

RESILIENT CITIES FOR HUMAN FLOURISHING

GOVERNING THE ASIA-PACIFIC URBAN TRANSITION IN THE ANTHROPOCENE

2-3 MARCH 2017



This workshop is organised by the Asia Research Institute; supported by the Humanities and Social Sciences Seed Fund, National University of Singapore.

The rapidly changing urbanising societies of Asia and the Pacific have never been more vulnerable or exposed to environmental threats and disasters linked to anthropogenic transformations of nature and the increasingly severe effects of global climate change. Urban transformation in the region has been accompanied by heavy industrialisation and rural to urban migration flows that have generated additional environmental risks through the formation of extended urban settlements, many of which are located at or below sea level along coastlines or in river basins. The expanding ecological footprint of urban energy demands onto rural hinterlands is making cities the primary perpetrators of environmental harm through their emissions of greenhouse gases that substantially contribute to climate change, while at the same rendering urban populations disproportionately vulnerable to climate change-related weather events and rising sea levels. These intersections between the urban transition in the Asia-Pacific and the Anthropocenic moment of planetary environmental disruptions are raising policy questions about how to strengthen resilience in cities through the cultivation of civic cultures centered on social inclusion and a shared identity around environmental responsibility and socioecological justice.

The purpose of this multidisciplinary workshop is to explore innovations in governance aimed at building urban resilience to various forms of environmental harm while protecting human flourishing through the creation of civic cultures centered on more sustainable forms of resource consumption. In framing resilience as a function of human flourishing we understand the capacity to flourish as being inexorably linked to the future viability of humans as an urban species. This necessitates a shift in thinking about what human flourishing means away from narrow economic indicators centered on consumptive patterns, and towards wider conceptions of flourishing and linked notions of human well-being that encompass our interdependencies on non-human species and wider city-environment relationships. In the 21st century, there is growing awareness that city performance indicators centered on liveability alone are no longer adequate or appropriate to build resilient urban societies or to reduce the socioeconomic inequities that render significant sections of urban societies less environmentally resilient. Assumptions of sustainability embedded in standard measurements of liveability are being eroded by growing signs of climate change (for example, through worsening urban heat island effects), by shortages in water and other essential resources, by escalating rural to urban migration, through flows of environmental refugees to urban centres and in the form of environmental 'shocks' on global supply chains.

In the Asia-Pacific region, the growing impacts of this imbalance in human-environment interactions are raising awareness of the need to better integrate different sectors across scales in the service of building more resilient urban futures that can promote human flourishing in ways that are aligned with sustainable ecological futures. This includes reconfiguring our aspirations for human flourishing by mobilising civic capacities for environmental stewardship in urban governance regimes that are not limited to electoral cycles and adopting a longitudinal and ongoing approach to the regeneration of the earth's biosphere. It also includes changing the identities of the drivers of global change to promote more resilient civic identities around the development of sustainable ecologies ranging from the neighbourhood through to the city, nation-state, regional and even the global scale.

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

- What kinds of innovations in governance are emerging to prepare urban agglomerations for more environmentally resilient and socially inclusive futures?
- To what extent can the mobilisation of civic cultures help to mitigate the growing threats and costs of environmental harm and promote the cultivation of more sustainable ecologies? How do social identities contribute to or inhibit inclusive environmental governance?
- How can cultural diversity contribute to environmental stewardship of the urban commons? What is the potential for religious and cultural groups to foster socioecological resilience by providing different learning streams and by drawing upon diverse forms of socioecological memory?
- What obstacles and bottlenecks are undermining the efficacy of urban populations in governing their natural ecologies and wider ecological terrains? To what extent can collaborative relationships at different scales of governance improve city-environment interactions to promote human flourishing and renewal of the earth's life support systems?
- How can we use the lens of urban environmental governance to think about global networks of urban resilience as part of a changing planetary ecology?

WORKSHOP CONVENORS

Dr Michelle Miller

Asia Research Institute, National University of Singapore

Prof Mike Douglass

Asia Research Institute, and Lee Kuan Yew School of Public Policy, National University of Singapore

Prof Jonathan Rigg

Asia Research Institute, National University of Singapore

THURSDAY, 2 MARCH 2017

09:15 – 09:30 REGISTRATION

09:30 – 09:45 WELCOME AND INTRODUCTORY REMARKS

Jonathan Rigg, National University of Singapore

Mike Douglass, National University of Singapore

Michelle Miller, National University of Singapore

09:45 – 11:15 PANEL 1 | GLOBAL CLIMATE CHANGE ADAPTATION FOR URBAN RESILIENCE

CHAIRPERSON **Alan Ziegler**, National University of Singapore

09:45 **Adapting to Climate Change in Unfamiliar Places: Exploring the Consequences of Climate-Related Displacement for Just Resilience in Vietnam**

Fiona Miller, Macquarie University, Australia

10:05 **Flourishing in the Anthropocene: Integrating Local and Indigenous Knowledge with Global Climate Models**

Oceana Francis, University of Hawaii, USA

Karl Kim, University of Hawaii, USA

10:25 **Risk Governance in Metro Manila Cities: Resilience for Whom?**

Emma Porio, Ateneo de Manila University, The Philippines

10:45 Questions and Answers

11:15 – 11:45 MORNING TEA

11:45 – 13:15 PANEL 2 | ENVIRONMENTAL STEWARDSHIP

CHAIRPERSON **Chris Courtney**, National University of Singapore

11:45 **Ancient and Current Resilience: Adaptive Planning and Governance in the Chengdu Plain, Sichuan, China**

Daniel B. Abramson, University of Washington, USA

12:05 **Contesting Imaginaries in Australian Cities: Urban Design, Public Storytelling and the Implications for Climate Change**

Emily Potter, Deakin University, Australia

12:25 **The Stewardship of Biodiversity in Asian Cities and the Efficacy of Environmental Governance**

Mark McDonnell, University of Melbourne, Australia

12:45 Questions and Answers

13:15 – 14:15 LUNCH

14:15 – 15:45 PANEL 3 | CIVIC ACTIVISM FOR HUMAN FLOURISHING

CHAIRPERSON **Rita Padawangi**, National University of Singapore

14:15 **Connecting Responsibility and Resilience: Activism and Urban Transitions in Hong Kong and Singapore**

Sara Fuller, Macquarie University, Australia

14:35 **The Underlying Possibilities and Issues of Community Regenerative Art Projects in the Wake of Natural Disasters**

Motohiro Koizumi, Rikkyo University, Japan

14:55 **Changing the Urban Landscape from the Ground Up: Cases from Singapore and Seoul**

Im Sik Cho, National University of Singapore

15:15 Questions and Answers

15:45 – 16:15 AFTERNOON TEA

16:15 – 17:45 PANEL 4 | GREENING CITIES FOR RESILIENT URBAN FUTURES?

CHAIRPERSON **Winston Chow**, National University of Singapore

16:15 **Governing Urban Gardens for Resilient Cities: “Garden City” Program in Taipei**

Jeffrey Hou, University of Washington, USA

16:35 **Between Heritage and Development: Landscape Conservation and the Fight for Sustainable Futures in Penang’s Urban Transition**

Creighton Connolly, National University of Singapore

16:55 **Green Megaprojects and Displacement in the Global South: Uncovering the Rationales of State-Led Development in Malaysia and Qatar**

Agatino Rizzo, Luleå University of Technology, Sweden

17:15 Questions and Answers

17:45 END OF DAY ONE

FRIDAY, 3 MARCH 2017

09:30 – 11:00 SPECIAL PANEL | SOUTH ASIA

CHAIRPERSON **Robert Wasson**, National University of Singapore

09:30 **Science and Law to the Rescue of India's Disastrous Coastal Urbanism?
Loss of Imagination and Reimagining a Future**

D. Parthasarathy, Indian Institute of Technology Bombay, India

09:50 **Hydrating Hyderabad: Rapid Urbanisation, Water Scarcity/Plenty, and Human
Flourishing/Resilience**

Tracey Skelton, National University of Singapore

Diganta Das, Nanyang Technological University, Singapore

10:10 **Resilience and Environmental Governance in Himalayan Cities in Bhutan and India**

Caroline Brassard, National University of Singapore

Divya Upadhyaya Joshi, Kumaun University, India

10:30 Questions and Answers

11:00 – 11:30 MORNING TEA

11:30 – 13:00 PANEL 5 | EMERGENT PROGRESSIVE GOVERNANCE I

CHAIRPERSON **Howard Dick**, National University of Singapore

11:30 **Environment Governance in Asia's World City: Ready for a "Third" Urban Revolution?**

Mee Kam Ng, The Chinese University of Hong Kong

11:50 **Resilience Thinking and Emergent Governance**

Martin Mulligan, RMIT University, Australia

12:10 **Urban Resilience through Progressive Governance: The Case of 'One Less Nuclear
Power Plant' Policy, Seoul, Korea**

Myung-Rae Cho, Dankook University, South Korea

12:30 Questions and Answers

13:00 – 14:00 LUNCH

14:00 – 15:30 PANEL 6 | EMERGENT PROGRESSIVE GOVERNANCE II

CHAIRPERSON **Eric Kerr**, National University of Singapore

14:00 **Planning on Resilience: Architecture for the Anthropocene**

Karl Kim, University of Hawaii, USA

14:20 **On the Governance of Fire: Managing the Externalities of the Urbanization-
Deforestation Cycle**

Etienne Turpin, Massachusetts Institute of Technology, USA, and PetaBencana.id, Indonesia

D.T. Cochrane, York University, Canada

14:40 **Cities and the Anthropocene: Urban Governance for the New Era of Resilient and
Regenerative Cities**

Giles Thomson, Curtin University, Australia

15:00 Questions and Answers

15:30 – 16:00 CLOSING REMARKS & DISCUSSION

Michelle Miller, **Mike Douglass**, & **Jonathan Rigg**, National University of Singapore

16:00 **END OF WORKSHOP**

Adapting to Climate Change in Unfamiliar Places: Exploring the Consequences of Climate-Related Displacement for Just Resilience in Vietnam

Fiona Miller

Department of
Geography and Planning,
Macquarie University, Australia

fiona.miller@mq.edu.au

Connections to place and relations between people are being radically reconfigured in response to climate risks. Climate change is likely to increase the scale of displacement in the Asia Pacific region, leading to intensified patterns of migration as well as forced resettlement. These two processes, though differing in terms of individual agency and the role of the state, are likely to further exacerbate pressure on urban areas. As the limits to adaptation in risky places are reached, people are increasingly pursuing migration as a way of coping. This strategy demonstrates people's agency to respond to risks and opportunities. Resettlement, in contrast, tends to undermine people's agency. This risk response is increasingly being implemented by states in the region as part of climate change adaptation plans, yet, it often results in the creation of new vulnerabilities for those forcibly resettled. Through a focus on the 'climate hotspot' of the Mekong Delta, Vietnam, this paper explores how communities and governments might anticipate and resolve some of the humanitarian, livelihood and ecological challenges associated with resettlement in an increasingly resource constrained and risky climate future. The concept of just resilience is proposed as a lens through which the consequences of resettlement for people's connections to place, each other and familiar ways of life can be understood. It is argued that a focus on just resilience reveals opportunities and threats to procedural, distributive and epistemic elements of justice associated with adapting to climate change in unfamiliar places.

Fiona Miller conducts research from a political ecology perspective on the social and equity dimensions of environmental change in the Asia Pacific, notably Vietnam and Cambodia, as well as Australia. She specialises in social vulnerability, society-water relations and adaptation and is currently undertaking research on the role of resettlement in adaptation planning. Fiona is a Senior Lecturer in the Department of Geography and Planning, Macquarie University where she teaches into the development studies, social impact assessment and human geography programs. Fiona was previously a Senior Research Fellow in the Department of Resource Management and Geography at the University of Melbourne (2007-2012). Prior to this she was a Research Fellow in the Risk, Livelihoods and Vulnerability Programme at the Stockholm Environment Institute (2004-2007). Fiona completed her PhD at the University of Sydney in 2003.

Flourishing in the Anthropocene: Integrating Local and Indigenous Knowledge with Global Climate Models

Oceana P. Francis

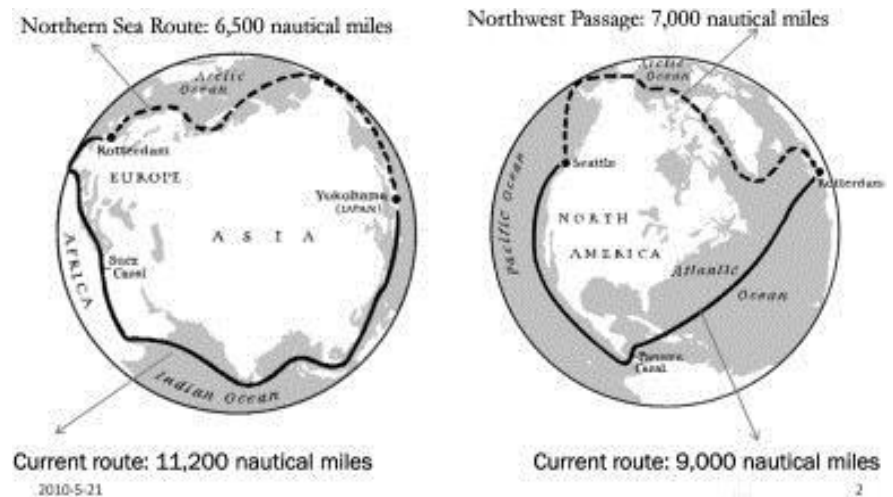
Civil and Environmental
Engineering, University of Hawaii,
USA

oceanaf@hawaii.edu

Karl Kim

Urban & Regional Planning,
University of Hawaii, USA

karlk@hawaii.edu



Climate change, sea-level rise and extreme weather events threaten the resilience of physical infrastructure and social systems. To ensure flourishing in the Anthropocene, it is necessary to understand ecosystem and societal characteristics, functions, interactions and vulnerabilities. There has been increased urbanization of coastal areas, especially in the Asia Pacific region. There are also negative and positive aspects of climate change. Inhabitants are being displaced due to sea level rise, ice melt, erosion, and flooding of coastal lands. The Arctic is the fastest warming place on the planet. There is need to study the impacts of rapid transformation (Werner et al., 2016). Changes in the Arctic climate have opened new sea routes and have created new opportunities for trade and transportation between Asia, North America, and Europe (Liu and Kronbach, 2010). Major port cities in Asia as well as in the U.S., Canada, Russia and Europe will be impacted. Bertelsen and Galucci (2016) describe growing geopolitical tensions between Russia, China and other Arctic countries related to shipping, urbanization and resource extraction. Ho (2010) argues that there will be a negative impact on Singapore. Yet, Ha and Seo (2014) maintain that there are large economic benefits with increased shipping through the Northern Sea route for Korean industries. There are environmental concerns regarding resource exploitation and new development. Melting ice will increase access for oil, gas and other extractive industries. These changes threaten traditional lifestyles and cultural practices. Alaskan Native as well as other indigenous communities face the dual threats of land loss and globalization. To improve resilience, there is need to increase understanding of linkages between atmospheric forcing and the resultant sea state. Long-term global and regional atmospheric and oceanic data are available through modeled results, with medium to low accuracy. Short-term spot-location atmospheric and oceanic data are available through in situ measurements, with much high accuracy. Long-term global and regional atmospheric and oceanic data, with spotty coverage, are also available through satellite altimeter radar, with medium to high accuracy. Due to the low accuracy of modeling and the low coverage of

in situ and satellite data, the need for creating better short-term and long-term forecasts has never been more apparent in dealing with these climate stressors. We present how this is accomplished through the downscaling of global and regional models to the local level, and how local indigenous knowledge can be upscaled to the regional or global level, where we describe and analyze examples using experiences from Alaska. We also investigate the implications for Asian and Arctic cities, by understanding the threats as well as mitigation and adaptation strategies. Climate change requires the adaptation of facilities such as airports, harbors and urban infrastructure. This involves more than hardening the facilities against sea level rise and greater wave energy. Protecting facilities will also lead to the expansion of port cities in the Arctic, leading to changes in shipping routes, and a global shift as development, resource exploitation, and economic activity increase in the Arctic. There will be accompanying geopolitical, economic, and socio-cultural change. Issues of environmental management, inclusion of traditional and indigenous knowledge and larger questions of justice and governance need to be addressed. Such pillars are integral aspects of Arctic quality of life and global flourishing in the Anthropocene.

Oceana Francis is Assistant Professor of Civil and Environmental Engineering with a joint appointment in Sea Grant at the University of Hawaii. She is also cooperating faculty for the National Disaster Preparedness Training Center and Ocean and Resources Engineering at the University of Hawaii. She received her PhD from University of Alaska Fairbanks and is a registered professional civil engineer in Hawaii and Alaska. Her research interest is in the area of coastal and hydraulics engineering, particularly climate change impacts on wind-generated waves and currents which affect onshore/offshore infrastructure and ship operations, and surface water flow affecting rivers and estuaries.

Karl Kim is Professor of Urban and Regional Planning at the University of Hawaii, with appointments in Architecture and the Center for Korean Studies. He was the founding director of the graduate certificate program in Disaster Management and Humanitarian Assistance. He currently serves as the Executive Director of the National Disaster Preparedness Training Center and the Chairman of the National Domestic Preparedness Consortium. He has published more than 100 articles, papers, book chapters, reports and studies on transportation, environmental management and disaster risk reduction. Educated at Brown University and M.I.T., Dr Kim has been a Fulbright Scholar to the Russian Far East.

Risk Governance in Metro Manila Cities: Resilience for Whom?

Emma Porio

Manila Observatory,
Department of Sociology
and Anthropology,
Ateneo de Manila University,
Philippines

eporio@ateneo.edu

Climate change and flooding in Asia's rapidly growing cities pose great challenges to the environmental and human security of the population and their governance systems. This paper examines the intersections of ecological-environmental and social vulnerabilities and the adaptive responses among urban poor communities and commercial-industrial establishments in Metro Manila to flooding, storm surges and sea level rise (SLR). These climate-related hazards, alongside intensive development pathways of the city, weaken the communities' ecological-environmental systems, threaten the well-being and security of the people and strain the resources of city governments', civil society organizations (CSOs) and the private sector trying to craft flood resilience programs.

By focusing on the intersections of the drivers of vulnerability and the adaptive responses of vulnerable residents and commercial-industrial users along the Pasig-Marikina riverlines, Manggahan floodway and the Laguna Lakeside, the paper suggests a more nuanced understanding of resilience and risk governance innovations (i.e. social-ecological-spatial, multi-scalar, etc.) among different governance actors, civil society and the private sector. In this way, the deconstructing of power relations underpinning resilience and governance innovations becomes highlighted.

Emma Porio is Professor of Sociology, School of Social Sciences, Ateneo de Manila University (ADMU, Philippines) and Science Research Fellow at the Manila Observatory. She is co-principal investigator of "Coastal Cities at Risk: The Case of Metro Manila", part of the International Research Initiative on Adaptation to Climate Change, a global research project involving cities in Asia, Africa and Canada. She has served in the Executive Board of the International Sociological Association (2006-2014) and the Global Development Network (2010-2017), among others. In 2011, ADMU gave her the "*Outstanding Scholarly Work with Most Social Impact*" in recognition of her works on climate change vulnerability, adaptation and resilience. Through a 2015 Fulbright Research Fellowship, she conducted a comparative study of post-Ketsana Marikina, Manila with post-Sandy Red Hook, New York. Prof. Porio has done studies on climate-disaster risk, community resilience, governance and social inequality.

Ancient and Current Resilience: Adaptive Planning and Governance in the Chengdu Plain, Sichuan, China

Daniel B. Abramson

Urban Design and Planning,
University of Washington, USA

abramson@uw.edu

This presentation describes multi-disciplinary, community-engaged research to discover the essence of long-term human flourishing in the Dujiangyan Irrigation District around Chengdu, Sichuan, China, which is one of the world's most-time-tested of resilient large-scale coupled human-natural systems. The research aims to provide the Sichuan Provincial Government with information necessary to justify and establish a provisional sustainable landscape protection zone. Policy and action based on existing and proposed Governance reforms would consider the Chengdu Plain's unique combination of: a long history of immigration from diverse and distant regions elsewhere in China; a spatially dispersed but densely populated rural settlement pattern with extremely land-efficient agricultural production and a high degree of forest cover; a deeply anthropogenic landscape created by perhaps the world's most sustainable hydrologic engineering project in historic terms (Dujiangyan), maintained by a remarkably distributed multi-scaled system of governance that depends on significant local autonomy and minimizes bureaucratic oversight; and one of China's most cosmopolitan and creative urban cultures. Future visions imagine a space for: grassroots farmers', artists', and other urban-rural mutually supportive projects; government regulation and incentive programs based on social-ecological services accounting; and on-going social-ecological systems research and monitoring programs.

Dan Abramson is Associate Professor of Urban Design and Planning and member of the China Studies faculty at the University of Washington, Seattle. He has over 30 years of experience in community-engaged planning and research, in diverse cultural settings including immigrant, low-income or indigenous neighborhoods and settlements in Boston and the Pacific Northwest United States and Canada, as well as in the United Kingdom, Poland, China, Japan and Taiwan. During the past 10 years, he has focused primarily on action research for community resilience and adaptive planning in disaster recovery and hazard mitigation, as well as periurban and rural responses to rapid urbanization. Since 2008, including six months as a Fulbright Senior Research Scholar in 2010, he has collaborated with Sichuan University on post-earthquake reconstruction projects in ethnic minority villages of the Upper Min River watershed, and rural urbanization planning in the Chengdu Plain/Lower Min River watershed. He is a Visiting Professor at Sichuan University, and external Co-Director of the Center for Historic Towns and Villages at Southwest Jiaotong University in Chengdu.

Contesting Imaginaries in Australian Cities: Urban Design, Public Storytelling and the Implications for Climate Change

Emily Potter

Literary Studies, School of
Communication and Creative Arts,
Deakin University, Australia

e.potter@deakin.edu.au

In Australia, environmental degradation goes hand in hand with exclusionary and often mono-vocal public memory. The legacies of colonisation are profoundly more-than-human, as the assertion of particular forms and narratives of the past in the public realm perpetuate the human and environmental amnesia that the colonial founding of Australia required. In Australian cities, this issue is acute, most all for the majority population that reside here, including the the highest proportion of the country's Indigenous population, and relatedly for the impacts of climate change that will register in urban centres with particularly dispossessing effect. This paper will discuss several case studies of contestations over public memory in an urban context that resister these dynamics, and put forward alternatives for reimagining public places differently, through various poetic practices, as one strategy towards inclusive, environmentally responsive civic life.

Emily Potter is a Senior Lecturer in Literary Studies at Deakin University. She has published widely on the spatial practices of colonisation, the politics of postcolonial environments, and environmental cultural studies. She is the co-author (with Gay Hawkins and Kane Race) of *Plastic Water: The Social and Material Life of Bottled Water* (MIT Press, 2015). Her forthcoming book *Field Notes on Belonging* (Intellect) examines the response of recent Australian literature to the anxious question of non-indigenous belonging.

The Stewardship of Biodiversity in Asian Cities and the Efficacy of Environmental Governance

Mark McDonnell

Department of Architecture,
National University of Singapore,
and School of BioSciences,
University of Melbourne, Australia

markmc@unimelb.edu.au

Biodiversity within Asian cities is a product of highly complex ecological processes and social influences that vary over temporal and spatial scales. The creation and expansion of cities produce new types of land-cover, which typically result in the loss of native habitats along with associated increases in impermeable surfaces. These changes in land-use result in habitat loss and landscape fragmentation, toxification of the biosphere, loss of ecosystem function, invasion of exotic species which all lead to the loss of biotic diversity. Recent studies have demonstrated that the biota of global cities is more reflective of the assemblage of species in the surrounding landscape than a unique 'urban' set of species. Much of the existing biodiversity in cities is a result of historic serendipity. In order to produce resilient biodiversity rich cities in the future requires the incorporation of evidence based social and ecological science into the creation of new urban biodiversity governance instruments to achieve targeted goals. In this presentation, I will present a global synthesis of the complex issues surrounding the preservation, restoration and management of biodiversity as well several case studies to highlight specific issues facing Asian cities. I will also provide some practical guidelines for how biodiversity can be effectively governed in different contexts to create more sustainable and resilient Asian cities in the future.

Mark McDonnell is Visiting Senior Fellow at the Department of Architecture, School of Design and Environment, National University of Singapore. For the last 18 years Mark served as the founding Director of the Australian Research Centre for Urban Ecology. He also holds an honorary position at the Global Institute for Urban and Regional Sustainability (GIURS) at East China Normal University in Shanghai, China. His research involves bringing high-quality ecological data and the understanding of basic ecological processes to bear on problems of conservation and management of urban ecosystems. He has conducted pioneering research on the study of urban-rural gradients and the comparative ecology of cities around the globe. He has authored or co-authored over 160 scientific papers, reviews, book chapters, reports and articles, and has published two edited books on urban ecology. In 2015, he was appointed the inaugural Editor-in-Chief of the *Journal of Urban Ecology* which is published by Oxford University Press. He also serves on the Advisory Council of the journal *Urban Ecosystems* and the Advisory Board of *CityGreen*. He is a member of the Advisory Board of URBIO (Urban Biodiversity, Ecosystem services and Design) which is a worldwide scientific network for education and research with the aim to promote urban biodiversity and design through a continuing dialogue with the UN Convention on Biological Diversity (CBD) Global.

Connecting Responsibility and Resilience: Activism and Urban Transitions in Hong Kong and Singapore

Sara Fuller

Department of Geography and
Planning, Macquarie University,
Australia

sara.fuller@mq.edu.au

Urban low carbon transitions invoke specific and often contested framings of responsibility. While any configuration of responsibility needs to be finely nuanced in order to capture the specificity of people and place, it should also be guided by an ethical framework that promotes a moral and political obligation to act. To date however, there is limited theoretical and empirical understanding about how the discourses and practices of responsibility associated with transitions might be enacted across multiple sites and scales and how this might in turn facilitate the development of more resilient urban societies.

These issues of responsibility come to the forefront in the Asia Pacific region which encompasses some of the world's most significant polluting cities while also hosting populations that are most vulnerable to the impacts of climate change. This paper draws on empirical research with climate activists in Hong Kong and Singapore as a means to explore the emerging geographies and networks of climate responsibility across the Asia Pacific region and to develop a theoretical understanding of how responsibility is conceptualised, experienced and enacted within and across cities. The preliminary findings indicate contested geographies of responsibility across the region. Unpacking this multiplicity contributes to an understanding of the politics of urban transitions, particularly in terms of how space and place come to matter in enabling urban resilience.

Sara Fuller is a Senior Lecturer in the Department of Geography and Planning at Macquarie University, Australia. Her research explores concepts and practices of justice and democracy in the field of the environment, with an empirical focus on grassroots, community and activist responses to climate change. Prior to joining Macquarie, she worked and conducted research in the UK and Hong Kong. Recent research has included work on NGO discourses of energy justice; low carbon communities and climate justice; and energy vulnerability in communities.

The Underlying Possibilities and Issues of Community Regenerative Art Projects in the Wake of Natural Disasters

Motohiro Koizumi

College of Sociology,
Rikkyo University, Japan

koizumi@rikkyo.ac.jp

This paper examines the possibilities and issues of art projects, focusing specifically on communities that have experienced natural disasters - from the aspect of the role of arts for recovering and building social culture. In existing studies, research regarding the relationship between arts and society has been mainly centred on the 'Art World' such as cooperative networks of fans, critics, markets and artists etc. (e.g. Becker 1982, Thronton 2009). Recently, some argued the central roles of the creative class, including artists, from the viewpoint of re-industrialisation (e.g. Landry 2000; Florida 2002); and others discussed collaborative practices through arts, terming them 'relational art' and 'socially engaged art' etc. (e.g. Bourriaud 1998, Bishop 2012). However, the role of arts in civic society to encourage human flourishing, especially in the wake of natural disasters, has been insufficiently discussed. Also, the function of arts to create a resilient society is inadequately examined. With this problem awareness, I discuss these aspects in respect to the art project of Rias Ark Museum of Art, in Miyagi Prefecture, the area affected by the Great East Japan Earthquake (2011). The art project is passing down 'memes' of local culture and lost voices to the next generation affected by the disaster. Through this process, the project also aims to build a more resilient 'disaster culture' in the region. Thus, this paper reveals the aspects and implications of the arts for creating resilient post-disaster societies and culture. By studying examples based on fieldwork and literature surveys, I examine the underlying potential of arts to reshape communities, from not only economical and engineering, but also cultural and emotional perspectives.

Motohiro Koizumi is an Associate Professor in Sociology of Art at Rikkyo University (Saint Paul's University), Tokyo, Japan. He received his BA from International Christian University (ICU), and his MA in music, and PhD in sociology from Tokyo University of the Arts in 2009. He was a Research Fellow of the Japan Society for the Promotion of Science (JSPS, 2008-2011), a Research Fellow at the University of the Arts London, Research Centre for Transnational Art, Identity and Nation (UAL TrAIN, 2009-2010), a Research Fellow at CLIC-ON (Cooperation toward Leadership in Innovative Creation – Open-innovation Network) of the Osaka University (2011-present), a Researcher at the Birkbeck, University of London (2011), and an Associate Professor in Cultural Policy at National Tottori University (2011-2015). Koizumi is now also actively engaged in teaching Music Management courses at International Christian University (2012-present).

Changing the Urban Landscape from the Ground Up: Cases from Singapore and Seoul

Im Sik Cho

Department of Architecture,
School of Design & Environment,
National University of Singapore

akicis@nus.edu.sg

Singapore and Seoul are well known for their successful economic growth and rapid industrialisation, which in the past occurred due to the predominantly top-down approach adopted by a strong developmental state. However, the zeal for growth and development measured by material welfare that engulfed these cities for decades has raised people's awareness of the impacts of environmental degradation and growing social and economic polarisation. This awakened the desire for a new paradigm in society based on an alternative, more sustainable lifestyle, which contributed to the increased interest in strengthening communal life and shared identities in localities, promoting civic participation, and restoring the connection in the human-environment interaction. Ground-Up Initiative in Singapore and Seongmisan Village in Seoul will be taken as case studies to argue the potential of building social capital in localities in order to improve the overall resilience and long-term sustainability of cities. The significance of this perspective focusing on urban communities lies in the emphasis on the process of strengthening a community's store of social capital and its capacity to initiate change through collaborative efforts from the ground up, which is an important step towards building more resilient alternative urban futures.

Im Sik Cho is an Assistant Professor in the Department of Architecture, School of Design and Environment, at the National University of Singapore where she serves as the leader for urban studies research and teaching and as principal investigator for many research projects, related to urban space planning for sustainable high-density environments and design for social sustainability involving community-based, participatory approaches. Her research interests address the challenges and opportunities that Asian cities face with accelerating social change, especially in the context of neighbourhood planning, focusing on the social dimension of sustainable development. Her recent publications as lead author include *Re-framing Urban Space: Urban Design for Emerging Hybrid and High-Density Conditions* (Routledge, 2016), *Community-based Urban Development: Evolving Urban Paradigms in Singapore and Seoul* (Springer, 2017), and *Changing approaches to community participation for social sustainability: Neighbourhood planning in Singapore and Seoul* in Caprotti and Yu (eds), *Sustainable Cities in Asia* (Routledge, forthcoming).

Governing Urban Gardens for Resilient Cities: “Garden City” Program in Taipei

Jeffrey Hou

Department of
Landscape Architecture,
University of Washington, USA

jhou@uw.edu

With rising concerns for food security and climate adaptation, urban gardening and urban agriculture has emerged as one of many agendas for urban resilience around the world. In East Asian cities, a variety of initiatives have emerged with different levels of institutional and non-institutional support. In Seoul, the Seoul Metropolitan Government undertakes an ambitious plan to become the world’s capital of urban agriculture with help of civic organizations. In Singapore, under the government’s Community in Bloom program, hundreds of community gardens have emerged on public housing estates. In Hong Kong, urban gardening initiatives have been led by small social start-ups such as Rooftop Republic that manages rooftop community gardens on both private and public sites.

Focusing on Taipei, where a vibrant urban agriculture movement is also taking place, this paper examines the ongoing results of the City’s new Garden City Program that promotes the establishment of urban gardens including community gardens, rooftop gardens, and school gardens. Based on interviews and participant observations during the initial advocacy, planning and implementation of a citywide initiative called “Garden City” (田園城市), the study examines the background of the program, the involvement of governmental and non-governmental actors, and process of implement. The paper further reflects upon the current outcomes of the program and their implications for the urban governance in the face of environmental, political, and social challenges under the Anthropocene.

Jeffrey Hou is Professor and Chair of Landscape Architecture and Adjunct Professor of Urban Design and Planning at the University of Washington, USA. His work focuses on design activism, community engagement, public space and democracy, and community and cultural resilience. In a career that spans across the Pacific, he has worked with indigenous tribes, farmers, and fishers in Taiwan, neighborhood residents in Japan, villagers in China, and inner-city immigrant youths and elders in North American cities. Hou is the editor of *Insurgent Public Space: Guerrilla Urbanism and the Remaking of Contemporary Cities* (2010) and a co-author of *Greening Cities, Growing Community: Learning from Seattle’s Urban Community Gardens* (2009), which received the EDRA Places Book Award in 2012 and 2010 respectively. He is also the editor of *Transcultural Cities: Border-Crossing and Placemaking* (2013) and a co-editor of *Messy Urbanism: Understanding the ‘Other’ Cities of Asia* (2016). His forthcoming co-edited book is titled *City Unsilenced: Urban Resistance and Public Space in the Age of Shrinking Democracy* (2017). He also contributed to many books including *The Emerging Asian City* (2012), *The Informal American City* (2014) and *Encountering the City* (2016). Hou co-founded the Pacific Rim Community Design Network in 1998. He was appointed the City of Vienna Visiting Professor at the Vienna University of Technology (TU Wien) in 2013 and was a Fulbright Scholar in Taiwan in 2015. Hou received his PhD in Environmental Planning and Master of Architecture from University of California, Berkeley.

Between Heritage and Development: Landscape Conservation and the Fight for Sustainable Futures in Penang's Urban Transition

Creighton Connolly

Asia Research Institute,
National University of Singapore

ariccp@nus.edu.sg

Over the past quarter decade, there have been numerous studies examining the interface between cultural heritage conservation and urban (re)development, particularly in developmental states like Singapore. On the other hand, scholars have also examined nature conservation movements in the context of encroaching (urban) development. However, this body of research has, with a few exceptions, not considered the importance of both natural and cultural heritage in mutually shaping opposition to urban redevelopment, and the myriad connections between the two. This paper thus seeks to make an intervention in these debates through an empirical examination of increasing development pressures on the forested hillsides of Penang, Malaysia and the significant environmental and socio-cultural implications associated with this activity. As I will demonstrate, invocations of Penang's rich natural heritage are often framed alongside urban and cultural heritage in local resistance to these developments, which relate to the particular socio-environmental sensibilities of local stakeholders. Therefore, it is argued that the natural environment is also a significant component of Penang's history, which is not as well recognised — or protected — as its cultural heritage. The research for this paper has been conducted in collaboration with local civil society groups, and aims to evaluate the role of these actors in working with the state government to control this development and prevent further socio-ecological injustices. This governance aspect is important, given Penang's considerable civil society sector which is unique not only within Malaysia, but also amongst most developing countries in the Asian region.

Creighton Connolly is a Postdoctoral Fellow in the Asian Urbanisms Cluster in Asia Research Institute, National University of Singapore. He is an urban, cultural and environmental geographer, whose research focuses on landscape politics, urban political ecology, and contestations over urban (re)development in Malaysia and Singapore. He is currently conducting a new research project on urban redevelopment vis-a-vis natural and cultural heritage conservation movements in the UNESCO World Heritage City of George Town, Penang. This emerges from his PhD research on the landscape political ecology of 'swiftlet farming' in Malaysian Cities, completed at the University of Manchester (UK) in May, 2016, where he was a member of the European Network of Political Ecology (ENTITLE). Creighton's previous MA research was conducted at the Memorial University of Newfoundland (Canada) which focused on Singapore's role in the global trade and traffic in electronic waste (e-waste).

Green Megaprojects and Displacement in the Global South: Uncovering the Rationales of State-Led Development in Malaysia and Qatar

Agatino Rizzo

Architecture Research Group,
Luleå University of Technology,
Sweden

agatino.rizzo@ltu.se

The “Green” rhetoric is constantly gaining traction in urban planning research. In line with anthropocenic thinking, the study of green cities and infrastructures has promised a straightforward recipe to solve many urban issues (e.g., climate mitigation and resilience, urban health, etc.). However, green city and infrastructure proponents, while emphasizing the positive environmental, economic, and health aspects of these projects, often neglect important socio-political considerations (see Moore’s work on the “Capitalocene”) that are crucial to understanding the dramatic transformation of non-urbanized territories. Based on my latest research on urban megaprojects in Johor, Malaysia and Doha, Qatar and the review of literature on rural-land expropriation in Asia, in this paper I will critically re-discuss the green city/infrastructure idea by analyzing the restructuring of non-urbanized territories in the global South. I will organize my discussion as follows: first, I will problematize the current definition/meaning and prescription of green cities/infrastructures by urban planners; second, I will contextualize the discussion within the domain of rural transformation and land grabbing in Asian countries; third, I will analyze two megaprojects with green-city ambitions in Asia — Iskandar Malaysia in Johor Bahru and Education City in Doha — to crudely exemplify the biogeophysical and social displacements caused by the Green rhetoric. While European and American urban theory might work well in some contexts, a key finding of this research is the need to find new, better theories for understanding the impacts of “planetary urbanization” in the global South.

Agatino Rizzo, PhD, is Associate Professor of urban planning and design in the Architecture Research Group at Luleå University of Technology in Sweden. He has published a number of articles on urbanization and planning in South-East Asia and the Arab Gulf Region. Between 2009 and 2013, he taught at University Technology Malaysia and Qatar University while leading research in the area of sustainable urban development funded by the Qatar National Research Fund. His main research interests include topics such as consumption/knowledge megaprojects and urban growth/shrinkage in Asia and Europe.

Science and Law to the Rescue of India's Coastal Urbanism? Loss of Imagination and Reimagining a Future

D. Parthasarathy

Department of Humanities and
Social Sciences,
Indian Institute of Technology

ben.dp@iitb.ac.in

India's coastal cities and districts experience chronic flooding, even as they are among the most economically dynamic regions, attracting capital, population, and new claims over space and land use. Flood risks are exacerbated by climate change related impacts including sea level rise, coastal erosion, storm surge, and cyclonic events; urbanization and large projects along the coast, and projects upstream create problems of coastal accretion, disruptions to estuaries, and destruction of ecologies which provide disaster mitigation functions and ecosystem services. The 'cunning state' (Randeria 2003) resorts to a range of legal-scientific fictions and manipulations in promoting ever new large scale projects in coastal areas – eco-tourism, hospitality, recreation, real estate, special / coastal economic zones, ports, power plants, and industrial clusters; hard-fought battles by social movements had put in place tough environmental regulations while balancing welfare, livelihood and economic growth concerns; most of these have been rolled back, ignored, violated, or amended. This paper argues that a new kind of coastal urbanism is emerging that is neither organic nor economic, but is primarily led by short-term approaches that endanger communities, environments, and economies. India's coastal urbanism is flourishing economically and in terms of spatial spread, but requires a governance and transformation process that makes it resilient to disasters. Using a series of recent legal battles and judgements from newly sensitized communities, civil society organizations and tribunals, the paper attempts to re-imagine a future for India's coasts that is transformative rather than resilient. These battles relate to location of dumping grounds, new infrastructure projects, re-classification of coastal regulation zone categories, and management and governance of coastal ecosystems such as water bodies, mangroves, and forests. These cases show that for cities to flourish, robust and alternate urban imaginations are required which a) are rooted in practices around 'ecological regimes', and not just management or governance of environmental *resources*, and b) have faith in science and law as democratic strategies in conflict resolution and sustainable urban transformation.

D. Parthasarathy is India Value Fund Chair Professor of Sociology at the Department of Humanities and Social Sciences, Indian Institute of Technology, Bombay. He has earlier worked or held visiting positions at the Australian National University, National University of Singapore, and Zentrum Moderner Orient, Berlin . He is the author of *Collective Violence in a Provincial City* (1997), and has co-edited "*Women's Self Help Groups: Restructuring Socio-Economic Development*," (2011), and "*Cleavage, Connection and Conflict in Rural, Urban and Contemporary Asia*" (2013). He has carried out research projects and published in the areas of urban studies, law and governance, climate studies, and disaster risk and vulnerability. His current research interests include urban informality with a focus on urban religion and politics, urban commons, transnational urbanism, legal pluralism and resource governance, and vulnerability to climate / disaster risks.

Hydrating Hyderabad: Rapid Urbanisation, Water Scarcity/Plenty, and Human Flourishing/Resilience

Diganta Das

Nanyang Technological University,
Singapore

diganta.das@nie.edu.sg

Tracey Skelton

Department of Geography,
National University of Singapore

geost@nus.edu.sg

The city of Hyderabad has played a significant role in the urban transition processes at play in India. Dubbed 'Cyberabad,' the city combined rapid urbanisation of rural agricultural- and livestock-based villages with the development of a high-tech, state of the art globally connected enclave. On weekday mornings in the district of Madhapur smartly dressed HITEC City workers, with ID tags, emerge from hostel-accommodation and walk alongside large, black buffalo being herded into rundown dairies. This paradoxical use of space is replicated in the urban fabric (buildings, road quality, transportation) of HITEC City and surrounding Madhapur. This cheek-by-jowl urbanisation has created two very different types of urban locale: HITEC City — air-conditioned, gardened, watered — a space of hydration and flourishing; and Madhapur — hot, dusty and desiccated — a space of dryness, direness and everyday water struggles.

Drawing upon neighbourhood-based quantitative and qualitative data gathered within Madhapur and observational data of HITEC City, this paper explores the ways in which water — an essential resource — has become both a symbol of success and deficit. We use water (and changing waterscapes) as a means to examine the spatial and urban practices and power relations that have determined whom and where have access to hydration and how that has been part of the flourishing of HITEC City and its workers and dwellers. We also consider the denial or inaccessibility of water for the heterogeneous collection of Madhapur residents and how they demonstrate resilience in the face of perpetual water shortages. Can there be human flourishing when urbanisation transforms the use of, and access to, a fundamental necessity such as water?

Diganta Das is Assistant Professor of Human Geography at Nanyang Technological University (Singapore). He is the principal investigator of a Tier 1 MOE-ACRF project titled: *Geographies of High-tech Development: Exploring urban policy mobilities and grounded realities* and was also the Co-PI of the Global Asia Institute research project: *Asian Cities: Liveability, Sustainability, Diversity and Spaces of Encounter*. His work has been published in several major geography and STS journals. He is also the Section Editor of a major Encyclopedia on urban studies to be published by Wiley-Blackwell in 2017.

Tracey Skelton is Associate Professor of Human Geography at the National University of Singapore and Visiting Professor at Loughborough University (UK). She was the PI of a Global Asia Institute (NUS) research project: *Asian Cities: Liveability, Sustainability, Diversity and Spaces of Encounter*. The project focused on the cities of Busan (South Korea), Hyderabad (India), Kunming (China) and Singapore. She also works on geographies of children and young people and was the co-editor (and an article author) of a special issue published in the journal *Urban Studies* in 2013 (vol. 3): *Young People's Im/Mobile Urban Geographies*. She is also the Editor-in-Chief of a major reference work published by Springer, *Geographies of Children and Young People*, which comprises 12 volumes, of which 6 have been published in 2016 and 6 forthcoming in 2017.

Resilience and Environmental Governance in Himalayan Cities in Bhutan and India

Caroline Brassard

Lee Kuan Yew School
of Public Policy,
National University of Singapore

sppbc@nus.edu.sg

Divya Upadhyaya Joshi

University Grants Commission,
Human Resource Development
Centre, Kumaun University, India

divyauj@gmail.com

This comparative study, based on fieldwork carried out between 2015-2016, identifies urban environmental governance challenges in building resilience and addressing threats from hazards, ecological and environmental degradation in four rapidly growing Himalayan cities in Bhutan and India. It also analyses the barriers to sustaining innovative approaches to urban environmental governance, beyond a lack of resources. Since early 2000, the newly democratized Himalayan Kingdom of Bhutan has undergone rapid urbanization in several cities. Within the last five years, Bhutan has undergone major institutional changes to scale up and decentralize disaster management in order to address the causes and impacts of ecological, environmental and climate-related disasters. However, findings highlight that the relatively small size of the private and non-government sectors create further challenges in building urban resilience and addressing these threats in a holistic way in this newly established democracy. The paper demonstrates how the simultaneous processes of democratization and urbanization can compound barriers to resilience and effective disaster governance, and also highlights innovative urban environmental governance initiatives to counteract these challenges in Bhutan. The paper compares and contrasts the Bhutanese urban cases with two case studies from the Indian mountain state of Uttarakhand. It illustrates the socio-economic and political compulsions of urbanization, and the complex dynamics of urban space and its management in an older established successful democracy such as India. Despite effective modern legislation and varied policy initiatives the actual integration of such norms to administration of the mushrooming urban centers in the Central Indian Himalaya remains difficult. Findings indicate that there have been no marked changes in local urban planning or patterns of skewed growth, despite the lessons from the major disasters that the region has faced, due to inappropriate hill area development and overall dissonance in the local ecosystems. The paper analyzes the causes of this failure and suggests innovative governance tools that might counteract this inertia at different scales of governance.

Caroline Brassard is adjunct assistant professor at the Lee Kuan Yew School of Public Policy (LKYSPP), at the National University of Singapore, where she has been affiliated since 2002. Her research focuses on development policy lessons from natural disasters in the Asia-Pacific, and humanitarian aid effectiveness. She has extensive fieldwork experience in Vietnam, Indonesia, Bhutan, Nepal and Bangladesh. At the LKYSPP, Caroline teaches courses on aid governance, research methods, economic development policy, poverty alleviation strategies and empirical analysis for public policy. Her latest edited book “Natural Disaster Management in the Asia-Pacific” (edited with David Giles and Arn Howitt) was published by Springer in 2015. Other recent publications appeared in the *Asian Journal of Social Science and the Global Risk Report 2014*. She has been serving as a council member of the Singapore Red Cross since 2013. Caroline holds a PhD in Economics from the University of London.

Divya Upadhyaya Joshi is Associate Professor at the University Grants Commission, Human Resource Development Center, Kumaun University, Nainital, Uttarakhand, India. With a doctoral degree in Political Science and specialization in gender issues, her research work over the past decade has focused on gender, green governance and decentralization issues in the Central Himalaya. Her recent publications include a book *Equating Gender: Explorations in the Asia-Pacific* (July 2016; edited with Chompoonuh K. Permpoonwivat). She has recently been a member of the Government of India’s National Commission for Women’s national expert committee on gender violence among minority communities in India.

Environmental Governance in Asia's World City: Ready for a "Third" Urban Revolution?

Mee Kam Ng

Department of Geography
and Resource Management,
The Chinese University
of Hong Kong

meekng@cuhk.edu.hk

Hong Kong, self-identified as Asia's World City, has been facing many urban issues including socio-economic and spatial polarization, an aging population, ultra-high density urbanization, waste management, land shortage and other environmental constraints. Synthesising various literature and the transformative New Urban Agenda to be adopted in Habitat III, a set of principles is developed to argue for a need of concerted tripartite efforts by the government, the private sector and the civil society to integrate ecological and social justice considerations in the course of economic and spatial development. Is Hong Kong ready for such a paradigm shift, a move towards a "third" urban revolution that is also ecologically and socially resilient? Based on the principles, an evaluation framework is developed to identify the strengths, weaknesses, opportunities and threats of environmental governance in Hong Kong. While different policy domains within the government have done a lot in pursuing low-carbon and environmental resilience, the introverted efforts remain rather fragmented. With the ideological commitment to "big market and small government", the administration seems to be rather reluctant in translating its internal best practices into regulatory frameworks to guide private sector activities. Similarly, education of the general lay public has not been particularly effective in bringing about lifestyle changes. This paper explores what needs to be done to enhance the effectiveness of environmental governance in Asia's World City.

Mee Kam Ng is Vice-Chairman of the Department of Geography and Resource Management, the Director of the Urban Studies Programme, Associate Director of the Institute of Future Cities and the Hong Kong Institute of Asian Pacific Studies at the Chinese University of Hong Kong. She is a member of the Royal Town Planning Institute, a fellow of the Hong Kong Institute of Planners and academic advisor of the Hong Kong Institute of Urban Design. Her publications have earned her six Hong Kong Institute of Planners' Awards and the Association of European Schools of Planning Best Published Paper Award 2015. She has been consultant to the United Nations and the European Union. She is an associate editor for *Planning Theory and Practice*. She also serves as a member of the editorial board of *Town Planning Review*, *DisP—The Planning Review* and *City and Business Strategy and the Environment*.

Resilience Thinking and Emergent Governance

Martin Mulligan

Centre for Urban Research,
RMIT University, Australia

martin.mulligan@rmit.edu.au

Research conducted by the author and colleagues on the implementation of the Rockefeller 100 Resilient Cities project in Melbourne found that it achieved unprecedented success in getting 32 separate Local Government Areas to actively support a metropolitan 'resilience plan'. However, the overwhelming focus on local government meant that the project struggled to engage significant non-state actors. The concept of 'decentred governance' promoted by Mark Bevir and Rod Rhodes (see Bevir 2013) offers one way to mobilise an array of non-state actors in addressing 'dilemmas'. However, David Chandler (2014) has suggested that resilient thinking has the potential to expose the limitations of prevailing neoliberal models of governance by emphasising the need to grapple with the unknown or even unknowable. The author had the concept of 'emergent governance' in mind when he visited the Sri Lankan provincial capital of Mannar to examine the place-based approach to 'pragmatic' post-war reconciliation of an NGO called Bridging Lanka (BL). Healing wounds of nearly three decades of civil war in a town which experiences regular flooding — being made worse by climate change — requires enormous patience and agility. BL works across all levels of government in Sri Lanka to build project-focused coalitions and their work has encouraged the author to develop a concept of 'emergent governance' which draws together component concepts such as 'multiscale', 'contingent' and 'network' governance.

Martin Mulligan is a Senior Researcher in the Centre for Urban Research and a Senior Lecture in Sustainability and Urban Planning at RMIT University in Melbourne. As Director of RMIT's Centre for Global Research he led a major study of post-tsunami recovery in Sri Lanka and has written extensively on the need for a dynamic and multiscale understanding of community formation in the contemporary world. He is the author of an international *Introduction to Sustainability* textbook published by Earthscan/Routledge in the UK.

Urban Resilience through Progressive Governance: The Case of ‘One Less Nuclear Power Plant’ Policy, Seoul, Korea

Myung-Rae Cho

College of Social Science,
Dankook University, Korea

myungraecho@naver.com

This paper aims to examine how a metropolis like Seoul could be resilient to encroaching environmental hardship in the era of climate change. To do so, the paper takes a case review on the ‘One Less Nuclear Power Plant (=OLNPP)’ policy adopted under a progressive leadership of Mayor Park Won-soon. OLNPP was launched in April 2012, with a target at cutting energy use by 200 million TOE which is equivalent to the capacity of one nuclear power plant, mainly by directly engaging citizens in energy saving and renewable energy generation. The target was accomplished in June 2014, six months ahead of schedule. The Second phase of OLNPP is in progress since August 2014. OLNPP is based on a multi-faceted approach, consisting of 78 specific projects in 6 policy categories, which can be re-categorized in 10 key action plans. The significance of OLNPP lies in the civic participatory governance, under which citizens took the lead in policy development and implementation. Citizen Committee on OLNPP sets numerous policy programs and projects through citizen participation, with the chosen projects implemented by 40 administrative units in the Metropolitan Government of Seoul in a manner of integrated administration. As a result, Seoul’s consumption of energy including electricity, city gas, and oil turned downward. In between 2012 and 2015, Seoul’s electricity consumption decreased by 4.0%, whereas the nationwide consumption jumped by 4.8%. This success is remarkable given the entangled structure of increasing energy consumption in a metropolitan city like Seoul with 10 million inhabitants. Ensuing Introduction, the paper sets a theoretical account for delving into the relationship between urban governance and urban resilience in the era of climate change. It is followed by a detailed examination on how the OLNPP policy has evolved in the framework of metropolitan governance involving interest adjustment among stakeholders. The next section attempts to reveal how resilience to energy crisis is interpreted and embodied into progressive actions through ‘performative governance’. The paper concludes by drawing theoretical implications and limits of the study.

Myungraе Cho is Professor of Urban and Regional Planning, College of Social Science, Dankook University, S. Korea. He obtained his D.Phil in Urban and Regional Studies from University of Sussex, England where he studied spatial political economy. He was Kookmin Bank Professor of Korean Studies, KIMP, Kazakhstan and a visiting professor at a number of universities including University of Lancaster, University of Carleton and University of Sussex. He has engaged in various advisory works for the public sector of Korea, such as Chairs of the Committee of Sustainable Development and the Committee of Cheoggyecheon Restoration in the City of Seoul, Chair of the Special Committee of Administration Innovation in Chungnam Province, Members of the Presidential Commission on Sustainable Development and the Presidential Committee on Balanced Regional Development. He was also Chairs of the Korea NGO Studies Association and the Korea Space and Environment Studies Association. Currently he leads a number of civil society organizations in Korea, such as Co-Presidents of the Citizens' Coalition for Environmental Justice and the National Trust of Korea. Recently He is elected as a member of Executive Committee of International National Trusts Organization. He has produced over 70 books, among which 9 are authored by him. 3 of his own books won the Award for Distinguished Academic Book from Ministry of Culture and Tourism, and Korean Academy House. Recent books include *Reading Society by Space*, *Green Constructionism and Environmental Crisis*, *Beyond Creative Cities*, *Globalization: Looking Back and Forwards*.

Planning on Resilience: Architecture for the Anthropocene

Karl Kim

Department of Urban
and Regional Planning,
University of Hawaii, USA

karlk@hawaii.edu

Among the challenges faced by communities in the Anthropocene is how best to plan, design, build, manage, and govern for human flourishing. There has always been tension between natural and built environments, between physical planning and planning for human cultural, spiritual and social values. After describing how these problems are exacerbated by threats such as climate change, sea level rise, globalization, and intrusion of new technologies that displace human activity, an approach to thinking about architecture, design, and planning for the Anthropocene is proposed. Critical discourse, discussion, and deliberation about public space and resilience is necessary to ensure that humans not just understand change, but are also empowered to manage and promote quality of life into the future. Three different elements are needed. First is the inclusion of spatial and temporal perspectives in design and construction of buildings, public spaces, and the management of resources consumed in human settlements. Ian McHarg's (1969) "design with nature" needs to be updated and expanded for the Anthropocene. The second element of a new architecture for the Anthropocene entails revisiting the commitments to understanding, designing, and including the users and "occupiers" of spaces to allow for flexibility, adaptation, and integration of larger, global and exogenous forces at the local, neighborhood, and community level. This perspective has been influenced by planners and designers such as Kevin Lynch (1984), Jane Jacobs (1969) or Christopher Alexander (1979) with a focus on activities, uses, patterns, flows and interactions between natural and human systems. While some advocate an "off-grid" or isolationist stance to preserve precious values and endangered lifestyles, another tactic embraces innovation and encourages communities to adapt and thrive amidst forces of change (Bicknell, Dodman, Satterthwaite, 2009). Finally, there is need to develop new spaces, venues, and opportunities for planning, engagement, discourse, debate, and expression leading to improvements in the human condition. This recognizes the value of diversity and different points of view. We need protected spaces for alternative views, protestors and insurgent ideas to enable transformative, transactive planning (Friedmann, 2011). We need to appreciate artistic expression and provide for it in our public spaces and institutions. As Binnie, Holloway, Millington and Young (2008) assert, this is part of "cosmopolitan urbanism." We need to celebrate and embrace artistic and cultural expression as well as the differences between us. Some times this makes us uncomfortable. Other times, we struggle for comprehension and meaning. We need "safe zones" for expression. That used to be the function of university campuses. Cities and states and nations need to develop not just the physical spaces but also the institutions and technologies for facilitating expression, dialogue, and deliberation. Susskind, et. al. (2015) present cases as to how coastal communities have studied risk and developed adaptation plans through deliberative processes. These approaches need to be extended to other collective choice challenges. At the core of creating

these spaces is trust and the “bonds, linkages, and bridges” between members of a community, and between individuals and their governments, institutions, and organizations (Aldrich, 2012, Putnam). How can a new architecture increase civic engagement and strengthen social capital?

Karl Kim is Professor of Urban and Regional Planning at the University of Hawaii, with appointments in Architecture and the Center for Korean Studies. He was the founding director of the graduate certificate program in Disaster Management and Humanitarian Assistance. He currently serves as the Executive Director of the National Disaster Preparedness Training Center and the Chairman of the National Domestic Preparedness Consortium. He has published more than 100 articles, papers, book chapters, reports and studies on transportation, environmental management and disaster risk reduction. Educated at Brown University and M.I.T., Dr Kim has been a Fulbright Scholar to the Russian Far East.

On the Governance of Fire: Managing the Externalities of the Urbanization-Deforestation Cycle

Etienne Turpin

Massachusetts Institute
of Technology, USA,
and PetaBencana.id, Indonesia

turpin@mit.edu

D.T. Cochrane

York University, Canada

dt.cochrane@gmail.com

The seasonal fires which accompany the urbanization-deforestation cycle currently unfolding on the Indonesian islands of Sumatra and Borneo necessitate a serious rethinking of the relational interdependencies which emerge among the organizational and operational logics of governance, the political economic processes of externalization, and the sociospatial processes of urbanization. In this paper, the authors provide an overview of the current pyrodynamics of Indonesia's palm oil plantations and their attendant geopolitical implications in Southeast Asia. The authors then argue that the nested hypercomplexity of Indonesia's forest fire cycle — encompassing a wide range of knowledge practices, modes of evaluation, and forms of investment, as well as a remarkable variety of scales from the molecular to the planetary — demands a new multidisciplinary schematic for first interpreting and then intervening in this unprecedented ecological crisis.

Such a schematic requires a review of three key concepts and their attendant practices. First, the authors argue that the plantation developments in Indonesia represent an exemplary case of urbanization as deforestation and contend that by understanding these processes as such their requisite infrastructures, investments, and incentives can be more thoroughly accounted for. Following from this point, the authors claim that the process of urbanization as deforestation requires a new understanding of the political economic process of externalization and its scalar implications for both corporations and financial markets. With these considerations in mind, the authors go on to discuss the multi-dimensional, multi-centered, and multi-institutional procedures of governance at stake in the regulation and management of the Indonesian forests, their fires, and their various human and nonhuman inhabitants. As a conclusion, they suggest that an approach to resilience which gathers its matters of concern from the urban-ecological, political economic, and organizational registers might succeed in re-framing the governance of fire and thereby reduce its catastrophic implications in Indonesia and beyond.

Etienne Turpin is a philosopher studying, designing, curating, and writing about urban systems, knowledge infrastructures, visual and spatial cultures, and colonial-scientific histories. He is a Research Scientist at the Massachusetts Institute of Technology, where he co-ordinates the Humanitarian Infrastructures Group for the Urban Risk Lab and co-directs the PetaBencana.id disaster mapping platform in Indonesia. He is also the Founding Director of anexact office in Jakarta and a Visiting Research Fellow at the NTU Centre for Contemporary Art in Singapore. He is co-editor of *Fantasies of the Library* (MIT Press, 2016), *Art in the Anthropocene* (Open Humanities Press, 2015), and *Jakarta: Architecture + Adaptation* (Universitas Indonesia Press, 2013), and editor of *Architecture in the Anthropocene* (Open Humanities Press, 2013).

D.T. Cochrane is a father and a partner, as well as an economist studying price formation and capital accumulation as mechanisms of materio-cultural ordering. He is currently participating in *Reconciling Sovereignties*, a multi-institution project mapping corporate and market risk management responses to exercises of indigenous sovereignty. He has also contributed to Bruno Latour's *An Inquiry into Modes of Existence* project and *capitalaspower.com*. His PhD research focused on diamonds and he is newly fascinated with cellophane.

Cities and the Anthropocene: Urban Governance for the New Era of Resilient and Regenerative Cities

Giles Thomson

Curtin University Sustainability
Policy Institute, Australia

giles.thomson@curtin.edu.au

Peter Newman

Curtin University Sustainability
Policy Institute, Australia

p.newman@curtin.edu.au

The emerging “grand challenges” of climate change, resource scarcity and population growth present a risk nexus to cities of the Anthropocene. This paper discusses the potential that rapid urbanisation presents to help mitigate these risks through large-scale sustainability transitions *if* future urban development is delivered using evidence based policies that promote sustainability. Central to large-scale urban sustainability transitions is the use of decarbonising infrastructure that performs an urban geoengineering function coupled with regenerative design approaches for supporting urban systems (e.g. water, waste, food, biodiversity etc.). In combination these approaches form the cornerstone of resilient and regenerative cities.

The urban geoengineering concept is associated with macro-scale urban and transport planning that shape different urban fabrics (walking, transit, automobile urban fabric) the underlying infrastructure of each fabric exhibits different sustainability performance, with automobile fabric being the least sustainable. Supporting urban systems based upon regenerative design principles at different scales (macro, meso and micro) can deliver deep sustainability outcomes while creating circular green economies.

Planning cities through these combined lenses can not only reduce consumption but also repair the local and global biosphere. Governance models are emerging that are capable of assisting with urban sustainability transitions. The resulting sustainable urban environments are more inclusive, less polluting and greener creating cities with a greater propensity to support human flourishing. Collectively these approaches are capable of delivering a new era of liveable, resilient and regenerative cities in the Anthropocene.

Giles Thomson is an Urban Designer researching regenerative urbanism at Curtin University as part of the Co-Operative Research Centre for Low Carbon Living. He has worked in government and industry in Australia and the UK most recently he was "Research Leader" for the South Australian Government's Integrated Design Strategy (5000plus.net.au) — a federally funded collaborative visioning project involving government, industry, academia and the community.

Peter Newman is the Professor of Sustainability at Curtin University. He has written 16 books and over 300 papers. His books include 'The End of Automobile Dependence' (2015), 'Green Urbanism in Asia' (2013) and 'Sustainability and Cities: Overcoming Automobile Dependence' which was launched in the White House in 1999. Peter was a Fulbright Senior Scholar at the University of Virginia Charlottesville and was on the IPCC for their 5th Assessment Report. In 2014 he was awarded an Order of Australia for his contributions to urban design and sustainable transport. He is a Fellow of the Academy of Technological and Engineering Sciences Australia. Peter has worked in local government as an elected councillor, in state government as an advisor to three Premiers and in the Australian Government on the Board of Infrastructure Australia.

About the Chairpersons and Organisers

Alan D. Ziegler is Professor at the Department of Geography, National University of Singapore. His research addresses the interactions of physical and ecological systems, with water resources serving as a common nexus. The work typically involves developing environmental monitoring programs that facilitate understanding catchment processes, as they vary both naturally and anthropogenically over different spatial and temporal scales. In particular, he is interested in exploring the risks of rural populations in developing areas to ingestion of contaminated drinking water, exposure to anthropogenic contaminants (heavy metals and pesticides), exposure water-borne pathogens (e.g., parasites, bacteria). This type of research requires extended fieldwork in foreign countries, language training, and interaction with local populations. The research is a trans-disciplinary balancing act, grounded in science.

Chris Courtney is a research fellow in the Asia Research Institute, National University of Singapore, and at Gonville and Caius College, University of Cambridge. His previous research focused upon the social and environmental history of flood disasters in the middle Yangzi region. His forthcoming monograph is provisionally entitled *The Nature of Disaster: The 1931 Central China Floods* (Cambridge University Press, 2017). His current research focuses upon the social history of disease in China and the Chinese diaspora. In particular, he is examining the impact of pandemic influenza upon global Chinese communities, and also the effect of beriberi on Chinese migrants living in Southeast Asia.

Eric Kerr is Research Fellow in the Science, Technology and Society cluster at the Asia Research Institute and Fellow of Tembusu College, National University of Singapore. He writes primarily on the social epistemology and philosophy of technology, with a focus on petroleum engineering. He is currently working on issues of safety, malfunction, evidence, and expertise 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.

Howard Dick is Honorary Professorial Fellow at the Department of Management and Marketing, University of Melbourne and Conjoint Professor at the Faculty of Business and Law, University of Newcastle. Previously, he was Professor at the Department of Management and Marketing, University of Melbourne. He has published several notable books, among which are *The City in Southeast Asia: Patterns, Processes and Policy* (NUS Press, 2009, with Peter Rimmer) and *Cities, Transport and Communications: The Integration of Southeast Asia since 1850* (Palgrave, 2003, with Peter Rimmer). He has also sole-authored the book *Surabaya, City of Work: A Twentieth Century Socioeconomic History* (Ohio University Press, 2002). His books and journal publications have been widely acclaimed and are influential in the scholarship of urban history and Southeast Asia's urbanism.

Jonathan Rigg is Director of the Asia Research Institute and Professor in the Department of Geography at the National University of Singapore. Prior to that, he was Head of the Geography Department at Durham University in the UK. He was also based at the School of Oriental & African Studies, London University where he was a Lecturer, British Academy Post-Doctoral Research Fellow, and PhD Student. He 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 2015.

Michelle Miller is a Senior Research Fellow at the Asia Research Institute, National University of Singapore. Trained in political science, her research focuses on intersections between urban and regional governance in the context of human conflict and environmental change. She leads the Disaster Governance theme of the Asian Urbanisms Cluster at ARI. Her interdisciplinary publications speak to contemporary theoretical debates and key policy issues in environmental disaster governance, decentralisation, urban change, and citizenship and belonging. A reoccurring concern throughout her work is with the policy potential and lived experience of decentralisation in generating more inclusive and effective forms of governance, especially in Indonesia but across Asia more broadly. Before joining ARI, she taught at Deakin University and Charles Darwin University in Australia, and she has held visiting research fellowships in Indonesia at both the Centre for Strategic and International Studies (Jakarta) and Ar-Raniry Institut Agama Islam Negeri (Banda Aceh).

Mike Douglass is Professor and Leader of the Asian Urbanisms Cluster at the Asia Research Institute and also Professor at the Lee Kuan Yew School of Public Policy at the National University of Singapore. He received his PhD in Urban Planning from University of California, Los Angeles (UCLA). He is Emeritus Professor, former Chair of the Department of Urban and Regional Planning and former Director of the Globalization Research Center at the University of Hawai'i. He previously taught at the Institute of Social Studies (Netherlands) and at the School of Development Studies, University of East Anglia (UK). He has been a Visiting Scholar/Professor at Stanford University, UCLA, Tokyo University, Thammasat University and the National University of Singapore. With a professional focus on urban and regional planning in Asia, he has lived and worked for many years in Asia both as an academic and as a staff of the United Nations. He has also advised university programs on planning education in Asia and the U.S. His current research focuses on globalization and liveable cities, creative communities, disaster governance, and global migration.

Rita Padawangi is Senior Research Fellow at the Asian Urbanisms Cluster at Asia Research Institute (ARI)-NUS. Dr Padawangi was previously a researcher at the Lee Kuan Yew School of Public Policy, National University of Singapore. She has also been a Research Fellow at the Global Asia Institute, National University of Singapore; Center for Urban Research and Learning at Loyola University Chicago; and Centre for Strategic and International Studies in Jakarta, Indonesia. She has taught at the School of Design and Environment at the National University of Singapore and at the Department of Sociology at Loyola University Chicago, with a special focus on urban sociology and the sociology of the built environment. She received her PhD in Sociology from Loyola University Chicago where she was also a Fulbright Scholar for her M.A. studies. She holds a Bachelor of Architecture degree from the Parahyangan Catholic University and was a practicing architect in Bandung, Indonesia. Her research interests are in the following: (1) public space, urban heritage, place-making and spaces of hope through community engagement in city-building; (2) sociology of architecture and the built environment; (3) social movements and politics of space; (4) environmental sociology in the city; (5) environmental resource governance with a focus on water.

In his most recent positions prior to joining National University of Singapore in 2011 Professor **Robert Wasson** was 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 has taught and researched at Sydney University, Macquarie University, University of Auckland, Monash University, and the Australian National University. 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 Australia, New Zealand, Indonesia, Timor Leste, Malaysia, India, Nepal, Pakistan, China, Myanmar and Thailand. He is currently a Senior Research Fellow in the Institute of Water Policy at the Lee Kuan Yew School of Public Policy and is examining flood risk in relation to climate change and human vulnerability over long periods in India and Thailand, the political economy of disaster management in India and Thailand.

Winston Chow is an Assistant Professor at the Department of Geography, and he also has a concurrent adjunct position at the Institute of Water Policy, Lee Kuan Yew School of Public Policy, at the National University of Singapore. His research focuses on the physical processes, impacts, and mitigation of urban heat islands, urban vulnerability to climate change, and sustainable urban climatology with a focus in tropical and subtropical cities. His recent research projects in NUS include investigating the thermal regulation of urban green spaces in Singapore across multiple physical and social dimensions, assessing effective heat island mitigation methods for cities, and documenting the influence of drought on the resilience of Singapore's present and future water supply.