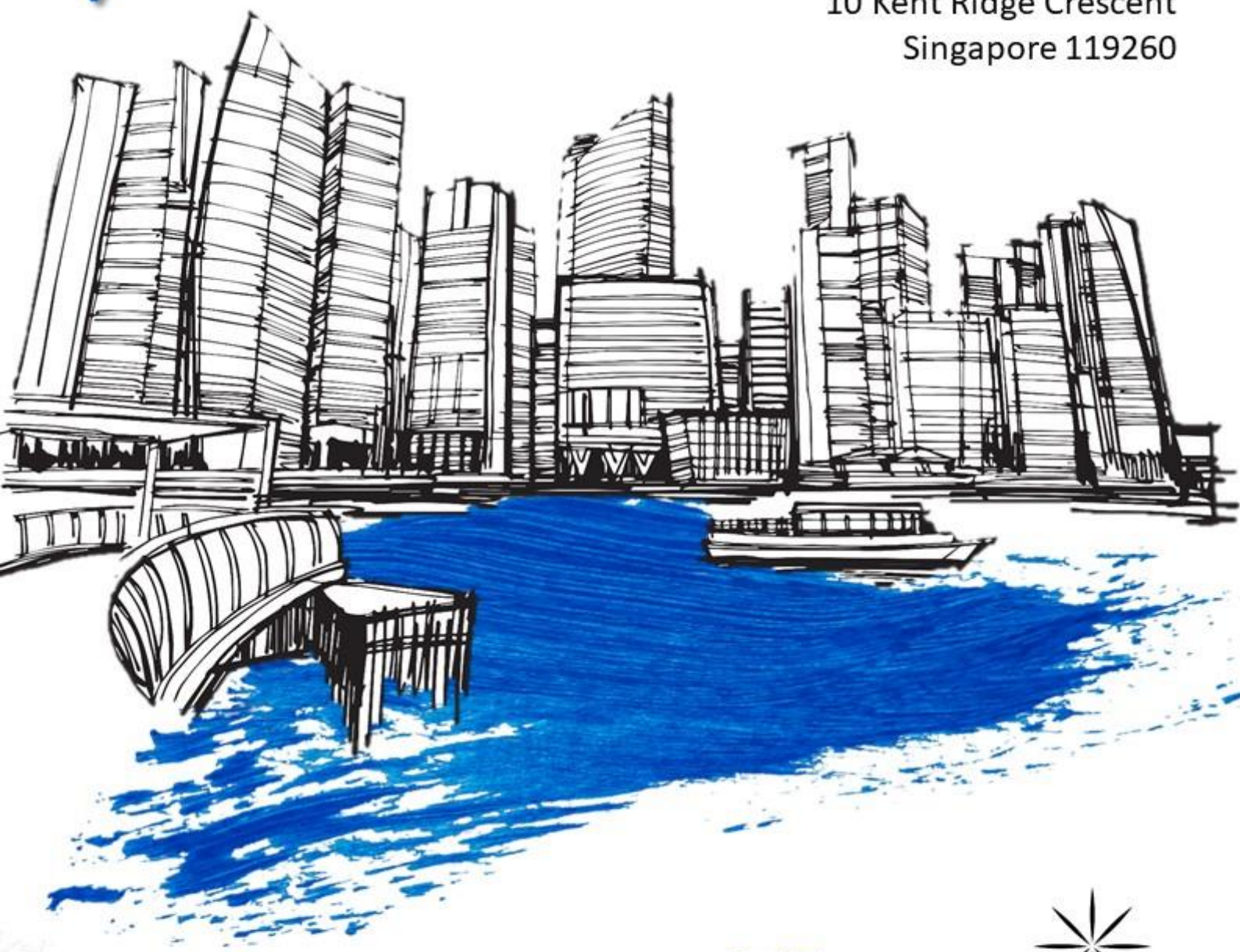


WATER & THE CITY

6-7
FEBRUARY
2020

AS8 Building
Seminar Room 04-04
10 Kent Ridge Crescent
Singapore 119260



For more details and registration
ARI.NUS.EDU.SG


INSTITUTE of WATER POLICY


ARI
ASIA RESEARCH INSTITUTE
National University of Singapore

This conference is jointly organized by Asia Research Institute, and Institute of Water Policy at the Lee Kuan Yew School of Public Policy, National University of Singapore.

Life in Asian cities, home to 54% of the world's urban population (United Nations, 2018), is an anthropocenic, although negotiated, contest with the demands of nature. Large technical urban infrastructures, particularly those conveying water, sewerage and energy, have become vital interlocutors of modern urban metabolic exchanges that power life in many Asian cities.

In this workshop, we focus on people's relationship with water in the city, including the institutions of governance, public narratives and the policy and social implications of dependence on large, centralized hydraulic infrastructures. We use a governance lens to interrogate the permutations which water infrastructure can take, and the way in which people interact this artificial yet vital part of the hydrological landscape.

The general success of large hydraulic infrastructures has led to greater confidence and reliance by policy makers, sometimes referred to as the "hard (infrastructure)" path. The promise of such hard-pathed, urban projects is to dramatically improve the quality of urban life and 'resolve' urban environmental problems and risks. Beyond their functionalities, large hydraulic infrastructures also double up as symbols of economic progress and stability, forming the hallmark and realization of the networked city—an ideal that is both historically-situated (in the age of the industrial and scientific revolution), and politically-driven by neoliberal ideologies (Gandy, 2004; Picon, 2018).

The perils of such hard-pathed, urban water infrastructure reforms are however, equally large. Firstly, they pose a very high risk for failure and impact upon failure granting its extent of reach and scale. Secondly, they exact massive financial overheads to enable and insure its development, construction, and maintenance over a given life-cycle (Little, 2002; Graham, 2010). Thirdly, the installation of large infrastructures have not ensured, as promised, greater population access to goods, such as electricity and water, with examples abounding from project failures in post-colonial cities worldwide (see for e.g. Amin, 2013, 2014; Björkman & Harris, 2018).

In contrast to the hard water path described afore, a "soft" water path has been proposed as an alternative and complement to the hard path (Gleick & Wolff, 2004). The soft path represents a new paradigm and programme of water infrastructure planning and governance that reimagines urban water futures, beyond the installation of large, heavily-engineered technical systems. As Brooks and Holtz (2009) explain, "soft path policies are less a set of technologies than a socio-political process for choosing, from a range of technical, social, and economic options, specific ones that can move society towards a desired future state" (p. 89). If hard water paths favor top-down, "locked-in" solutions engineered by experts, soft water solutions are more open-ended, diverse and require sharing, communication and local autonomy (Bavikatte and Bennett, 2015: 12).

The discourse of resilience is also apposite for the study of water in the city. While the relationship between large, urban hydraulic infrastructures and people have been traditionally studied under narratives of resilience, it is also important to understand urban end-users' interactions with and perceptions of these infrastructures, in constructing these narratives (Leong, 2018). Therefore, in asking if a city is resilient or otherwise, it is not only essential to address the question of whether its physical infrastructures can withstand environmental shocks, but also if its "human dimensions" have the capability of adapting to, and mitigating such risks (Leong, 2016). This workshop thus incorporates a study of the implications of hard-pathed urban water governance, on citizens' responses to environmental risks and problems, in other words, citizen resilience.

In sum, the following questions guide this workshop:

1. What are the governance regimes and narratives that define, constrict and instantiate the perceptions of urban dwellers, of water in their city?
2. How do urban users interact with large hydraulic infrastructures, and how does this shape users' perceptions of risk, and perceived responsibility in managing environmental risks and problems, with consequences for users' resilience to environmental risks and problems?
3. How are citizen-community-state negotiation of responsibilities towards environmental risks, impacted or mediated, by large hydraulic infrastructures?
4. What alternatives are there to large hydraulic infrastructures, and what might be their impact on urban citizens' resilience in the Asian region? What are the barriers to the uptake of these alternatives for city-making in the Asian region?

WORKSHOP CONVENORS

Assoc Prof Kong Chong Ho | sochokc@nus.edu.sg

Asia Research Institute, and Department of Sociology, National University of Singapore

Assoc Prof Ching Leong | ching@nus.edu.sg

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

Dr Corinne Ong | sppcopp@nus.edu.sg

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

6 FEBRUARY 2020 (THURSDAY)	
08:45 – 09:00	REGISTRATION
09:00 – 09:15	WELCOME & OPENING REMARKS
09:00	Kong Chong Ho <i>National University of Singapore</i> Ching Leong <i>National University of Singapore</i>
09:15 – 10:30	KEYNOTE ADDRESS
Chairperson	Ching Leong <i>National University of Singapore</i>
09:15	Rethinking Urban Water: 21st Century Challenges and Opportunities Peter H. Gleick <i>Pacific Institute, USA</i>
10:00	QUESTIONS & ANSWERS
10:30 – 11:00	TEA BREAK
11:00 – 12:10	PANEL 1 – PATHS SOFT AND HARD PART I From big to small, hard to soft: Envisioning and re-visioning alternatives to urban hydraulic technocracy Soft water governance and partnerships
Chairperson	Corinne Ong <i>National University of Singapore</i>
11:00	Increasing Urban Supply by Implementing Smart Water Management and Smart Processes in the Irrigation Sector: Lessons from Small-Scale Irrigation in Sub-Saharan African Henning Bjornlund <i>University of South Australia</i>
11:20	Social Dimensions of Resilient Urban Water Systems in the Philippines Doreen Ingosan <i>The University of Tokyo, Japan</i>
11:40	QUESTIONS & ANSWERS
12:10 – 13:10	LUNCH
13:10 – 14:40	PANEL 2 – PATHS SOFT AND HARD PART II
Chairperson	Henning Bjornlund <i>University of South Australia</i>
13:10	Concrete in the City Kate Harriden <i>Australian National University</i>
13:30	Wastewater Management in Hanoi: The Possibility of Using a Soft Path Approach Nguyen Thi Thu Trang <i>RMIT Vietnam</i>
13:50	Can Desalination Dissolve the Urban Guilt of Contamination?: Anthropology of Water on an 'Anthropocene Space' Lakshmi Pradeep <i>National University of Singapore</i>
14:10	QUESTIONS & ANSWERS
14:40 – 15:00	TEA BREAK

15:00 – 16:10	PANEL 3 – COMMUNITIES PART I Moralizing urban water, distributive regimes, uneven developments and access to water The social construction of hydraulic risk planning and adaptation in coastal cities
<i>Chairperson</i>	Kong Chong Ho <i>National University of Singapore</i>
15:00	Liquid Heritage: Can Water Museums Facilitate a New Water Ethics? Sara Ahmed <i>Ahmedabad University, India</i>
15:20	Walking with the Water Lineman: Tacit Knowledges in Urban Water Flows Vanshika Singh <i>Hyderabad Urban Lab, India</i>
15:40	QUESTIONS & ANSWERS
16:10 – 16:30	TEA BREAK
16:30 – 18:00	PANEL 4 – COMMUNITIES PART II
<i>Chairperson</i>	Doreen Ingosan <i>The University of Tokyo, Japan</i>
16:30	Water in the Highland: Perception of Urban Dwellers to Flooding in Bandung City Elisabeth Rianawati <i>Resilience Development Initiative, Indonesia</i>
16:50	Mapping Water Trajectories in Urban Kampung: Micro Infrastructure and Socio Spatial Practices Amira Paramitha and Herlily <i>Universitas Indonesia</i>
17:10	Futuring 'Blue Urbanism': Between Promises and Paradoxes in Island Southeast Asia Rapti Siriwardane-de Zoysa <i>University of Bremen, Germany</i>
17:30	QUESTIONS & ANSWERS
18:00	END OF DAY 1
18:15	BUS TRANSFERS
18:30 – 20:00	CONFERENCE DINNER (For Speakers, Chairpersons & Invited Guests)

7 FEBRUARY 2020 (FRIDAY)	
09:15 – 09:30	REGISTRATION
09:30 – 11:30	PANEL 5 – INSTITUTIONS, NARRATIVES AND HUMAN BEHAVIOUR I Resilience: Infrastructure vs social resilience. Building water-resilient communities and nations of people (demand management/environmental risk adaptation/mitigation) Socio-hydrology: Narratives, Local knowledge, and interpretations of water infrastructures and the way they influence decision making and behaviour
<i>Chairperson</i>	Olivia Jensen <i>National University of Singapore</i>
09:30	Water as Translocal Reputation: Seoul and the Tap Water Arisu Ricardo Martinez <i>National University of Singapore</i>
09:50	Sinking Bangkok: Environmental Changes through Problem Framing, Policy Negotiation and Groundwater Governance Thanawat Bremard <i>l'institut Agronomique Vétérinaire & Forestier de France, France</i>
10:10	Musical Narratives of Urban Waterscapes in Lagos City, Nigeria Olusegun Stephen Titus <i>Obafemi Awolowo University, Nigeria</i>
10:30	Water For The City: Ecosemiotic Reading of the Local Knowledge about Water among Local Communities on the Slopes of Mt. Merapi, Sleman, Indonesia Muzayin Nazaruddin <i>University of Tartu, Estonia</i>
10:50	QUESTIONS & ANSWERS
11:30 – 12:30	LUNCH
12:30 – 14:20	PANEL 6 – INSTITUTIONS, NARRATIVES AND HUMAN BEHAVIOUR II
<i>Chairperson</i>	Peter H. Gleick <i>Pacific Institute in California, USA</i>
12:30	Sacred Trash: Waste, Flood, and Community in Bangkok's Canals Andrew Alan Johnson <i>Cornell University, USA</i>
12:50	Governing the Flow: A Case Of Urban Water Governance In Shimla Ankur Parashar <i>Indian Institute of Science Education and Research, India</i>
13:10	Climate Risk Perceptions in the City: Linking Social Capital, Self-Efficacy and the Intention to Act Olivia Jensen <i>National University of Singapore</i>
13:30	Enacting Responsible Transboundary Relations? The Case of South Korean Civil Society Movements in Seoul against Large Hydraulic Infrastructures in Laos Sumiya Bilegsaikhan Tajir <i>National University of Singapore</i> Hanee Kang <i>People's Initiative for Development Alternatives, South Korea</i>
13:50	QUESTIONS & ANSWERS
14:20 – 14:50	CLOSING REMARKS
14:20	Ching Leong <i>National University of Singapore</i> Corinne Ong <i>National University of Singapore</i> Kong Chong Ho <i>National University of Singapore</i>
14:50	END OF CONFERENCE
14:50 – 15:15	TEA BREAK

FIELD TRIP

(For Speakers, Chairpersons & Invited Participants)

15:15	BUS TRANSFERS (Please gather at the lift lobby on Level 1)
16:00 – 18:00	FIELD TRIP TO MARINA BARRAGE VISITOR CENTRE
	<p>The Marina Barrage is a dam in Singapore built at the confluence of five rivers, across the Marina Channel between Marina East and Marina South. First conceptualised in 1987 by the late Minister Mentor Lee Kuan Yew, the Barrage started construction on 22 March 2005, and was officially opened on 31 October 2008 as Singapore's fifteenth reservoir. It provides water storage, flood control and recreation. By keeping out seawater, the barrage forms Singapore's first reservoir in the city. According to the Public Utilities Board (PUB), Marina Reservoir, together with the future Punggol and Serangoon reservoirs, will increase Singapore's water catchment areas by one-sixth of Singapore's total land area. Marina Barrage also acts as a tidal barrier to keep seawater out, helping to alleviate flooding in low-lying areas of the city such as Chinatown, Jalan Besar and Geylang.</p>
18:00	BUS TRANSFER BACK TO HOTEL

KEYNOTE ADDRESS

Rethinking Urban Water: 21st Century Challenges and Opportunities

Peter H. Gleick

Pacific Institute, USA

pgleick@gmail.com

Meeting the demands of cities for safe water and sanitation has always been a challenge, from the ancient cities of the Romans and Greeks to rapidly growing urban centers in the 21st century. These challenges include finding adequate reliable water supplies for large concentrations of people, financing and building appropriate infrastructure to collect, treat, and distribute that water, developing systems to collect, treat, and safely dispose of wastewater of complex compositions, and putting in place the institutional structures manage, maintain, and operate these systems. The “hard path” approaches used in the 19th and 20th centuries brought enormous advantages, but they are no longer adequate alone for the new challenges of massive population growth, the size of urban conglomerations, new forms of contaminants, and the serious threat of human-caused climate change. New strategies, including “soft path” approaches that integrate demand management, new technologies, innovative financing and economics, and more integrated institutions are both needed, and available. This talk will present these new concepts, with examples of “success stories” from Singapore, the Middle East, Asia, the United States, and elsewhere that inform the broader outline of a sustainable 21st century water strategy.

Peter Gleick co-founded and is president emeritus of the Pacific Institute in California. The Institute creates and advances solutions to global water challenges. Gleick is a hydroclimatologist focused on climate change, energy and water, water and conflict, and the human right to water. He pioneered the concepts of the “soft path for water” and “peak water.” Gleick is a MacArthur Fellow, member of the US National Academy of Sciences, Fellow of the American Association for the Advancement of Science, and winner of the 2019 Carl Sagan Prize for Science Popularization. He has a BS from Yale University, MS/PhD from the University of California Berkeley and is the author of many scientific papers and twelve books, including *The World’s Water series* (Island Press), *Bottled and Sold: The Story Behind Our Obsession with Bottled Water* (Island Press), and *A 21st Century US Water Policy* (Oxford University Press).

Increasing Urban Supply by Implementing Smart Water Management and Smart Processes in the Irrigation Sector: Lessons from Small-Scale Irrigation in Sub-Saharan African

Henning Bjornlund

Water Policy and Management, University of South Australia
henning.bjornlund@unisa.edu.au

This paper explores the opportunity to contribute to meeting increased urban demand for fresh water through water saving and improved water productivity in the irrigation sector. A two-pronged approach using innovative monitoring tools and Agricultural Innovation Platforms can facilitate farmer learning about soil-water and nutrient dynamics and identify local solutions to address barriers to profitability. Positive impacts from the approach include a significant reduction in water use and increased yield and profitability. The findings stress the importance of considering institutional processes, farmer learning, and feedback loops when introducing smart technologies and processes for water saving and increased yield and profitability.

Henning Bjornlund is a Research Professor in Water Policy and Management at the University of South Australia (UniSA) in Adelaide, Australia where he is also the Co-director of the UniSA Yunus Social Business Centre. He is a member of the board of the International Water Resources Association since 2013, where he currently serves as the chair of the Scientific Committee. His research initially focused on water markets in Australia, and then looked at water sharing policies in Australian and Canada when he held a Canada Research Chair as well as his position at UniSA. Since 2013 he has been involved in research in Southern Africa.

Social Dimensions of Resilient Urban Water Systems in the Philippines

Doreen Ingosan

University of Tokyo, Japan
doreeningosan@gmail.com

The Philippines is one of Asia's fastest urbanizing countries which put significant pressure on its urban infrastructure. The threats of climate change, coupled with rapid population growth are pushing urban water systems to the limits. As a result, local governments are forced to re-think ways to manage water resources sustainably. Traditional solutions such as supply augmentation and use restriction are no longer guaranteed to address seasonal water insecurity brought about by longer dry spells and the unprecedented impact of population growth. It's becoming clearer that we can no longer simply rely on technocratic solutions. Water harvesting is deemed to be one of the promising ways to supplement scarce water resources in areas where existing water supply system cannot meet demand. However, despite the practice being promoted globally, its adoption remains low. This study recognizes that water has both physical and social dimensions, thus people's consumption of water is subject to factors like social norms, cultural practices as well as personal preferences and expectations as much as it is limited by biophysical considerations. Hence, this research investigates the interplay between water harvesting practices and water security. In doing so it aims to identify the social determinants of water security in order to inform policy and build a conceptual framework for a sustainable water harvesting system.

Doreen Ingosan's primary research interest revolves around the sustainable governance of community-based resources especially focusing on the role of local institutions. Throughout her masters and doctoral research, she worked with various indigenous communities whose communal resources are threatened by modern disturbances brought about by their changing socio-economic and cultural realities. Currently, she is involved in a collaborative research between Japanese and South African universities tackling the shared challenges of migration and rural sustainability as part of her postdoctoral work. She is highly experienced in field research having conducted field work in different countries including Costa Rica, Japan, the Philippines, Myanmar, Thailand and South Africa. She was a recipient of the Japanese Government (MEXT) Scholarship Award at the University of Tokyo, Japan, where she acquired both her masters and doctoral degree in Sustainability Science.

Concrete in the City

Kate Harriden

Australian National University, Canberra, Australia

k.harriden@anu.edu.au

Despite the hydrological imperative, and engineering capacity, for change, concrete storm water infrastructure remains dominant in the urban waterscape. This dominance manifests as both an unwillingness to remove existing infrastructure and the on-going construction of new systems in locations previously free of the pernicious influence of these systems, including cities and large towns in southeast Asia.

This paper identifies four critical socio-political imperatives underlying the impetuous to construct large-scale concrete storm water infrastructure. These drivers are i) notions of human dominance; ii) perceived public health and safety benefits; iii) path dependency and influence on the development agenda; iv) the lack of community knowledge about conventional storm water systems. The hydrological consequences of engineering conventional storm water systems from natural channels are consistent enough to have been identified as contributing to the 'urban stream syndrome'. Many, conceptually and operationally similar, hydrologically-based/orientated storm water management frameworks have been developed to manage the symptoms of the urban stream syndrome, and the resultant decline in system resilience. This paper critiques these reactive frameworks, ultimately noting that they have failed to slow the rate of conversion to conventional storm water, and therefore failing to slow the encroachment of concrete in the city.

Concluding with an outline the potential of small scale, in-channel interventions, designed within the rubric of nature-based solutions (NBS), to increase the range of hydrological functions in concrete storm water channels, this paper encourages/incorporates non-conventional approaches to managing excess urban overland flow. A non-conventional approach that challenges each of the socio-political imperatives identified is required to manage excess overland flow more efficaciously.

Kate Harriden is an advocate of multidisciplinary and transdisciplinary research, as indicated by her research opening the black box of intra-household water use. Her current PhD storm water research continues this approach by drawing from science and social science fields and incorporating community members in the design, installation and maintenance of in-channel infrastructure. As an Indigenous Australian, she has an interest in including Indigenous water knowledge in contemporary urban water management. The current holder of the Aspi Baria Scholarship at the Australian National University, Kate has held positions on several industry association committees, including the Australian Water Association and the Australian Association for Environmental Education. Kate has worked both as an independent researcher and has held several roles across all levels of government. Her most recent public sector position in the ACT Government's Healthy Waterways project inspired her PhD project.

Wastewater Management in Hanoi: The Possibility of Using a Soft Path Approach

Nguyen Thi Thu Trang

RMIT Vietnam

thutrang_ctn@tlu.edu.vn

John Walsh

RMIT Vietnam

john.walsh2@rmit.edu.vn

Hanoi is known as the City of Lakes because there are some one hundred natural or manmade watercourses within its territory. However, in common with all of Vietnam, more than 60% of the city's water resources derive from beyond the country's borders. Much of that water is polluted, both within Hanoi and downstream because wastewater is discharged directly into the Nhue and Day rivers via the Nhat Tuu and Ba Tha sewers, among other channels. International attempts to revive the To Lich River in the city, notorious for its black colour and unwholesome smell, have proved to have only limited success. There is some scope for new materials to improve filtration effects and experiments in this area continue. Rapid urbanization in Hanoi has been intensified by the sudden decision to increase the city's size so that it became comparable to the southern capital of Ho Chi Minh City. This has led to large areas of industrial land being incorporated into municipal water management systems. One possible means of relieving the pressure on these systems would be to employ approaches derived from the soft path of water management. It is known that soft path approaches have been successful elsewhere in reducing the volume of wastewater and storm water into the urban water system, thereby enabling existing wastewater treatment systems to increase their efficiency. Various attempts at tackling water management issues in Vietnam have been led by NGOs, including the 2030 Water Resources Group, which is a public-private-civil partnership involving the World Bank and operating according to the analyse-convene-transform approach, as well as the Thrive Networks/East Meets West network, which is working in the water, sanitation and hygiene (WASH) sector which frequently has a focus on gender issues and the situation facing people in remote rural areas which, in Vietnam, often features people from ethnic minority groups. Many other initiatives approach water-related issues either directly or indirectly as a result of people facing scarce resources and difficult life choices. This paper reports on research among local residents exploring their everyday experiences of urban water systems and the problems these cause, as well as considering specific instances of local knowledge which might help in promoting soft path approaches in Hanoi. The possibility of exporting such a model beyond Hanoi is considered.

Nguyen Thi Thu Trang is a lecturer and researcher in the Water Supply and Sanitation Division, Thuy Loi University, as well as PhD candidate at the School of Business and Management, RMIT Vietnam, where she is studying the management of innovation in the use of various materials in filtration techniques in water management systems in the Vietnamese context.

John Walsh is a lecturer at the International Business, RMIT Vietnam (Hanoi campus). He received his doctorate from Oxford University for a thesis related to international management. He has lived and worked in Sudan, Greece, South Korea, Australia, Abu Dhabi, Thailand and Vietnam as well as his native UK. These days, his research mostly focuses on the social and economic development of the Greater Mekong Sub-region.

Whither water?
Island, City and the Anthropocene on Lakshadweep, Indian Ocean

Lakshmi Pradeep
National University of Singapore
lakshmirpradeep@u.nus.edu

This paper discusses the story of water from the point of view of an island that is getting urbanized. The paper mainly describes the anxieties on the availability of drinking water on an 'anthropocene space' based on narrations derived from field work. The Lakshadweep Islands in India, although surrounded by water on all sides, are now facing the threat of encroachment of the sea on land. This is due to multiple factors such as climate change, harbor and building constructions for tourism and island development. Urban pollution in the form of waste and acidification has invaded the seascapes to contaminate landscapes. The heightened levels of sea would mean the diffusion of fresh water with the salt water. The precariousness of lives due to water crisis are addressed here in the form of technoscientific interventions such as the Desalination Plants. However, the desalinized water is less consumed on the islands due to its lack of essential minerals. The water trouble on Lakshadweep is connected to the cases of dialysis patients and calcium deficient bodies as well. In other words, the coming of the city onto an island has affected its rhythm with the sea. As a whole, the paper highlights the urgencies to look at the scarcity of water and on how life is mediated through infrastructure, state and science on an urbanizing island.

Lakshmi Pradeep is a graduate student at South Asian Studies Program, National University of Singapore (NUS). Her academic training is in Social Anthropology. Her research interests are in ecological anthropology, island studies and science and technology studies. Her dissertation project is about the coastal and coral communities of the Lakshadweep Islands in India. Prior to joining NUS, she had completed her Masters in Sociology from University of Hyderabad and MPhil in Sociology from Jawaharlal Nehru University on human and non-human relations.

Liquid Heritage: Can Water Museums Facilitate a New Water Ethics?

Sara Ahmed

Ahmedabad University
sara.ahmed@ahduni.edu.in

The water challenges that we face today, suggest the need for a new paradigm of water management and governance which requires re-thinking what water 'is' and what water 'means' for all users. Water museums all over the world exhibit and interpret an outstanding liquid heritage, both tangible and intangible, from ancient artefacts and technologies to strategies to combat water scarcity, pollution and climate change. But while museums are repositories of our fluid past, they also play a role in reconnecting people with water in all its dimensions. Recognizing this, UNESCO's International Hydrology Program endorsed the Global Network of Water Museums in June 2018 as a special initiative to address SDG 6 through public education and outreach events, exhibitions, the creative arts, communication campaigns and collaborative partnerships.

Living Waters Museum, a founder member of the global network, seeks to collect and collate rich and diverse traditions of water practices in India and build a digital repository of visualised knowledge, which can commemorate the past, inspire the present and be a source of learning for the future. The process of developing this digital museum is collaborative and interdisciplinary, engaging young people in 'storytelling' around water and its intersection with natural and built environments, water wisdom and livelihoods, using multi-media. Based in the heritage city of Ahmedabad with its rich history of urban water architecture reflected in the beautiful stepwells and the rain-water storage 'tankas' which dot the old cityscape, and the more recent Sabarmati riverfront development, Living Waters Museum through its many outreach activities, provides a platform for critical dialogue on revisioning water. Moving towards a new water ethics requires us to 'speak' to water from the perspective of water use efficiency, equity and ecological flows, addressing competing demands through a transformative alternative vision of water conservation and sustainability.

Sara Ahmed is currently Adjunct Professor at Ahmedabad University's Centre for Heritage Management in India. She has over 25 years of applied research experience on water, livelihoods and social equity. Sara has been actively engaged in teaching and mentoring young development professionals in India, managing large and complex regional research portfolios on water, food security and climate change in Asia, and advising a range of development organizations and water networks globally. Sara holds a PhD in Environmental Sociology from the University of Cambridge and is currently on the board of Water Aid, India as well as numerous other water NGOs. She has published extensively on water governance and her last co-edited book is entitled, *Diverting the Flow: Gender Equity and Water in South Asia* (2012). Apart from founding Living Waters Museum, Sara is on the board of the Global Network of Water Museums and advising the Indian government on the development of the first National Water Museum.

Walking with the Water Lineman: Tacit Knowledges in Urban Water Flows

Vanshika Singh

Hyderabad Urban Lab
vanshikaa.singh91@gmail.com

This paper anchors itself in the question - what are the 'knowledges' through which water moves across the city on an everyday basis? To this effect, it moves through an ethnography of the water linemen, building on their quotidian work of distributing state governed piped-water supply at the scale of the neighbourhood. Speaking from Bholakpur, a neighbourhood in Hyderabad and a major site for informal waste segregation, recycling, and processing, I draw attention to the knowledges that enable the lineman's practice as a last mile interlocutory actor, connecting large withdrawals from the region's rivers - Krishna and Godavari, to the lifeworlds of people on the receiving end of the tap. Unlike Hyderabad's parastatal water board which casts him as a 'General Purpose Employee', I push for understanding his embodied work as streaming through socio-material clues that outlast written set of codes or procedures, best described in one lineman's words as '*linon ka nafz pakadna*' ('catching the nerve of the pipe'). I further argue that the lineman's movement through uneven power locations in the neighbourhood is driven by a shared sense of place-based tacit knowledges. As opposed to the idea of a scientifically organised system of water that can yield known results, differentially located actors with differential access to water actively manipulate the system in collusion with on-ground actors, creating a very localised economy of water distribution. Speaking from a neighbourhood, mostly unreckoned by the state and the civil society, and selectively visibilised by the media through the troupe of 'nuisance' or as a site of 'polluting industries', the paper concludes by offering openings to understand the meaning of water for subjects grappling to claim urban life as citizens.

Vanshika Singh works at Hyderabad Urban Lab, an urban research and action initiative, where her engagement with water began in 2017. Juxtaposing the vocabulary of Hyderabad's public water supply system with the mundane socialities around water, her research is now a part of the Tacit Urban Research Network (TURN), between Centre for Policy Research (CPR) in Delhi, Tata Institute of Social Science (TISS) in Mumbai, Indian Institute of Human Settlements (IIHS) and Hyderabad Urban Lab. In September this year, she coordinated 'Perspective Building on Water and the Metropolis', an Action and Dialogue Meet for different stakeholders and practitioners across Delhi, Mumbai, Pune, Bangalore and Chennai to cross-inform each other on crafting new knowledges and practices to engage with institutions and diverse publics on the matter of water and its un-certainty. With training in Sociology and her commitment to engage with urban life in Indian cities, her interdisciplinary work cuts across geography, anthropology and public policy.

Water in the Highland: Perception of Urban Dwellers to Flooding in Bandung City

Elisabeth Rianawati

Resilience Development Initiative, Indonesia
erianawati@gmail.com
(Corresponding Author)

Saut Sagala

Institut Teknologi Bandung, Indonesia
saut.sagala@gmail.com

Jeeten K. Bhagnani

Resilience Development Initiative, Indonesia
jeetenbhagnani@gmail.com

Amesta Ramadhani

Resilience Development Initiative, Indonesia
amestaramadhani@gmail.com

Bandung Metropolitan is expanding very rapidly and attracting new populaces, which drive land conversion. In Bandung, land conversion mainly occurred in water catchment areas which replace open space which now only make up 25% (30,000 Ha). Land conversion has made 95% of rainwater unabsorbed, which further leads to regular flooding. With the increasing frequency and intensity of flooding due to the impact of climate change, the pressure on Bandung may also increase. To comprehensively understand the risk of flooding, this paper will explore the social science aspects by assessing the risk perception of a community in Baleendah area. Risk perception often varies between individuals depending on their understanding, ability, and experiences. A person may underestimate or overestimate the risk, affecting how people respond to the risk. This paper uses quantitative approach and gathered data from 237 respondents in Baleendah, a routinely affected area in Bandung Metropolitan. Our analysis shows that 42% understand that that flooding is caused by sedimentation, while only 2% are aware that flooding is caused by land conversion. As many as 55% considered that their houses had a very high chance of being affected, 34% considered that the threat of flooding was big, while 36% considered that they have limited ability in dealing with flooding. The perception then will affect community preparedness, where people who have knowledge and trust in their own abilities tend to take more preparedness actions. By understanding social aspects in risk assessment, the program related to community preparedness can be more in line with the target.

Elisabeth Rianawati received her BSc with Distinction (Cum Laude) from Environmental Engineering, Institute of Technology. Subsequently she received an award from AUN-SEED Net to continue a master study at Environmental Engineering, National University of Singapore (NUS). In 2015, she received STUNED scholarship to have a short course in Flood Management. Starting from 2013, she has been appointed as a Director of Resilience Development Initiative (RDI). She has been involved in a number of research projects and consultancies in disaster risk management, renewable energy, water management, monitoring and evaluation. Her clients include, among others, Plan International, Save the Children, Food and Agriculture Organization (FAO), Wahana Visi Indonesia (WVI), International Foundation of Science (IFS). She has received awards and travel grants from STUNED (The Netherlands), PIAD (Taipei), IFS (Manila), AUN-SEED Net (Palawan, Philippines).

Mapping Water Trajectories in Urban Kampung: Micro Infrastructure and Socio Spatial Practices

Amira Paramitha

Universitas Indonesia
Amiraparamitha123@gmail.com

Herlily

Universitas Indonesia
herlily@gmail.com

Jakarta and floods have a long history since hundreds of years ago. Its position as a delta city leaves 72.7 percent of the area threatened by flooding due to the large volume of water that must be drained to the sea, especially in the monsoon period. Jakarta relies heavily on hydraulic infrastructure its northern part, especially Pluit Reservoir and its Pump. The North Jakarta area, which is already mostly below water surface, must shield itself from water with a highly regulated polder system.

Along with the many infrastructural developments and activities along the coast, pockets of settlements have formed themselves since 1900 to provide affordable housing for surrounding activities. These settlements appear on a residual space that initially had no connection to the city's infrastructure network, such as in Kampung Gedong Pompa. Up until now, Kampung Gedong Pump still has to rely on their own, most unreliable and more costly systems to provide them with water and sanitation while trying to negotiate their systems inside of the highly regulated flood mitigation system that governs their area.

By mapping the water trajectories in Kampung Gedong Pompa and its socio spatial practices, this paper aims to understand kampung's water system as a spatial product of complex, ongoing struggles between various groups and institution in domestic scale of house, the communal space of neighborhood and beyond. We wish to explore possibilities of conversation between the soft infrastructure approach of the neighborhood with the hard infrastructure approach of the city, by understanding how Kampung Gedong Pompa water system has been trying to coexist with the flood mitigation system of North Jakarta. The implication will be important to response the good intentions from the DKI Jakarta government to apply on-site upgrading for kampung.

Amira Paramitha is an architect, researcher and urban designer who is currently focusing her study in kampung kota. She completed her undergraduate study in Department of Architecture, Universitas Indonesia and received her master degree in Urban Design from the same university in 2016. Amira is interested in looking for many possibilities to involve the community directly in designing their city, especially micro-infrastructure such as water provision and urban spaces. She is currently an assistant lecturer in the Department of Architecture, Universitas Indonesia.

Herlily is Faculty member at Department of Architecture Universitas Indonesia since 1993. She has trained in architecture, urban design and environmental design in developing countries at Universitas Indonesia; University of Sydney, Australia; International Frauen Universitat, Germany; and UC Berkeley, USA. She has taught urban theory courses and architectural/urban design studios at Department of Architecture UI and at Urban Studies Program, School of Strategic and Global Studies UI. Her research interest includes urban informality; housing struggles; discourse on urban theory and questions around culture, urban space and power in the Global South. She is very devoted in action research and community engagement in collaboration with local civic organisations to facilitate the right to adequate housing

Futuring ‘Blue Urbanism’: Between Promises and Paradoxes in Island Southeast Asia

Rapti Siriwardane-de Zoysa

Leibniz Center for Tropical Marine Research (ZMT), University of Bremen, Germany
rapti.siriwardane@leibniz-zmz.de

Johannes Herbeck

Technical University of Munich and the Ludwig-Maximilians-University in Munich, Germany
johannes.herbeck@uni-bremen.de

With the prospects of local and regional sea level rise, coastal megacities around the globe are seeking ways to accommodate for fundamental changes in local hydro-social conditions in the shaping of future development pathways. A strong focus on large-scale technological solutions for coastal defense, necessitating large investments, has long dominated city-level solutions around the globe. Recently, discourses around the concept of ‘Blue Urbanism’ have offered a reference point for city planners, investors, and policy-makers to connect previous risk-driven discourses of disaster preparedness to futuring practices that also embrace optimistic imaginaries in which visual, spatial and cultural connections between cities and the ocean are strengthened through integrated management approaches. Our paper will question some of the more vision-driven, utopic assumptions around blue urbanism(s), especially putting into question its strong focus on the agency of city governments. By drawing from empirical examples in island Southeast Asia, we argue that first, the influence of a global political economy of waterfront development must be considered. Drawing from examples of contested waterfronts in northern Jakarta and Metro Manila, we show how technologies of coastal adaptation and of living with (coastal) waters are introduced and socio-culturally translated by a global “consultocracy” of international consultants, resulting in diverse kinds of coastal placemaking. Second, in problematizing the very notion of ‘blue urbanism’—for example by questioning the very contestations around what “blue” and the “amphibious” are taken to mean—we offer a typology of how blue urbanism(s) come to be translocally rendered, and with what socio-material implications.

Rapti Siriwardane-de Zoysa is a maritime anthropologist at the Leibniz Center for Tropical Marine Research (ZMT) in Bremen, Germany. With a background in social anthropology and literature (National University of Singapore), she holds a Masters in Environmental Politics (University of Oxford), and a DPhil in Development Anthropology (University of Bonn). She has been a postdoctoral member of ZMT’s Development and Knowledge Sociology working group since June 2015, and is an adjunct lecturer with the Department of Anthropology at the University of Bremen. She presently co-leads BlueUrban a new German Science Foundation (DFG) funded research project within the SPP 1889 initiative - Regional Sea Level Change and Society. Her research focuses on diverse dystopic and utopic visions (and their material infrastructures) that shape everyday urban realities for living with/without water in Southeast Asia (Indonesia, Singapore and the Philippines), together with the politics of conviviality and invasive species governance in the Dutch Caribbean. In the past, she has also undertaken projects and other commissioned assignments while being based at a number of organisations including the CGIAR-WorldFish Center Headquarters (Penang), the IUCN (Colombo), the National Youth Council (Singapore), and the UNFCCC Secretariat (Bonn).

Johannes Herbeck has studied human geography, political sciences, and sociology at the Technical University of Munich and the Ludwig-Maximilians-University in Munich, Germany. Since 2008, he has been working as researcher at the Sustainability Research Centre at the University of Bremen, Germany. He has been a researcher and scientific coordinator in different projects and has carried out research in West Africa and Southeast Asia. Most recently, he has been part of the project EMERSA, where he has mainly investigated the mobility of policies for coastal protection and sea level rise adaptation in and between mega cities in Southeast Asia. In his current project BlueUrban he is especially interested in understanding the global connectedness of innovations for sea level rise adaptation and in analyzing networks and modes of translations that constitute the circulation of new ideas and technologies of coastal protection.

Water as Translocal Reputation: Seoul and the Tap Water Arisu

Ricardo Martinez

Asia Research Institute, National University of Singapore
arirma@nus.edu.sg

The governance regimes and narratives that relate water and cities mirror the increasingly important nexus of local and global issues. Cities are compelled to face the calls to local sustainability and international competitiveness, to social equality and liberalization all at the same time (Edelenbos & Van Dijk, 2017). In this context, cities have gained international momentum due to several converging factors: globalization, urbanization, urban population growth, proximity, democracy, decentralization, neoliberalism, and emerging networked forms of governance (Amen, Toly, McCarney & Segbers, 2011; Blank, 2006; Curtis, 2014; Ooi, 2004; Harvey, 1989; Lægreid, 2011; McGranahan, Schensul & Singh, 2016; Sassen, 2005; UNDESA, 2019; UN-Habitat, 2016).

The attraction of resources, talent and attention (Richards, 2017) lies underneath the “pragmatically and economically determinist reasons that drive most of this transnational move of city halls at large” (Acuto, 2013b, p. 161). Nevertheless, in a different approach, cities also harness their key internal policies as value-added elements to share among peers in order to enhance their international reputation (Fernández de Losada & Garcia-Chueca, 2018). The current paper explores this double dimension by introducing the international entrepreneurship of Seoul Metropolitan Government in the arena of policy learning through the promotion of its water management policy, and in particular its tap water: Arisu. While, arguably, both approaches ultimately gear towards improving the reputation of a city as the wider urban fabric, there is an inherent difference. Contrary to business-friendly initiatives that are embedded in an economic rationality, this second type of international entrepreneurship revolves around the perceived reputation of local policy-making actors on their own right. It targets different types of institutional actors, pursues political objectives, and connects with different sources of legitimacy.

The case of Arisu sheds light into three specific dimensions of the international action of cities and non-state policy learning, in close connection with specific theoretical debates. It firstly identifies in the circulation of policy knowledge on Seoul’s water experience an example of “policy boosterism” (McCann, 2013). It then observes how the discursive construction within the transnational promotion of Seoul’s water policy connects with two specific sources of legitimacy (i.e. international solidarity and validation by international organizations), connecting with shared norms and expertise as two sources of legitimacy in global governance (Bexell, 2014). Lastly, since it spots that Seoul’s international entrepreneurship on water is driven additionally by the competitive-oriented goal to open new foreign markets for Korean water-related businesses, it reflects on the intertwinement between solidarity-based and competitive-oriented drives under the lens of the call to *politicize water* (Swyngedouw, 2013).

Ricardo Martinez is a research associate at the Asia Research Institute, National University of Singapore. He is working on Asian city networks and urban policy learning around the UN global agendas. He is an urban planner with over 10 years of professional experience in city networks and the linkage between international development and urban governance. He is also writing his doctoral thesis on the international action of cities, global sustainable development, and policy learning at Heidelberg University. Prior to that, he has researched on policy transfer and knowledge management in multi-stakeholder networks, particularly around the smart city concept.

**Sinking Bangkok:
Environmental Changes through Problem Framing,
Policy Negotiation and Groundwater Governance**

Thanawat Bremard

G-EAU, IRD, Agreenium, l'institut Agronomique Vétérinaire and Forestier de France

thanawat_bremard@outlook.com

This paper analyzes how the interplay between knowledge production and policy advocacy framed the understanding of the subsidence phenomenon in Bangkok and what are the stakes behind various framings of said environmental risk. Existing literature on subsidence is mostly of technical nature and does not reflect the political aspects of policy negotiation, nor does it deconstruct the discourses behind the problem framing. As for Bangkok's case, examination of subsidence through critical social science lens is non-existent. The paper seeks to address this gap by mobilizing the multiple streams and advocacy coalition frameworks within a wider political ecology perspective to look at how subsidence has been framed from the late 1960s up to present days. Research has been conducted through semi-directive interviews, between 2018 and 2019, with government officials, academic researchers and stakeholders from various sectors as well as analysis of discourses from policy documents, media articles and study reports. The research found out that the various epistemic communities which coalesced around the process of identifying the causes of subsidence such as building and landfill weight, groundwater extraction, natural compaction had interpretative implications for actors concerned with city planning, real estate, public waterworks, industrial development as well as flood management. Subsidence in Bangkok is still subject to controversy, opposing a narrative of successful reduction of groundwater extraction through policy efforts to predictions of long-term threats. The paper also looks at how the concentration of policy implementations in the capital contributed to a progressive relocation of groundwater decline in the region.

Thanawat Bremard is a PhD Candidate with the ABIES (Agriculture, Food, Biology, Environment and Health) doctoral school, Paris, France. With a Bachelor in Anthropology (2016) and a Master in Socio-Anthropology Applied to Local Development (2018), his main interest lies in water infrastructures, Political Ecology of water governance and the environmental transformation of Bangkok. Thanawat has worked with the Center for Social Development Studies, Chulalongkorn University, Thailand, during 2017 on the politics of categorization of drought and water management in Northeastern Thailand. Since 2018, as part of his current PhD thesis "Bangkok and its Waters: Cultural, Economic and Political Issues of an Environmental Transformation", he has been looking at the governance of the Chao Phraya River, its riverbanks, floods, groundwater and land subsidence in Bangkok.

Musical Narratives of Urban Waterscapes in Lagos City, Nigeria

Olusegun Stephen Titus

Obafemi Awolowo University, Nigeria

ostitus@oauife.edu.ng

There are many studies of popular music in Lagos, but inadequate attention has been paid to Nigerian popular music's engagement with the waterscape of the world's fourth-largest city. Lagos city in Nigeria has witnessed tremendous transformations of the built environment, impacting the ocean, lagoons, rivers, coastlines, and water systems in the city. In this paper I examine representations of water in urban Lagos in the popular songs of artists such as Wizkid, Kizz Daniel, Chinagorom, Aduke, Baba Nee and Fela Anikulapo. Using ethnographic methods and musical and audio-visual analysis, I show how musicians provide evidence of phenomenal water shortages and their related catastrophic effects. Useable water accessibility for urban dwellers is lopsided: the privileged few enjoy access, while the majority in ghettos and slums struggle to get useable water. I assess popular responses to water issues including policy formulation and implementation in Lagos city public spaces through the lens of ecomusicological theory. I conclude that popular music has the potential to engage water challenges, enhance hydraulic infrastructures of Asia-Lagos partnerships, increase awareness of the problem, and help alleviate the access to useable water among the majority of city dwellers in Africa.

Olusegun Stephen Titus is a Lecturer in the Department of Music, Obafemi Awolowo University, Nigeria. He obtained MA and PhD degrees in Musicology from University of Nigeria Nsukka and University of Ibadan, Nigeria, respectively. His work focuses on environmental and medical musicology because musical narratives on water and cities give robust socio-cultural explanations of environmental degradation and the impacts on human health; moreover, they offer ways of speeding up awareness in the developing world. Some past and ongoing research includes the musical analysis and narratives of flood in Southwestern Nigeria as well as oil spills and gas flaring effects on the ocean, land and air of the Niger Delta area. In 2014, he was a Fellow in the A. G. Leventis Program and visiting scholar at SOAS, University of London, and he is currently (2019) AfOx-TORCH Fellow and visiting scholar at the University of Oxford.

**Water for the City:
Ecosemiotic Reading of the Local Knowledge about Water
among Local Communities on the Slopes of Mt. Merapi, Sleman, Indonesia**

Muzayin Nazaruddin
University of Tartu, Estonia
begawan.nazaruddin@gmail.com

The paper focuses on the local ecological knowledge about water among the local people on the slopes of Mt. Merapi in Sleman, Indonesia. The paper applies ecosemiotic perspective which provides a basic understanding how nature and culture are tied through sign relations. According to the main tenet of ecosemiotics, human relations with the environment are essentially semiotic. The paper is based on ethnographic fieldwork on the local communities on the slopes of Mt. Merapi, especially the communities having the water spring within their local environments. The study finds that the locals perceive water, as well another environmental resources, as living being. In this notion, human should properly communicate and act to these creatures in order to maintain the whole environmental balance. Their will of harmony is expressed through certain taking care rituals (merti) of the spring, the forest, and another local environmental features. They believe that water should also serve the broader communities along the river where they flow. They do not perceive the water spring based on ownership. Thus, when a company owned by the local government built the water installation that ensure the smooth flow of water from the spring to the city center, the locals did not perceive it as the exploitation of the local resources, as far they are still able to use the spring for their daily needs. The locals believe in reciprocal values, they help the city dwellers with the fresh water, then the city resident will help them, especially in the emergency period of Mt. Merapi eruption, during which they should stay in the emergency camps and get many aids from the city dwellers. This findings show that the deep ecological ideas of the locals are most fit with the sustainable water management. On the contrary, the developmental regime who perceive water as a merely natural resource that can be exploited and capitalized, as commonly believed by the water company as well as the city dwellers, would sharply increase water-related risks and problems.

Muzayin Nazaruddin is PhD student at the Department of Semiotics, University of Tartu, Estonia. Muzayin also teaches at the Department of Communication, Universitas Islam Indonesia, Indonesia. His academic interest includes ecosemiotics, environmental humanities, and disaster studies. He is doing a research on “the semiotics of natural disaster: entanglements of environmental and cultural processes”. Muzayin has published a lot of academic publications, including journals, conference papers, and book chapters. His recent publications, to mention some of them, include: Social media and alternative discourse on natural hazard: a case study of Facebook Group ‘Info Merapi’, *Jurnal Komunikasi: Malaysian Journal of Communication*, December 2019; Media and visual representation of disaster: analysis of Merapi eruption in 2010, in R. Djalante, et al. (eds.), *Disaster Risk Reduction in Indonesia: Progress, Challenges, and Issues*, Berlin: Springer, 2017; Disaster and landscape rhythm: a case study of Mt. Merapi, Indonesia, *ISRSF Best Essays of 2014*, Jakarta: ISRSF, 2015.

Sacred Trash: Waste, Flood, and Community in Bangkok's Canals

Andrew Alan Johnson
Cornell University, USA
johnson.andrew.alan@gmail.com

In 2019, Thai engineers warned an “endless cycle” of floods. With the expansion of paved space in the city, and with increased rainfall owing to climate change, water overwhelms the city’s canal system and spills into the streets on a regular basis. Finding a solution to these floods depended on the communities—where Bangkok city officials had laid infrastructure, these floods were not floods; as Bangkok’s governor told reporters whilst standing waist-deep in water, “This is not a flood. It is water waiting to be drained.”

Facing this crisis, officials with whom I spoke at the city’s drainage department blamed waste. Floating plastic and other detritus in the canal chokes grates, and, where they recognized excess water as “flood,” planners placed the blame on waste produced by informal, canal-side “slum” communities. With that in mind, one plan for the city’s restoration included demolishing slums and replacing them with concrete high-rise accommodation—accommodation that would, nevertheless, pipe sewage into the same canal.

Elsewhere, a similar moment of waste prompted a very different reaction. Residents of one canal-side community discovered the trunk of a Takhian tree floating in the canal after a flood, and enshrined it after it became famous for granting lottery numbers. Other canals, owing to the history of Bangkok’s construction, have long been home to communities (e.g. Cham Muslims) who do not fit into hegemonic norms of “Thainess.”

This paper examines the idea of waste (*khaya*) and flood (*nam thuam*) in Bangkok’s canals. Following a hermeneutic approach, I trace how the invocation of “flood” carries with it an image of the city as a problem of technology (Heidegger 1977), one that requires excess to be removed so that the ideal can come into being. But, as the canal-side shrine indicates, excess lingers: plastic, tree trunks, and unwanted people do not simply disappear because planning maps say that they should. In this paper, I draw upon the sacred potential of such excess.

Andrew Alan Johnson is an anthropologist specializing in cities and the environment. He is the author of *Ghosts of the New City* (2014) and *Mekong Dreaming* (2020) and has published in *American Ethnologist*, *Cultural Anthropology*, and others. In 2019-2020, he is a Visiting Fellow at Cornell University and has previously held positions at Princeton University, Yale-NUS College, the Asia Research Institute, Columbia University, and Sogang University.

Governing the Flow: A Case of Urban Water Governance in Shimla

Ankur Parashar

Indian Institute of Science Education and Research, Mohali, India
ankurparashar@iisermohali.ac.in

Fast-growing cities in the Himalayan region have pushed the urban service delivery to its limits. The water crisis in the urban centers of the area has become a regular phenomenon due to the culmination of uncontrolled urbanization, peculiar geography, and the misdirected governance of the water infrastructure. This paper would look at the water infrastructure system of the Shimla city, a Himalayan town in India, to understand the causes of the crisis and the attempts made by the state to deal with these recurring crises. It uses the Deleuzian assemblage framework to understand the interconnected nature of the multiple infrastructure projects existing or planned comprising the water delivery network. This paper would use the ethnography of the water crisis of the summer of 2018 in Shimla to understand how the large water infrastructure project, i.e., dam far away from the city becomes not just the physical object but also an aspirational object which provides the hope for the people that the crisis would be solved eventually. Thus preventing any conflict and simultaneously using ad-hoc mechanisms to avoid the present crisis. The mess, whose roots lie in the poorly maintained colonial-era water distribution system and the degradation of the catchment forest. But the crisis was 'solved' by addressing none of these problems. In the short term, the High Court made key-men responsible for the unequal distribution of water in the city and ordering surveillance on their functioning, thus identifying a 'solvable' problem. In the long term, instead of revitalizing the catchment area, State's response was the further infrastructural investments with an emphasis on the mega infrastructural projects, in this case, it is a vast reservoir on Satluj River constructed far away from the town with the loan from the World Bank, through a new company. Thereby calming the protestors but simultaneously following the neoliberal logic of de-democratizing the functioning of water delivery service. I would argue that the politics around the water infrastructure focus on the performance of solving water crisis without any intention of concentrating on the root causes of the crisis.

Ankur Parashar, currently enrolled in the PhD program at the Indian Institute of Science Education and Research–Mohali, India. He analyzes the political economy of the water infrastructure projects in a small city in India to understand how the global economic and political processes are connected with the lives of the people in small towns. He did my masters in Habitat Policy and Practice from the Tata Institute of Social Sciences (TISS) Mumbai, where he looked at the neoliberal changes in the housing policy of the state. Post his Masters, he worked as an academic associate at the IIM Ahmedabad, assisting in the courses related to the infrastructure finance and policy. His other research projects include looking at the Ahmedabad riverfront project induced displacement in Ahmedabad and fieldwork for the M-Ward project of TISS.

Climate Risk Perceptions in the City: Linking Social Capital, Self-Efficacy and the Intention to Act

Olivia Jensen

National University of Singapore

Olivia.jensen@nus.edu.sg

Climate change risk perceptions are shaped by the availability and trustworthiness of risk information, controllability and self-efficacy, among other factors. Perceptions of controllability and self-efficacy are expected to be low for climate change risks because of their complex and global nature. Individuals with high levels of social capital, reflected in strong bonds to their families and friends, bridges to their communities and links to sources of authority, may have higher perceived levels of controllability and self-efficacy, influencing their perceptions of climate risks. This paper examines the relationship between social capital and risk perceptions at the individual and community level using data from Singapore.

As a low-lying densely populated island, Singapore is expected to experience high impacts from climate change through rainfall variability leading to higher flood and drought risks, increased temperatures, and sea-level rise. Both major public investments and local-level initiatives will be needed to manage these threats. Public support for these interventions will depend on their perceptions of climate risks, which may be muted by the absence of direct experience of severe impacts of floods, droughts and other natural hazards among residents.

This study employs data from focus group discussions and experiments conducted in a flood-prone urban locality in Singapore during a participatory design intervention. The analysis suggests a positive relationship between social capital and residents' intentions to initiate and participate in actions to address climate-related risks. The findings provide support for the use of participatory design interventions to raise perceptions of self-efficacy in the context of climate risk management in Singapore.

Olivia Jensen is a social scientist specialising in water and environmental policy. She joined the Lloyd's Register Foundation (LRF) Institute for the Public Understanding of Risk at the National University of Singapore (NUS) in 2018 as Lead Scientist for Climate and Environment Risk. She holds a joint appointment as Senior Research Fellow at the Institute of Water Policy, Lee Kuan Yew School of Public Policy, NUS, where she was based from 2014-2018. Her research is concerned with the spectrum of urban environmental risks and the design and evaluation of policy interventions to strengthen the resilience of urban communities to these risks. Her current projects include water risk governance in Asian mega-cities; the role of citizen science in assessing and managing environmental risks; and the design of effective communication strategies for risk management in areas of high vulnerability and high exposure to flood risks. Olivia holds a PhD and MSc in Development from the London School of Economics, and an MA and BA in Politics, Philosophy and Economics from Oxford University. She has lived and worked throughout Asia, including in China, Japan and India and has been a resident in Singapore since 2011.

Enacting Responsible Transboundary Relations? The Case of South Korean Civil Society Movements in Seoul against Large Hydraulic Infrastructures in Laos

Sumiya Bilegsaikhana Taji
National University of Singapore
sumiyab@u.nus.edu

Hanee Kang
People's Initiative for Development Alternatives, South Korea
haneekang@gmail.com

The transboundary processes involved in the making of emerging urban centers, especially their demands on environments elsewhere have gained increasing attention from scholars and activists. In context of changing landscape of international development in Asia, with the emergence of diverse transnational actors and global-scale impact of development activities, civil society activism is also experiencing a transboundary shift. In understanding such multi-layered processes, many have emphasized the value of looking beyond local or national actors, scales and infrastructures. Adding to such discussions, this paper examines the case of transnational urban activism against large hydropower dam developments in Lao PDR and its implications on urbanites' relationship with distant waters and conceptions of responsible citizenship. We focus on the emergence and positioning of the South Korean Civil Society Task Force Team for the Xe Pian - Xe Namnoy Dam Collapse, which started its activities right after the incident took place in southern Laos in 2018. By taking a relational approach in our analysis, we suggest this emerging movement, while increasingly transboundary in its making, might have had more intimate implications for reconfiguring state-society-corporate relations in South Korea. We argue that the very act of contesting over South Korea's foreign investment policy has invoked more responsible relations with distant places and has helped redefine new forms of citizenship locally. This paper concludes by discussing future directions in research and practice of transboundary movements that are demanding and expressing responsibility for environmental risks involved in large scale hydropower development in Southeast Asia.

Sumiya Bilegsaikhana Taji is a PhD Candidate at the Department of Geography, National University of Singapore. As part of a wider project 'Sustainable Governance of Transboundary Environmental Commons in Southeast Asia', her current research investigates livelihood transformations and emerging subjectivities in the context of large-scale hydraulic infrastructure developments in northern Laos.

Hanee Kang is Director at People's Initiative for Development Alternatives (PIDA), a civil society organisation for international development cooperation based in Seoul, South Korea. Before joining PIDA, she worked as a researcher in a think tank, Re-shaping Development Institute (ReDI) in Seoul from 2011 to 2016, conducting aid policy research and project/program evaluations. With an international development cooperation and Southeast Asian studies background, her research interests include development issues in Southeast Asia, especially the changing development landscape with (re-)emerging donors.

ABOUT THE ORGANISERS

Ching Leong is Associate Professor at the Institute of Water Policy, Lee Kuan Yew School of Public Policy, and Dean of Students at National University of Singapore. Her work lies in making sense of apparently irrational environmental behavior, whether in refusal to use recycled water, underinvesting in water utilities, or decision making in building dams and managing rivers. She uses narratives, perceptions and stories to understand collective public behavior as well as environmental identities. Her field research is focused on water institutions and governance in Asia. A/P Ching has graduate degrees in philosophy, information technology and journalism. Before joining the university, she had a career in television and newspaper journalism.

E | spplcc@nus.edu.sg

Corinne Ong is Deputy Director and Senior Research Fellow, Lee Kuan Yew School of Public Policy, National University of Singapore. As an environmental and urban sociologist, she takes a keen interest in understanding the environmental impacts of social organization, and on the flipside, how society organizes itself and responds according to the environmental risks it experiences and defines. Of interest to her are urban consumption patterns, as well as waste, water, and energy critical infrastructures. In particular, she is sympathetic to the “soft path” approach to conserving and managing critical environmental resources, where innovations and technology are designed and dedicated to advance both core humanistic/community values and environmental sustainability. Dr Ong has experience conducting policy and applied, multidisciplinary research on environmental issues, and was a former higher-education educator. She has written and published journal articles and book chapters on topics pertaining to renewable energy infrastructures in developing countries, waste and water recycling in Singapore, as well as transport and mobility issues (with implications for sustainability).

E | sppcopp@nus.edu.sg

Kong Chong Ho is Leader of the Asian Urbanism Cluster at Asia Research Institute, and Associate Professor at Department of Sociology, National University of Singapore. Trained as an urban sociologist at the University of Chicago, Associate Professor Ho Kong Chong’s research interests are neighbourhood and community development, heritage and place-making, the political economy of cities as well as a more recent interest in higher education. Much of his published work is on East (Hong Kong, Seoul and Taipei) and Southeast Asian (Bangkok and Singapore) cities. Recent publications include “The Neighbourhood Roots of Social Cohesion: Notes on An Exceptional Case of Singapore” *Environment and Planning C: Politics and Space* (2018, with Vincent Chua) “The Cultivation of Research Labour in Pacific Asia” *Asia Pacific Education Review* (2018, with Ge Yun) and “Discrepant Knowledge and InterAsian Mobilities: Unlikely Movements, Uncertain Futures” *Discourse: Studies in the Cultural Politics of Education* (2018, with Francis Collins). Forthcoming publication include *Neighbourhoods for the City in Pacific Asia* with the University of Amsterdam Press (2019).

E | sochokc@nus.edu.sg