this land that causes haze pollution in Singapore. This paper critiques the prospects of this Act in successfully deterring large-scale burnings and fires in Indonesia, given the complexities of land use conflicts and inadequate law enforcement on the ground.

Alan Khee-Jin TAN is Professor of Law at the National University of Singapore (NUS). An alumnus of the NUS and Yale law schools, he researches into aviation law, environmental law and maritime law. His book on marine environmental law and the shipping industry, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, was published by Cambridge University Press. Alan has written extensively on Indonesia’s state responsibility for the transboundary impact of forest fires and the problems of decentralization and natural resource management in Indonesia. These have appeared in the *International and Comparative Law Quarterly*, the *NYU Environmental Law Journal*, and a 2015 book, *Transboundary Pollution: Evolving Issues of International Law and Policy*. Alan was a co-editor of a multi-disciplinary work, *Biodiversity and Human Livelihoods in Protected Areas: Case Studies from the Malay Archipelago* (Cambridge University Press). In 2015, he was appointed by the Singapore government as Eminent Expert to its International Advisory Panel on Transboundary Pollution.

Governing Transboundary Haze Disaster among Indonesia, Singapore and Malaysia: Time to Move from High Politics to Low Politics

Siti Daulah Khoiriati

Department of International Relations, Faculty of Social and Political Science,
Gadjah Mada University, Indonesia
daulahk@ugm.ac.id

Cifebrima Suyastri

Department of International Relations, Faculty of Social and Political Science,
University of Riau, Indonesia

Marhadi

Faculty of Economics, and Center for Disaster Studies, University of Riau, Indonesia

Trans-boundary haze pollution from Indonesia to Singapore and Malaysia has become a serious problem since the 1990s, which tend to trigger conflicts. In 2013, when the Standard Pollution Index (SPI) hit 400 point, it became a trans-boundary haze disaster. Efforts to find solution have been initiated, resulted in the ASEAN Agreement on Trans-boundary Haze Pollution (AATHP) signed in Malaysia in 2002. As a cooperation mechanism at the government level, the agreement was meant to prevent future haze disaster. However, that highly-political and technical mechanism was relatively unsuccessful, when Indonesia as the producer of haze keeps delaying ratification until 2014. The AATHP still leave doubts concerning its effectiveness, considering that the disaster still continues to occur each year. The purpose of this paper are twofold: first, it attempts to review the ineffectiveness of AATHP in governing trans-boundary haze disaster by looking at the inter-governmental relations in responding to the ASEAN agreement; and second, it argues that inter-governmental handling of the problem through merely formal agreement is insufficient. It needs collective actions and collaborative networks across borders which involves multi-stakeholders in preventing, responding and coping with future haze disasters. The paper then proposes an alternative solution to the problem by shifting from “high politics” which focuses on government as the main actor and the issue of violation of airspace by haze pollution to “low politics” involving non-state actors with wider issues such as human health, human security and economic development. Only through this mechanism effort in governing trans-boundary haze disaster would be relatively successful.

Siti Daulah KHOIRIATI is Lecturer at the Department of International Relations, Faculty of social and Political Science, Universitas Gadjah Mada, Yogyakarta, Indonesia. She is educated at the Graduate School of International Relations, International University of Japan (MA, 1991); Graduate School of International Development, Nagoya University, Japan (Finished PhD Program without degree, 2000); and Graduate School of International Cultural Studies, Aichi Prefectural University, Aichi, Japan (PhD Candidate, 2015). Her research interests are: Transnational Relations, International Political Economy and Development.

Cifebrima SUYASTRI is Lecturer at the Department of International Relations, Faculty of Social and Political Science, University of Riau, Pekanbaru, Indonesia. She is educated at the Department of International Relations, Univerity of Riau (BA, 2007); Department of International Relations, Universitas Gadjah Mada (MA, 2010). She has conducted research on transboundary haze pollution in Indonesia.

Marhadi is Lecturer at the Faculty of Economics, University of Riau; Researcher at the Center for Disaster Studies, University of Riau. He is educated at the Faculty of Economics, University of Riau (BA, 2006); Department of Economics, Universitas Gadjah Mada (MSc., 2009).

China-based Air Pollution and Epistemic Community Building in the Northeast Asian Region

Matthew A. Shapiro

Department of Social Sciences, Illinois Institute of Technology, USA
shapiro@iit.edu

New technologies are driven principally by need, and paramount among such needs are those framed by environmental disasters. In Northeast Asia, trade winds blow west to east, so anything airborne in China remains airborne in some fashion in Korea, Japan, parts of Russia, and beyond. Thus, the increase of Chinese air pollution as well as the yellow sand/dust that exacerbates the transfer of pollutants is both a domestic and international concern. This paper assesses the impact of institutions that can mitigate the pollution blowing out of mainland China, paying particular attention to the Northeast Asian epistemic community of scientists and engineers. With regard to Northeast Asia transboundary air pollution, the primary research questions to be considered are as follows: What are the existing formal and informal institutions that foster environmental regionalism? How are domestic political factors thwarting efforts to establish both of these types of institutions? What are the prospects for continued epistemic community building? A mixed methods approach is employed to answer these questions, integrating institutional analysis, patent and publication data, and interview-based data that draw upon the experiences of key scientists and researchers.

Matthew A. SHAPIRO is an Associate Professor of Political Science at the Illinois Institute of Technology and an East Asia Institute Fellow. He was trained in political science, economics, and public policy at the University of Southern California, and his published and ongoing research focuses on how national innovation systems are formed and contribute to sustainable development, how climate change is addressed and impacted by relevant policies and political forces, and how communications from politicians, scientists, and the media impact both of these areas. Dr Shapiro's work has been published in *The Pacific Review*, *American Politics Research*, *Environment & Planning A*, *International Journal of Public Policy*, and *Scientometrics* among others. More information can be found at www.understandgreen.com.

Post-environmental Disaster Management: Rehabilitation, Recovery and Reconstruction – “Whole-of-the-world Governance” and the ASEAN Context

Koh Kheng-Lian

Faculty of Law, National University of Singapore
lawkohkl@nus.edu.sg

This paper evaluates ASEAN’s role in post-environmental disaster management and a call for a “whole-of-the-world” approach. It focuses on the aftermath of Super Typhoon Haiyan/Yolanda in Philippines which occurred on 8 November 2013. The destruction and disruption wrought in Tacloban City, Leyte, Samar, Cebu and Eastern Samar was unprecedented in the ASEAN region. It caused tangible and intangible damage, ranging from loss of infrastructure, property, lives (over 6,000) and loss of livelihoods. Even today, some 14 million people are still without homes and jobs. The trauma has also left deep impacts on people in terms of health, physical and mental. The time is opportune to take stock of rehabilitation, recovery and reconstruction (RRR) in the post-disaster phase. Haiyan provides an opportunity for ASEAN not only to operationalise its RRR provisions under the ASEAN Agreement on Disaster and Emergency Response, 2005 (ADDMER), the Agreement on the Establishment of the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management, 2011 and other relevant instruments. There are also other important lessons to be learned. It calls for a rethinking of the traditional concept of humanitarian relief as this is very much linked to RRR. Disaster risk reduction and building resilient communities are also linked to humanitarian efforts and are important lessons for future disasters. This itself brings to the fore new modalities and philosophy of humanitarian aid – a rethinking of the traditional military role is crucial as it is now called upon to cooperate with the civil defence role. The task is massive. No one country, no one region (e.g. ASEAN) can deal with such mega disasters. Typhoon Haiyan epitomizes that the intensity and unexpected impact of human induced climate change disasters demand a rethinking in terms of cooperation, coordination, communication, humanitarian aid, governance and much else besides. ASEAN’s disaster management cooperation framework cuts across national, regional and international boundaries. There were also numerous other donors and organizations that rendered and are still rendering assistance to Philippines. It is not surprising that this overcrowding of aid can be overwhelming and can lead, for example, to a choking up of relief items at the customs or points of entry. Questions of governance, lack of communication can lead to delays and frustrate efforts at RRR. How can a more coordinated ‘whole-of-the-world’ approach be achieved?

KOH Kheng-Lian is Emeritus Professor of the Law Faculty, National University of Singapore. She was a founder member and former Director of the Asia-Pacific Centre for Environmental Law from 1996 – June 2013. She was the IUCN CEL Regional Vice Chair for South and East Asia, and a member of its Steering Committee (1996-2004). She has been a resource person in various capacity building projects in environmental law with the Asian Development Bank, the Singapore Ministry of Foreign Affairs, United Nations Institute for Training and Research and Konrad Adenauer Stiftung. She is the 2012 Laureate, Elizabeth Haub Prize in Environmental Law conferred jointly by the University of Stockholm, Université Libre de Bruxelles and the International Council of Environmental Law, <http://www.juridicum.su.se/ehp/news.html>. She is an inductee to The Singapore Women’s Hall of Fame 2014 for her pioneering work in the development of environmental law in the region, <http://www.swhf.sg/the-inductees/17-environment-conservation/138-koh-kheng-lian>.

The Empowerment of Local Community Groups as a New Innovation in Cross Borders Disaster Management Frameworks

Yenny Rahmayati

Center for Design Innovation, Swinburne University of Technology, Australia
yrahmayati@swin.edu.au

Natural disaster will be the major transboundary disaster over the next few decades. Asia in particular remains a place prone to different sized natural disasters ranging across tsunami, earthquake, flood and forest fire that all have cross borders impacts. Numerous studies on disaster management have been made. However, most of these discuss the subject from a policy level perspective, and less attention is given to the role of the community; community are not considered to be important in the process of disaster management. In fact, in many cases of disaster, the local community was the first group who dealt with emergency efforts before the international assistance arrived. Their role needs to be empowered by including them in the disaster management framework. They can be a new driver of policy innovation in building social resilience for future disasters. Based on empirical evidence from the Aceh Tsunami 2004 as a case study, this paper explores the role of local community groups (local NGOs, local traditional groups, women's and youth groups) and how to empower them in the cross borders disaster management framework. The Aceh Tsunami disaster provides a useful lesson for the Asian context and the international world, not only in terms of the impacts of disaster but also for cross border emergency and rehabilitation efforts. This paper puts forward recommendation for a model of cross borders disaster management framework that can be applied to other urbanizing world regions.

Yenny RAHMAYATI is a Postdoctoral Research Fellow for Design and Community Development at Centre for Design Innovation (CDI) of Swinburne University of Technology, Melbourne-Australia. She is currently working on Humanitarian Village Project that focused on designing better emergency village set up systems and shelters for people escaping highly distressing scenarios. Yenny received her PhD in Architecture from School of Design and Environment, National University of Singapore with the scholarship from the Asia Research Institute of National University of Singapore and obtained her Master Degree in Sustainable Heritage Development and Management from The Australian National University under the Australian Partnership Scholarship scheme. She has been working with several international aid agencies and non-profit organisations, primarily in the area of cultural heritage and community development in post-disaster contexts. Yenny's work focuses on post-disaster housing, disaster and reconstruction, housing and urban studies, community development, NGO, cultural heritage management, vernacular architecture, public good design, strategic & transformative design: culture, and strategic & transformative design: sustainability.

Cities as Aid Agencies? Experience from Selected Asian Cities

Kristoffer B. Berse

National College of Public Administration and Governance, University of the Philippines
kbberse@up.edu.ph

Anchored on network-based city-to-city cooperation, a relatively young and underexplored form of decentralized development cooperation, the paper presents the experience of selected Asian cities in extending outbound relief and technical assistance and in promoting risk reduction measures outside their territorial boundaries. It specifically discusses six cases of cooperation under the umbrella of a city network: (a) Yokohama, Penang, Kuala Lumpur and Banda Aceh (2005-2008); (b) Makati and Kathmandu (2008); (c) Moratuwa, Galle and Yokohama (2005-2007); (d) Mumbai and Khulna (2009); (e) Yokohama and Bangkok (1997-2001); and (f) Yokohama, Islamabad and Muzaffarabad (2006-2009).

Lessons from the case studies indicate that network-supported inter-city cooperation has the potential to break down the traditional practice of development aid as being a North-South partnership. It also shows that while most of the partnerships involved local authorities as aid agencies, cooperation has been enriched by the managerial and administrative contributions of a city network and the participation of local partners on the ground. The cases further demonstrate that city-to-city cooperation has provided a flexible mechanism for effecting changes at any point in the disaster cycle, that is, not just during the response phase. Some of the challenges faced by the cities in fostering inter-city cooperation include the need to bring in more cities and actors into the partnership; augment funding at the network and city level; enhance the cooperation experience to be more inclusive; and strengthen monitoring and evaluation mechanisms.

Kristoffer B. BERSE is Assistant Professor at the University of the Philippines' National College of Public Administration Governance in Quezon City, Philippines. Outside the academe, he serves as a consultant for government, civil society and international development organizations in areas broadly criss-crossing the intersections of urban development, governance, and environment. His recent publications include: *"From Yokohama with love: Transferring Best Practices through International Municipal Cooperation"* (in Y. Nishimura & C. Dimmer, eds., *Planning for Sustainable Asian Cities*, APSA 2011 Selected Papers, 2012) and *"Building Local Government Resilience through City-to-city Cooperation"* (in R. Shaw & A. Sharma, eds., *Climate and Disaster Resilience in Cities*, Emerald, 2011). Dr Berse earned his PhD (urban engineering) and master's degrees (environmental studies) from the University of Tokyo as a Japanese Government and Asian Development Bank scholar, and his bachelor's degree in public administration from the University of the Philippines.

ABOUT THE CHAIRPERSONS AND ORGANISERS

Christopher COURTNEY received his PhD in Social Anthropology from University of Manchester. In 2013 he was awarded a Research Fellowship at Gonville and Caius College, University of Cambridge. His current research focuses upon the social and environmental history of large flood disasters in the Middle Yangzi region of China during the twentieth-century. He is currently completing a monograph on the subject of the 1931 Central China Flood. While at ARI, he will be conducting a research project into the problem of flooding in Hubei in the early Mao-era.

Eli ELINOFF is currently a joint Postdoctoral Fellow in Asian Urbanisms in the National University of Singapore's Department of Sociology and the Asia Research Institute. He received his PhD in Anthropology from the University of California, San Diego. He is currently working on a book manuscript that explores questions of democracy, citizenship, and urban sustainability through an ethnographic examination of new forms of participatory planning and historical struggles over land rights in Khon Kaen, Thailand. He has publications in *South East Asia Research*, *Political and Legal Anthropology Review*, and *Contemporary Southeast Asia*. He has also begun new research on urban ecologies and concrete in contemporary Thailand.

Eric KERR is Postdoctoral Research Fellow in the Science, Technology & Society cluster at the Asia Research Institute, Lecturer in the Department of Philosophy, and Fellow of Tembusu College, National University of Singapore. He writes primarily on the philosophy of technology and epistemology, with a focus on petroleum engineering. He is currently working on issues of risk, safety, expertise, responsibility, evidence, artefacts, perception and cognition based on his philosophical research and fieldwork with engineers in Thailand. Eric received his PhD from the University of Edinburgh in 2013 and has been a visiting researcher at the University of Vienna and TU Delft.

Jerome WHITINGTON has a joint appointment as a Fellow of Tembusu College and a Research Fellow in the Science and Technology Studies cluster of the Asia Research Institute. His primary research project, *Accounting for Atmosphere: Climate Change, Quantification and the Second Life of Carbon*, studies the cultural significance of efforts to manage the chemical composition of the atmosphere. In particular, he investigates digital knowledge infrastructures of carbon accounting, carbon markets and other forms of interactive practices with the atmosphere. His previous research has dealt with hydropower development in the mountainous highlands of the Mekong region, and he has published on topics ranging from water infrastructure and climate change to the history of climate change science. He formerly held positions at Dartmouth College and the New School University in the United States, and has been a visiting scholar at Columbia University and New York University. He has lived in Asia for around ten years.

Jonathan RIGG is a development geographer interested in illuminating and explaining patterns and processes of social, economic and environmental change in the Asian region and the impacts of such changes on ordinary people and everyday life. In his work, he has tried to give a "face" to the individuals buffeted by modernisation and ascribe to them an agency which is sometimes absent in higher level interpretations of change. He has been concerned to treat ordinary people as special and the geographical contexts in which they live—and which they help to shape—as distinctive. He is currently working on three projects: an international, interdisciplinary study of resilience to earthquake risk in the continental interior of Asia; a study of the role of land in agrarian change in Thailand; and a project on the survival of the smallholder in East and Southeast Asia. His latest book *Challenging Southeast Asian Development: The Shadows of Success* was published in August.

Gregory CLANCEY is an Associate Professor in the Department of History, the Leader of the Science, Technology, and Society (STS) Research Cluster at the Asia Research Institute (ARI) and Master of Tembusu College at National University of Singapore (NUS). He formerly served NUS as Assistant Dean of the Faculty of Arts and Social Sciences, and as Chairman of the General Education Steering Committee, on which he is still a member. Assoc Prof Clancey received his PhD in the Historical and Social Study of Science and Technology from MIT, and has been a Fulbright Graduate Scholar at the University of Tokyo, and a Lars Hierta Scholar at the Royal Institute of Technology (KTH) in Stockholm, Sweden. He has won three NUS teaching awards. Assoc Prof Clancey's research centers on the cultural history of science & technology, particularly in modern Japan and East Asia. His book *Earthquake Nation: The Cultural Politics of Japanese Seismicity* (Berkeley: U. of California Press, 2006) won the Sidney Edelstein Prize from the Society for the History of Technology in 2007, and was selected as one of the "11 Best Books about Science" for the UC Berkeley Summer Reading List, sent to all incoming Freshmen in 2009. He is co-editor of *Major Problems in the History of American Technology* (Boston: Houghton-Mifflin, 1998) and *Historical Perspectives on East Asian Science, Technology and Medicine* (Singapore: Singapore U. Press & World Scientific 2002). Assoc Prof Clancey is the 2012 recipient of the Morison Prize from MIT for "combining humanistic values with effectiveness in the world of practical affairs, and in particular, in science and technology".

Michelle MILLER is a Senior Research Fellow in the Asian Urbanisms Cluster at the Asia Research Institute, National University of Singapore. She previously taught in the Masters of International and Community Development program at Deakin University and on subjects related to participatory approaches to development at Charles Darwin University. Her PhD from Charles Darwin University is in the field of political science and she is the recipient of that university's Speaker Prize in Politics. She has been principal investigator or collaborator on numerous grants that have centered on themes such as disaster governance, urban change and decentralization in Asia, minority rights, conflict resolution and local development. Dr Miller has conducted research in Indonesia for fifteen years, focusing particularly on Indonesia's westernmost province of Aceh, but more recently on Yogyakarta and Solo. Her current research investigates the role of decentralized urban governance in preparing for, responding to and recovering from environmental disasters. She has authored, edited or co-edited a number of books including: *Rebellion and Reform in Indonesia: Jakarta's Security and Autonomy Policies in Aceh* (Routledge, 2009); *Autonomy and Armed Separatism in South and Southeast Asia* (ISEAS, 2012); *Ethnic and Racial Minorities in Asia: Inclusion or Exclusion?* (Routledge, 2012); (with Tim Bunnell) *Asian Cities in an Era of Decentralisation* (Routledge, 2014); and (with Mike Douglass) *Disaster Governance in Urbanising Asia* (Springer, forthcoming 2016).

Mike DOUGLASS is Professor at the Asia Research Institute, where he is Leader of the Asian Urbanisms Cluster, and Professor at the Lee Kuan Yew School of Public Policy, National University of Singapore. He is Emeritus Professor and former Chair of the Department of Urban and Regional Planning at the University of Hawaii where he was also the Director of the Globalization Research Center. He received his PhD in Urban Planning from UCLA. He previously held positions in the United Nations and taught at the Institute of Social Studies (Netherlands) and the University of East Anglia (UK).

Paul RABÉ is the Coordinator of the Urban Knowledge Network Asia (UKNA), based at the International Institute for Asian Studies (IIAS) in Leiden, the Netherlands. UKNA is a research network on urbanization in Asia that brings together over 100 researchers from 14 different institutes in India, China, Southeast Asia, Europe and the United States to produce policy-relevant knowledge on Asian cities. Paul has a doctoral degree in policy, planning and development from the University of Southern California's Sol Price School of Public Policy and Master's degrees in urban management from Erasmus University/IHS in the Netherlands and in International Relations from Columbia University's School of International and Public Affairs. In addition to his responsibilities as UKNA coordinator, Dr. Rabé works as advisor on urban land, housing, governance and poverty reduction for central governments, municipalities, donor agencies and civil society organizations. In this capacity he works in cities in Asia, the Middle East, Africa and the Balkans.

Rita PADAWANGI is a Senior Research Fellow at the Asia Research Institute, National University (NUS). She was a researcher at the Lee Kuan Yew School of Public Policy, NUS and a Research Fellow at the Global Asia Institute, NUS; Center for Urban Research and Learning at Loyola University Chicago; and Centre for Strategic and International Studies in Jakarta, Indonesia. She received her PhD in Sociology from Loyola University Chicago where she was also a Fulbright Scholar for her MA studies. With research interests spanning over the sociology of architecture and participatory urban development, Dr Padawangi has conducted various research projects in Southeast Asian cities, including in Indonesia, the Philippines, and Singapore. She is also actively conducting research on social movements and public spaces in Indonesia. Her commitment to social activism in the built environment keeps her connected with community groups and practitioners in many cities in the region.

Tyson VAUGHAN is a Postdoctoral Research Fellow in the Asian Urbanisms and the Science, Technology & Society clusters at the Asia Research Institute of the National University of Singapore, and a Fellow of Tembusu College at NUS. His research contributes to studies of disaster, public engagement with technoscience (knowledge, experts, technologies), and democratic governance of “envirotechnical” risk and sociotechnical order. Much of his work is ethnographically grounded in the context of post-disaster recovery in Japan. At ARI he is a member of the DisasterGovernance.Asia research team, funded by a Tier 2 MOE research grant (Mike Douglass PI).