

MONSOON [+OTHER] WATERS

**UNIVERSITY OF WESTMINSTER
12-13 APRIL 2018**

PROGRAMME

THURSDAY 12 APRIL

- 14:00** **REGISTRATION**
- 14:15** **WELCOME**
Harry Charrington
- 14:30 – 15:45** **PANEL 1: SUB-MERGED IMAGINARIES**
Ifor Duncan
Fluvial Visions
- Pamila Gupta
Ways of Seeing Water
- Jesse Ransley
*Living by, in and on water:
Watery Assemblages in the Keralan Backwaters*
- 15:45** **TEA**
- 16:15 – 17:30** **PANEL 2: LIQUID MATTERS**
Megnaa Mehtta
*Ethical imaginations of the monsoons:
The sweet and the salty of the Sundarbans delta of West Bengal*
- Laura Denning
Rhyne and Huish
- Pushpa Arabindoo
*Chennai's Hydropolitics
[and the urgent need for a seasonal (re)imaginary]*
- 18.30** **KEYNOTE I**
Anuradha Mathur + Dilip da Cunha

FRIDAY 13 APRIL

- 09.45** **REGISTRATION**
- 10.00** **WELCOME + INTRODUCTION**
Lindsay Bremner
- 10.15 – 12:00** **PANEL 3: OVERFLOW + RISK**
Theresa Zimmermann
Exceeding the imaginable
- Avantika Bhaksar + Jayshree Vencatesan
Catching it where it Falls: Water Management Challenges in a Drought Prone District of Southern India
- David Wallace Mathewson
Historic institutionalism and urban morphology in Jakarta: Moving towards building flood resiliency into formal planning and development
- Laura Verdelli
Integrating Flood risk in Urban and Architectural Projects
- 12.00** **KEYNOTE 2**
Kirsten Hastrup
Water Literacy: Challenges of Living with Troubled Waters
- 13.30** **LUNCH**
- 14:30 – 15:45** **PANEL 4: INSTRUMENTALISING MATERIAL WATERS**
Matthaus Rest
Nepalko pani janatako lagani: Nepal's Water for Nepal's People?
- Anthony Acciavatti
Ganges Water Machine: Changes of State Across the Ganga Basin
- Ranee Vedamuthui + R.H. Rukkumany
Storing Monsoon waters: The Tank systems of Tamilnadu
- 15:45** **TEA**
- 16.15 – 17.30** **PANEL 5: REGISTERS + INTERLOCUTORS**
Mary Geary
Chronos and Kairos: Time, water, memory and the wayfaring riverbank
- David Whyte
*Surfing out of the Atmosphere:
Lamenting the loss of saltwater in Man-made wave pools*
- Beth Cullen
Eris as monsoon infrastructure: a re-reading of Chennai's rainwater tanks
- 17:30** **CLOSING REMARKS
EXHIBITION + DRINKS**

LINDSAY BREMNER

(Convener)

Lindsay is an architect and scholar who began her academic and professional life in Johannesburg, South Africa, where she published, lectured and exhibited widely on the transformation of Johannesburg after apartheid. She taught architecture at the University of the Witwatersrand in Johannesburg, at Temple University in Philadelphia, and at MIT as a visiting professor, before taking up her current post at the University of Westminster. She currently holds European Research Council grant no. 679873 for Monsoon Assemblages, a design-led research project into the monsoon in Delhi and three Bay of Bengal cities – Chennai, Dhaka and Yangon. Bremner holds a B.Arch from the University of Cape Town and an M.Arch and DSc.Arch from the University of the Witwatersrand.

MONSOON ASSEMBLAGES

The ambition of this cutting edge research project is to deliver a ground breaking, interdisciplinary design-driven inquiry into the impacts of changing monsoon climates in three of South Asia's rapidly growing cities. This will be undertaken at a time when climate change and urban development conspire to produce unlikely futures for urban survival. Extreme weather events, all attributed to the monsoon's capricious nature, are resulting with increasing frequency in water shortages, power failures, floods, out-breaks of disease, damage to property and loss of life. In responding to these events, the project will challenge the dominant view of the monsoon as a natural meteorological system outside of and distinct from society. Instead it will propose that the monsoon is a co-production of physical and social dynamics entangled within historic lived environments that can be analysed, worked with, shaped and changed. To do so, an unconventional interdisciplinary team will develop a novel research methodology around the new operative concept of 'monsoon assemblages.' This will bring together the spatial design disciplines with the environmental humanities to advance research of lived environments as indivisibly natural, social and political and to propose models for intervening in them through design.

MONSOON [+ OTHER] WATERS

Monsoon Waters is the second in a series of symposia convened by the Monsoon Assemblages project. It will comprise inter-disciplinary panels, keynote addresses and an exhibition. It will bring together established and young scholars and practitioners from a range of disciplines, knowledge systems and practices to engage in conversations about the ontologies, epistemologies, histories, politics, practices and spatialities of monsoon waters.

PANEL I:

14.30 – 15.45

Thursday 12 April

HARSHAVARDHAN BHAT

(chair)

Harshavardhan is a PhD Researcher with the Monsoon Assemblages Project at the University of Westminster. He's currently working on a monsoon air and urbanism themed project anchored out of New Delhi and is interested in the study of politics, the infrastructural condition, air and contextual research on the 'Anthropocene'. He's an Alumnus of the '15/'16 postgraduate programme on 'the city' at the Strelka Institute for Media, Architecture & Design in Moscow and holds an MSc in Comparative Politics (Conflict Studies) from the London School of Economics. Harsh was previously a Fellow with the Jindal School of International Affairs in New Delhi and has also managed political consulting projects in South India and Rwanda.

IFOR DUNCAN

Fluvial Visions

Ifor Duncan is a PhD candidate at the Centre for Research Architecture, Goldsmiths. His research concerns memory and climate imaginaries with a specific focus on cultural and aesthetic considerations of the spaces and materials of changing watery environments.

Comprehending the watery planet requires alternative modes of perception, what I come to call fluvial visions. The departure points for these visions can be found in the faithfulness to the materialities and verticalities of water in Anuradha Mathur and Dilip da Cunha's *Wetness* and Philip Steinberg and Kimberley Peters's *Wet Ontologies*. To perceive watery worlds requires visions that refract with and through watery surfaces to comprehend the complex flows and traces operating within. Nancy Tuana's conceptual exercise of 'seeing through the eye of Katrina' (2008) enables her to uncover 'the viscous porosity between humans and our environment, between social practices and natural phenomena.' Here the hurricane lens reveals social, cultural, and racial power structures. What I explore in this paper are fluvial visions as methods for entering riverine and watery processes of sedimentation, suspension and transportation entangled in the politics of the changing world. Between monsoons, floods and droughts watery spaces offer underappreciated perspectives on contemporary politics but also on traces of the past. In this paper I will employ fluvial visions to follow the traces of human violence in riverine spaces and depictions of the persistence of flooding in the picture planes of minds.

PAMILA GUPTA

Ways of Seeing Water

Pamila is Associate Professor at the Wits Institute for Social and Economic Research at the University of Witwatersrand in Johannesburg, South Africa. She holds a PhD in socio-cultural anthropology from Columbia University and her work explores Lusophone (post)colonial links and legacies in India and Africa. She's widely published and her monograph titled 'The Relic State: St Francis Xavier and the Politics of Ritual in Portuguese India' was published by Manchester University Press in 2014.

I take John Berger's seminal book on photography, *Ways of Seeing* (1972) as a starting point for looking at the South Asian monsoons from a visual perspective. I revisit my earlier work on monsoon fever (Gupta 2013) to think through its watery affects more closely and as tied to the sensorial. I focus on four distinct representations of the monsoons: Mira Nair's film "Monsoon Wedding" (2001) which links monsoonal wetness with sexuality and desire in Delhi; photographer Ritesh Uttamchandani's recent 'facing the monsoon' series set in Mumbai which showcases a range of personalized attitudes towards contending with the monsoonal rains on an urban daily basis; the fine art practice of crafting attars (or capturing the fragrance of the monsoon in a bottle, considered 'rain perfume'), that takes place in the village of Kannauj in UP(India) and is very much a seasonal livelihood; and lastly, a lone photograph by Arko Datto that suggests the sublime monsoon in all its subdued wet colours but also portends climate change for South Asia. Together, these watery affects will suggest a renewed attention to ways of seeing the monsoon differently, via the visual and sensorial.

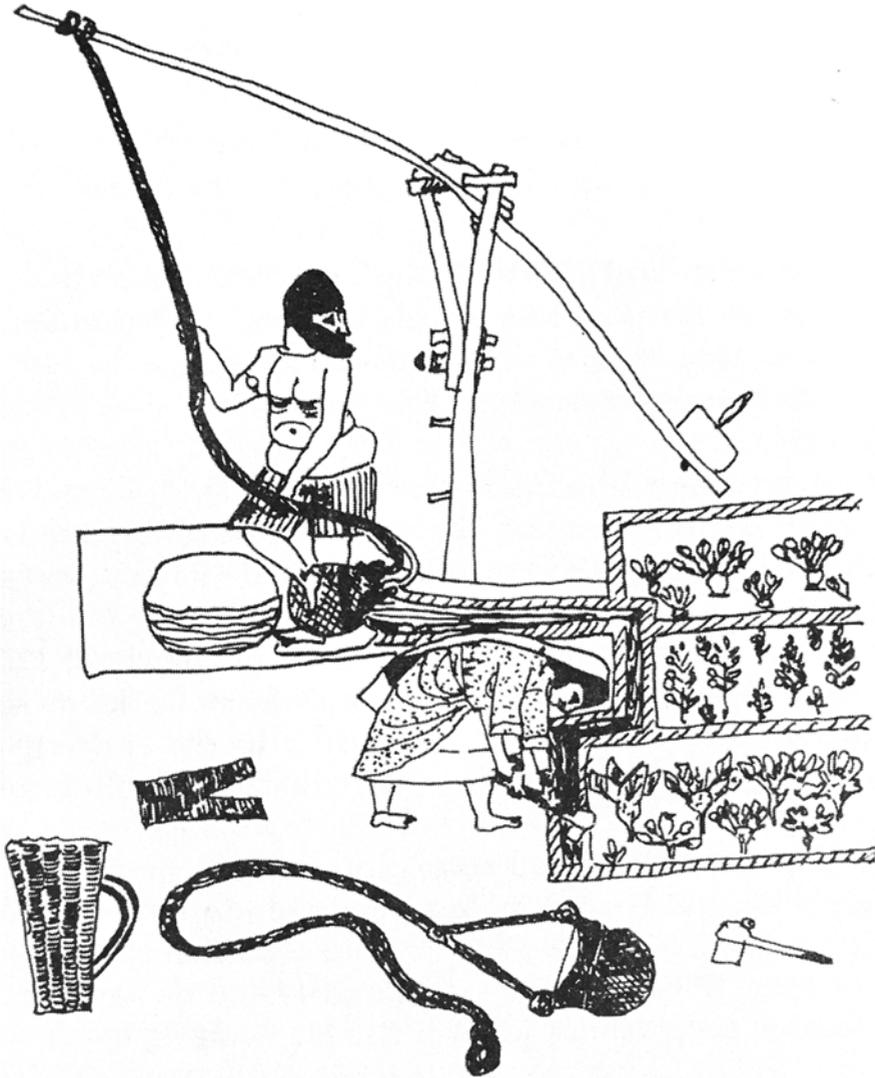
JESSE RANSLEY

Living by, in and on water: Watery assemblages in the Keralan backwaters

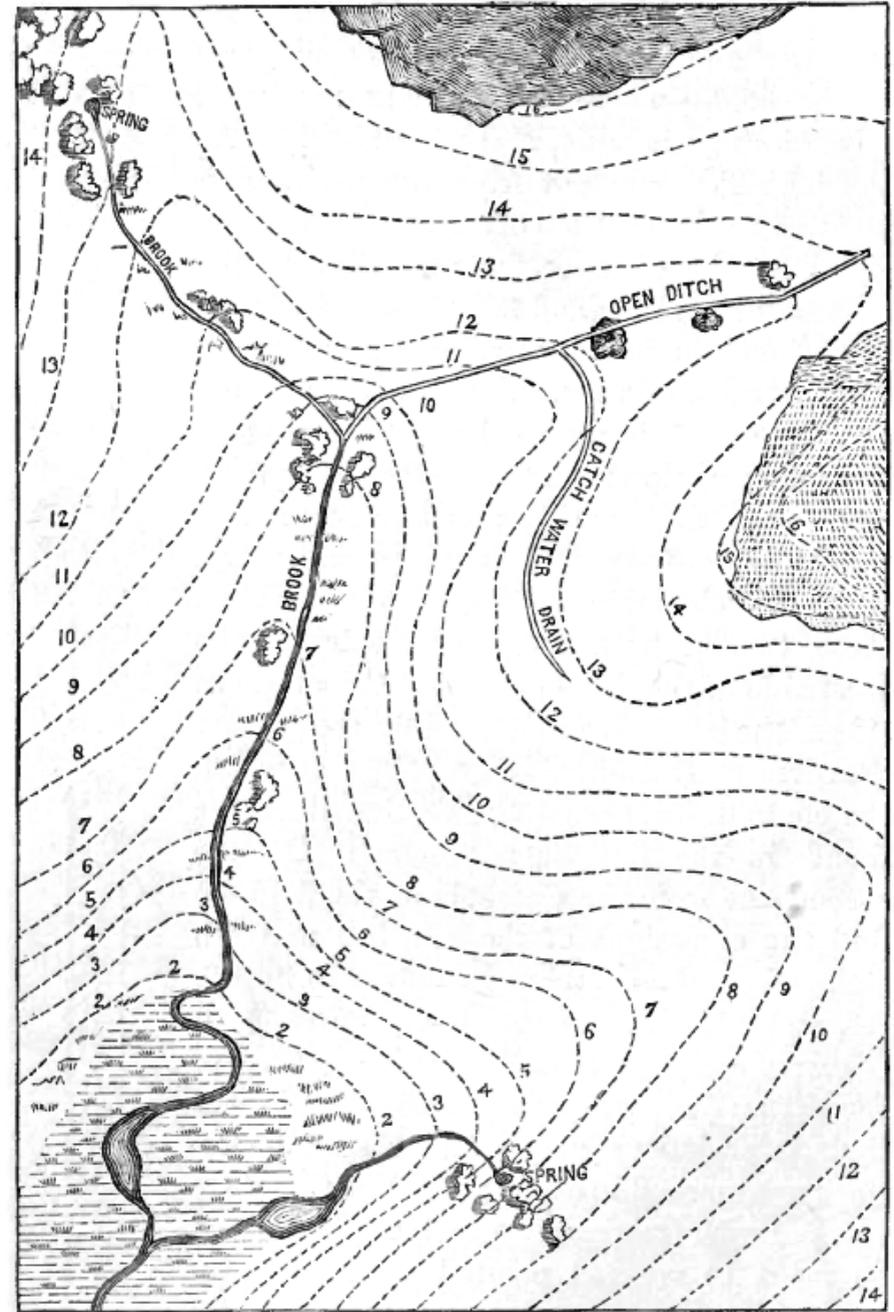
Jesse Ransley is a Senior Research Fellow at the University of Southampton. She studies south Asian seafaring, maritime space and the Indian Ocean, past and present. Her publications include papers on the embodied knowledges of boat-building and seafaring; the south Asian 'lascars'; maritime ethnoarchaeology, heritage and archives; and, the materiality, temporality and politics of oceans.

There are no real edges to the backwater village of Munruthuruthu in Kerala. The boundaries between land and water are blurred. Lake and village are not divided by the shoreline. Mud and water are not discrete materials. The monsoon flood does not cross a line. It falls down and soaks in, rises up and seeps through—part of a watery assemblage. In Munruthuruthu land and water are not opposing, but part of seamless, lived space.

This paper argues that the conceptual separation of land and water, a product of western modernity, does not reflect life lived by, in and on water. It examines mud and water and lake and village in Munruthuruthu, to demonstrate how in daily life, in being in the world, land and water are always intermingled and always connected. It further suggests this watery world might best be conceptualised as an assemblage. For, watery worlds are temporal and multi-dimensional. Those who live and work in them—within a world of sky, water and earth, of wind and weather, and not upon surfaces, be they water or land—are attuned to them through their bodies, through everyday practices and the materiality of life. The assemblages of watery worlds—the people, places and things and the relationships through which they are disclosed—are not fixed, but are connected in complicated ways and in continual emergence.



'Kitchen gardening and tools' showing irrigation channels from a well
 Kosambi, D. D. *An Introduction to the Study of Indian History*



Map with Contour Lines
 Waring, George E. 1867. *Draining for Profit, and Draining for Health*

ANTHONY POWIS

(chair)

Anthony is an architect and doctoral researcher as part of the Monsoon Assemblages project. He trained at Cardiff University, the University of Westminster, and the Architectural Association. During his MArch at Westminster he received the Banister Fletcher Prize for his dissertation 'The Production of Space in Protest, Law, and Police Action: London, winter 2010-2011'. Anthony previously worked at muf architecture/art, leading public space projects in London and has been an associate at Architecture Sans Frontières-UK, undertaking practical research in Ghana and London. He is also a visiting lecturer in the department, teaching an undergraduate design studio.

MEGNAA MEHTTA

Ethical imaginations of the monsoons:

The sweet and the salty of the Sundarbans delta of West Bengal

Department of Social Anthropology, London School of Economics

This paper will explore the ethical imaginations created by the connectedness yet differentiations of water—the river, sea and monsoons—in the Sundarbans brackish-water delta of West Bengal, India where I conducted long-term ethnographic fieldwork with fishing communities. I ask how might the same water(s) be thought of as both life-giving and life-threatening? The rainbow, I was told by Sundarbans islanders, was a pipe connecting the river and the sky. All water was part of one cycle, and yet not all water was the same. I asked about the difference between river and rainwater and one particularly poignant reply was, "they [the rains] are the tears of the sky but at least they are not salty." The Sundarbans delta, more than any other place in the world perhaps, has a contested relationship with water. Brackish water hugs inhabited islands, the entire existences of which depend on keeping it out. Simultaneously, sweet water is scarce and its access unreliable. During the monsoons, which are often accompanied by cyclones, storms and tidal surges, lives and land are lost to the encroaching river creating sorrow and destruction. However, these same rivers are places of work. The mangrove creeks and forests—that swell and shrivel with the twice-daily tide—are part of a sacred geography that create bonds between people, animals and trees; they are home to crabs and fish that sustain livelihoods. Monsoons, similarly, with rainbows as their conduits, are always anticipated, but once they arrive they were inevitably too ferocious, too late or too early. They signified the months when fishing would stop but also the months when crops could grow. In the light of standstills, fear, loss and rejuvenation I ask what might be the ethical rhythms and imaginations that monsoons generate for Sundarbans islanders? Ultimately like the rainbow that connects rivers to the sky, the monsoon is a bridge between sorrow and joy, death and re-birth, and that which is both sweet and salty.

LAURA DENNING

Rhynes and Huish

Laura Denning is an artist and currently a practice-based research student in environmental humanities at Bath Spa University. She's currently also part of a residency in collaboration with Mark James Neal creating work in response to data collected by sensors within water-borne capsules, Aberystwyth.

A rhynes (pronounced reen) is a ditch or canal used to transform areas of wetland into pasture. Huish is a habitational name that may refer to small areas of woodland. Through the winter months the Somerset Levels are often shrouded in thick fog and mist. Fog is low-lying, the moisture being generated locally. The only difference between mist and fog is visibility. The area is also subject to severe flooding, both from internal waterways and from coastal flooding. It is unique in the UK for this reason, being, essentially a delta which barely rises above sea-level. During December 2013 and January 2014 heavy rainfall led to extensive flooding with over 600 houses and 17,000 acres (6,900 ha) of agricultural land. The village of Thorney was abandoned and Muchelney cut off.

Rhynes and Huish is a new body of work which uses the Somerset levels and the Avalon Marshes as its focus, to explore water in this very specific landscape. It is a trans-disciplinary project. For Monsoon Waters, I propose screening a short artists film (5 mins max) which proposes that climate change is changing this landscape irrevocably, and that wetness as a way of being provides a starting point for negotiating life in a changing landscape. The intention is consider water as vapour, beyond liquidity, as a significant aspect of wetlands ecosystems, and as a sensuous yet disorienting phenomenon.

PUSHPA ARABINDOO

Chennai's Hydropolitics [and the urgent need for a seasonal (re)imaginary]

Pushpa Arabindoo is an EURIAS Fellow 2017 - 2018 at the Paris Institute of Advanced Studies, Lecturer in Geography & Urban Design with the Department of Geography at University College London and co-director of the UCL Urban Laboratory. She is an architect and holds a PhD in Planning from the London School of Economics and a MS in Urban Design from the Pratt Institute.

Often tagged as the 'water scarcity capital', Chennai's notoriety for persistent water crisis and drought-like conditions tend to draw on narratives of frequent monsoon failure, emphasising its unreliability, and exasperating the city's already fractious water infrastructure to increasingly unsustainable practices. As the monsoons have in recent years come to signify a recurring cycle of drought and floods questioning the resilience of the city's urbanisation, this paper argues for an urgent need to 'read' water and weather in tandem, not as a technological fix but one that is based on a seasonal imaginary. Drawing on recent discourses around the notion of 'urban atmospheres', I would like to demonstrate that recovering the monsoons from its meteorological framings that have produced more myths than reality allows a simultaneous re-imagination of the city's hydrological landscape, stripping away centuries of hydraulic manipulations to establish a rhythmic resonance based, for once, not on the spatial but the much-neglected temporal aspects of the urban lifeworld.

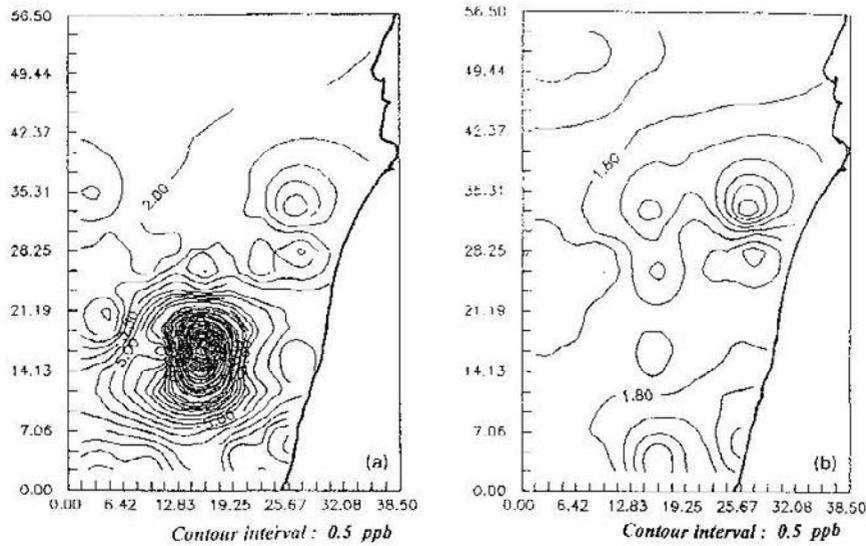


Fig. 2 Concentration contour map of cobalt in the groundwater of Madras city during (a) summer, (b) monsoon.

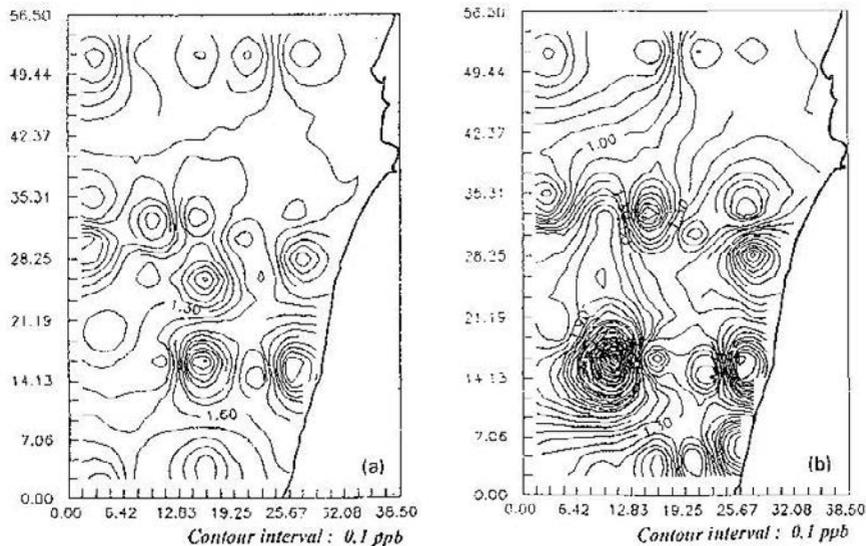


Fig. 3 Concentration contour map of cadmium in the groundwater of Madras city during (a) summer, (b) monsoon.

GROUNDWATER POLLUTION

Ramesh, R., G. R. Purvaja, and Raveendra V. Ika. 1995. 'The Problem of Groundwater Pollution: A Case Study from Madras City, India', in *Man's Influence on Freshwater Ecosystems and Water Use*, pp. 147-57

ANURADHA MATHUR DILIP DA CUNHA Ocean of Rain

Anuradha Mathur is Professor in the Landscape Architecture Department, University of Pennsylvania. Dilip da Cunha, an architect and planner, teaches at Harvard University, Columbia University, and at Sriшти School of Art, Design, and Technology in Bangalore. They are authors of *Mississippi Floods: Designing a Shifting Landscape* (Yale University Press, 2001), *Deccan Traverses: the Making of Bangalore's Terrain* (Delhi: Rupa & Co., 2006), *Soak: Mumbai in an Estuary* (Delhi: NGMA and Rupa & Co., 2009), and editors of *Design in the Terrain of Water* (A+RD Publishers, San Francisco, 2014) that grew out of a symposium at PennDesign (<http://terrain.design.upenn.edu/about>). Da Cunha's new book titled *The Invention of Rivers: Alexander's Eye and Ganga's Descent* is forthcoming from University of Pennsylvania Press in 2018. Mathur and da Cunha are recipients of a Pew Fellowship Grant for 2017. www.mathurdacunha.com

Is India, which until recently was colonized and currently in 'developing' mode, a 'river landscape' or an 'ocean of rain'? The two are very different grounds of habitation and design. A river landscape is a surface drained of water in flows between two lines to make land the undisputed staging ground of settlement. Ocean of rain, on the other hand, is a ubiquitous wetness that does not flow as water does; but rather soaks, spreads, blows, seeps, osmotes, and transpires in nonlinear ways. It is a ground largely unexplored on its own terms.

We ask if seeing India as a river landscape perpetuates its problems, problems that include rivers endangered by overconsumption and severe pollution besides being subjects of violent conflict. We also ask if India (and the world at large) is better served by design when seen as an 'ocean of rain', particularly in a time when the separation of land and water is threatened with climate change, rising seas and increasing incidents of flood.

EXHIBITION

The programme of talks is accompanied by an exhibition, featuring work contributed by speakers, as well as by:

CONSTANTINA AVRAAMIDES, SARAH BASS, CHARLOTTE BIRCH, GEORGIA TROWER

Constantina, Sarah, Charlotte, and Georgia are members of 'Dhaka: Design in(g) a Delta'—the second of three design studios associated with the Monsoon Assemblages project to be undertaken by Design Studio 18 (DS18) in the MArch programme at the University of Westminster, taught by Lindsay Bremner and Roberto Bottazzi.

SAIF UL HAQUE

Saif Ul Haque is the principal of architectural practice Saif Ul Haque Sthapati (Dhaka, Bangladesh) and is involved in practice, research and education. He was a partner in Diagram Architects, Dhaka from 1983 to 1996. His notable built works include BRAC Training Center at Faridpur, Banchte Shekha Center at Jessore, Camp house for French Archaeological Mission at Bogra and Govinda Gunalanker Hostel at Chittagong, all in Bangladesh. His work has been exhibited at CAA Dhaka and Dhaka Art Center. His writings on architecture and city have been published in Bangladesh and abroad. His books include 'Pundranagar to Sherebanglanagar: Architecture in Bangladesh' (1997) and 'Sherebanglanagar: Louis I. Kahn and the making of a Capital Complex' (2002). He is currently adjunct faculty at American International University of Bangladesh, past guest faculty at University of Wuhan, China and guest critic at Bangladesh University of Engineering & Technology, Dhaka, ETH Zurich, Switzerland and University of Pennsylvania, USA.

NIKOLE BOUCHARD

Nikole is an Assistant Professor at University of Wisconsin Milwaukee School of architecture and planning. Her research and design work focuses on how the intersection between art, architecture and landscape can stimulate ecologically sensitive and culturally relevant design interventions. Nikole is an Assistant Professor in the School of Architecture & Urban Planning at the University of Wisconsin-Milwaukee. She has also taught at Cornell University, Syracuse University, the University of Waterloo and the University of Toronto. In 2015 Nikole was a Fellow at The MacDowell Colony in Peterborough, NH and an Artist-in-Residence at Baer Art Center in Hofsós, Iceland. Nikole holds a MArch II Degree from Princeton University and a BArch Degree from Cornell University.

VRINDA SEKSARIA + DAVID KENDALL

Vrinda Seksaria is an architect at Studio Mumbai who simultaneously works with alternative photographic methods at her studio Light Matters. Her work explores links between architectural-urban studies, socio-cultural research and photographic practice, with a focus on cultural archaeologies of urban space and the politics of architectural memory, construction, demolition and decay. Seksaria graduated from the Faculty of Architecture, CEPT University, Ahmedabad, the University of Mumbai, India and the Department of Sociology, Goldsmiths, University of London, UK. She is a visiting lecturer at Sir J.J. College of Architecture and The Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies (KRVI) in Mumbai, India.
www.urbanphotographers.org/members-vrinda-seksaria

David Kendall's practice explores how spatial, economic and design initiatives, as well as participatory practices, combine to encourage social and spatial interconnections or dissonance in cities. His artworks, spatial research and collaborative projects have been exhibited and presented at festivals, museums, cultural and academic institutions including: The British Library, UK, the Jüdische Museum Berlin, Germany, Centro Cultural Manuel Gómez Morín, Santiago de Querétaro, Mexico, Tate Britain, UK, Akademin Valand, Sweden, Universidade do Porto, Portugal, The Photographers' Gallery London, UK and the University of Oxford, UK. He is a visiting fellow within the Centre for Urban and Community Research, Goldsmiths, University of London, UK.
www.david-kendall.co.uk

LAURA NICA

Laura is a former student of Monsoon Assemblages, Chennai—the first of three studios associated with the Monsoon Assemblages project undertaken by Design Studio 18 (DS18) in the MArch programme at the University of Westminster, taught by Lindsay Bremner and Roberto Bottazzi. Laura was nominated for the RIBA Bronze Medal in 2014 for her final year BA design project, received the 'Detail Magazine Award' (for best technical detail), the 'Material Practice Scholarship' (for material and geometry experiments), the 'Clawsa Prize' (best portfolio), and she has participated in several international workshops and student charrettes. She is currently working at Foster + Partners in London.

PANEL 3:

10.15 – 12.00

Friday 13 April

DAVID CHANDLER

(Chair)

David is Professor of International Relations at the University of Westminster. He was the founding editor of the Journal of Intervention and Statebuilding and currently edits the journal Resilience: International Policies, Practices and Discourses. He also edits two Routledge book series, Studies in Resilience and Advances in Democratic Theory. His research interests focus on analysis of policy interventions in the international arena, including humanitarianism, statebuilding and the promotion of resilience. He is also interested in contemporary theories challenging the anthropocentrism of modernist thought, particularly in relation to the Anthropocene, the ontopolitics of critique and new technologies, including algorithmic governance, sensorial assemblages and Big Data. He is a major authority in his field and has published around 20 books (authored and edited) and around 200 chapters and journal articles. His most recent monographs are: Ontopolitics in the Anthropocene: An Introduction to Mapping, Sensing and Hacking (Routledge, 2018); Peacebuilding: The Twenty Years' Crisis, 1997-2017 (Palgrave, 2017); The Neoliberal Subject: Resilience, Adaptation and Vulnerability (with Julian Reid) (Rowman & Littlefield, 2016) and Resilience: The Governance of Complexity (Routledge, 2014).

THERESA ZIMMERMAN

Exceeding the Imaginable

Theresa is a research associate at the Disaster Research Unit of Free University of Berlin where she works on urban riskscape. She studied geography and environmental policy and planning in Berlin and Delhi and conducted research on hydro-social relations. Theresa has freelanced and authored on climate change adaptation, water provision and urban mobility.

While the city of Mumbai is used to monsoonal rainfalls and inundation, the rainfalls on July 26th and 27th 2005 with 944 mm of rain within 24 hours exceeded previous records and experiences. The floods are often understood as outlaw event that was a disrupter to the everyday and differed from previous floods. From a social constructivist perspective, this study explores different meanings of the 2005 monsoon floods in Mumbai and the ten years after. It draws on interviews with city officials, planners, researchers and activists and fieldwork in a suburb of Mumbai that experienced excessive flooding in 2005. The tremendous rainfalls showed that the lines between the everyday and the exceptional, between land and water and between the annoying and the dangerous are blurry. It is discussed in how far the monsoonal rainfalls and respective floods altered attitudes towards water, land, infrastructure and responsibilities in the city: for example, rivers were rediscovered, bridges became points of rescue, mangroves became valued as flood shields. Hence, this contribution explores in how far perspectives on monsoon can change once it excels the imaginable. Does monsoon become something "to be managed" once it exceeds the usual?

AVANTIKA BHASKAR + JAYSHREE VENCATESAN

Catching it where it Falls: Water Management Challenges in a Drought-Prone District of Southern India

Care Earth Trust, Chennai

Ramanathapuram, is a water scarce district located in drought prone region of eastern coast of southern India. Here, a meagre 820 mm of average annual rainfall exhibits high spatial and temporal variation. Additionally, absence of perennial rivers coupled with saline groundwater led to development of traditional means of water harvesting through a system of tanks, as early as 7th century AD. Vaigai and Gundar, two seasonal rivers draining the district form a unique delta with thousands of crescent shaped lobes and interlobal depressions which were capitalized to construct oxbow shaped tanks. The district has a high density of tanks mostly located in a series of cascades; storing and conveying water from immediate catchment and ephemeral rivers. In the 1960s, tank foreshore planting was crucial in the creation of a number of heronries and consequently few were declared as protected areas. Our study of the socio-ecological character of three bird sanctuaries located on such tanks revealed that, these tanks which are part of cascade had been delinked owing to lack of maintenance of feeder channels, breaches, encroachments, and caste-based conflicts. Further, tank protection eliminated traditional practices like seasonal tank bed cultivation, firewood collection, grazing, etc. Tank degradation also led to invasion by *Prosopis juliflora*, adding to water stress in the landscape. However, charcoal production using *Prosopis* became a lifesaver for locals in events of erratic monsoon and gradual decline of tanks. In conclusion, the study stresses implementation of location specific interventions and revival of indigenous water wisdom to address water challenges.

DAVID WALLACE MATHEWSON

Historic institutionalism and urban morphology in Jakarta: Moving towards building flood resiliency into the formal planning and development system

Max Lock Centre, University of Westminster

Part of a wider doctoral thesis, this paper examines issues around flooding and rapid urban development in Jakarta, specifically the manner in which the former has influenced the spatial growth of the city over time. It takes a historic-institutionalism perspective within the context of changing government responses to flood management, where previous approaches failed take into consideration existing local ecology, flood patterns and natural drainage systems. Jakarta is slowly moving towards more sustainable and resilient approaches to flood management through pilot programmes aimed at reclaiming or restoring water bodies while creating urban green space to assist with water absorption. Despite this local government has not incorporated sustainable flood management systems or mitigation measures into the formal planning system. This paper shows how flooding has influenced spatial development and urban morphology in the city historically, which has led the city administration to the realisation that new approaches are required. The methodology includes document and literature research, GIS and satellite based mapping and imagery to determine spatial development patterns and where additional mitigation measures may be required, as well as flooding and drainage documentation. The paper reveals a series of potential strategies for the initial stages of planning policy implementation and a potential framework for developing planning-incorporated measures at the wider scale across Jakarta's affected areas. This study has wide implications for a number of large developing cities facing multiple development challenges in addition to flooding in the global south.

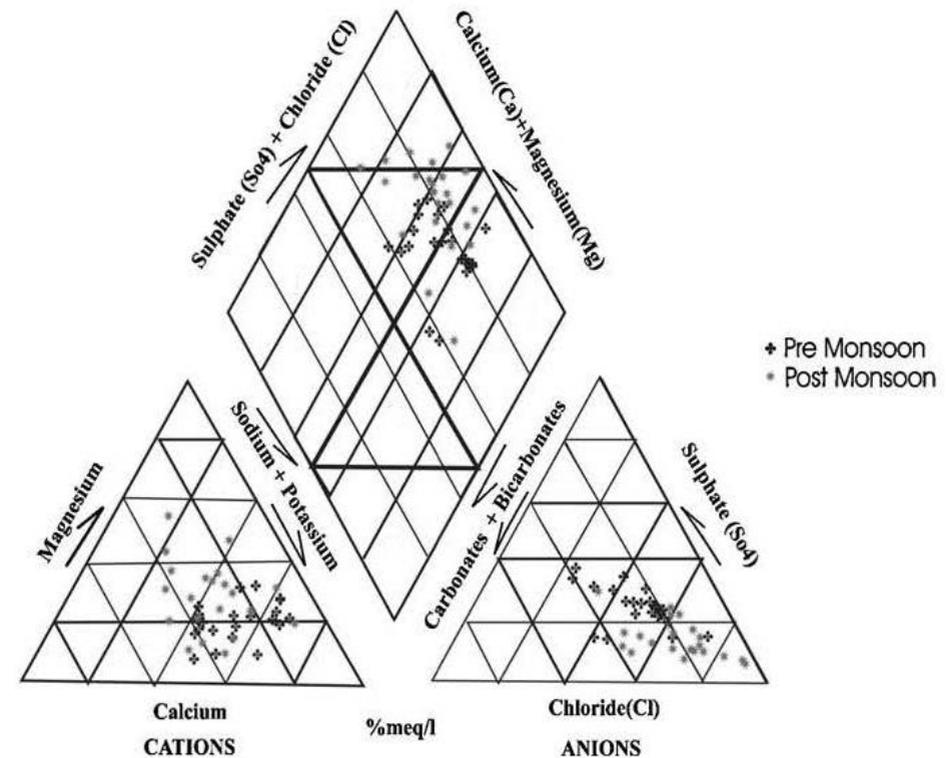
LAURA VERDELLI

Integrating Flood risk in Urban and Architectural Projects

University of Tours, France

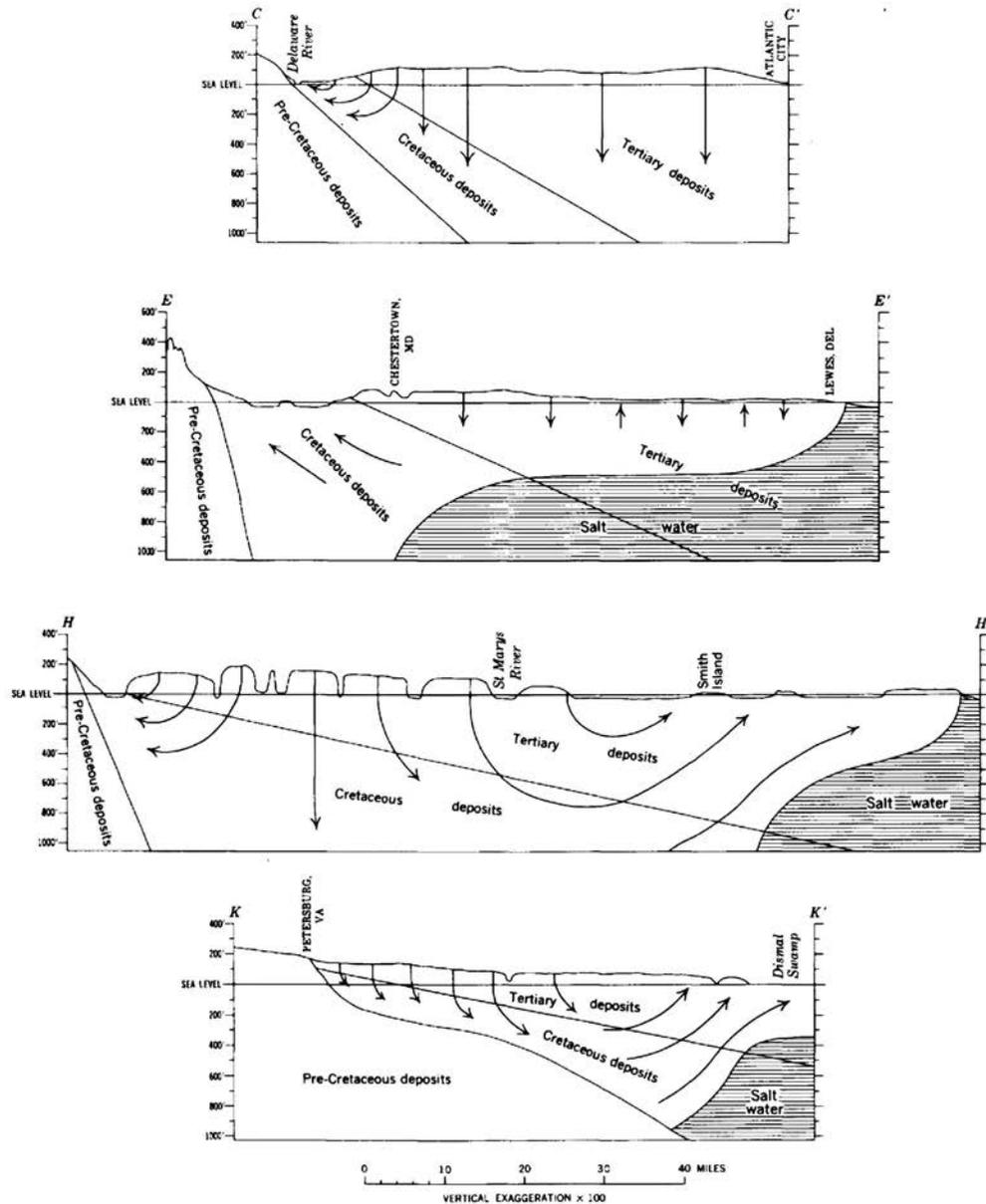
The present contribution will focus on how flooding hazard is considered in urban projects, at a neighbourhood scale, with a particular regard on local political strategies – based on French study cases – which choose to develop urban projects in flood areas. Because, despite the flood risk, urban projects can still be conducted in respect of water environment rules. The positioning strategy is to shift the focus away from flood risk management to urbanism practice, to professions, tools and interests of spatial planning rather than on flood risk prevention and management, as to possibly adapt this specific functioning on a study case where environmental rules and flood risk prevention and management are not very effective and where the difference could be made by practitioners through their everyday profession – the Chennai metropolitan area (Tamil Nadu, India).

Which professions seized upon the issue of integration of flood risk, by using what skills and by what legal and technical means? Is there a system where the integration of flood risks in some urbanism professions could be profitable? More than the flood risk, it seems that flood rules in itself are perceived as a barrier by urban design professions. Flood rules are difficult to explain, even if the marketing discourses can reintegrate flood risk to justify some architectural choices, some urban solutions or some social consequences (specifically gentrification). For planning strategies, the development of a new urban project (even if in a flood zone) is considered as more important than flood prevention rules. We are looking about how it is possible to pursue mitigation of flood risk in Chennai empowering landscapers, architects and urban planners and fostering their ethical role.



PIPER DIAGRAM REPRESENTING HYDROCHEMICAL FACIES

Venugopal, T., L. Giridharan, M. Jayaprakash, and P. Periakali. 2009. 'Environmental Impact Assessment and Seasonal Variation Study of the Groundwater in the Vicinity of River Adyar, Chennai, India', *Environmental Monitoring and Assessment*, 149.1–4: 81–97



SECTIONS SHOWING THE VERTICAL COMPONENT OF GROUND-WATER FLOW

Black, William. 1966. *Hydrochemical Facies and Ground-Water Flow Patterns in Northern Part of Atlantic Coastal Plain: Hydrology of Aquifer Systems*, Geological Survey Professional Paper 498-A

KIRSTEN HASTRUP

Water Literacy: Challenges of Living with Troubled Waters

Kirsten Hastrup is Professor of Anthropology at the University of Copenhagen. She has done substantial research on Icelandic history and society; on human rights and legal language; on theatre and social action; and on the beginnings of Danish anthropology in early polar expedition. In addition to these more specialised fields, she has published critical explorations of the philosophical and epistemological foundations of anthropology, text-books in anthropology, and general introductions to the history of the human sciences and their contributions to society. In recent years, Kirsten's research interest has centred on the environmental and social changes in the Arctic, notably in Greenland, where she has started a series of fieldworks in a small hunting community with the aim of studying local perceptions of threats and opportunities over a five-year period.

People across the globe live with troubled waters, being one of the manifestations of climate change. This calls for a rethinking of well-established forms of water literacy i.e. ways of understanding and acting upon water, practically and academically. The unruliness of water, of wetness, and of seasonality results in social upheaval and a need for new spatial practices, as will be shown through an ethnographic case from the High Arctic, where the melting ice forces people to rethink their place in the world. Through this case and comparative cases from the South, some general questions will be addressed. First, the configurative power of water will be highlighted through the notion of water-sociality and its spatial and historical ramifications. Second, the non-scalability of fluid worlds will be discussed as a general theoretical challenge to scholarship, conventionally based on a neat system of classification. Third, the notion of turbulence will be introduced as a productive metaphor for the indeterminacy of landscapes and theories. The conclusion returns to water literacy as an epistemological challenge to scholarship.

PANEL 4:

14.30 – 15.45

Friday 13 April

CHRISTINA LEIGH GEROS

(Chair)

Christina is an architect, landscape architect, and urban designer specialising in conducting and designing research about the intricate relationships between urbanism, ecology, and politics. Previously, she was the Design Director for an exact office and the Design Research Strategist for the PetaBencana. id, an applied research project in Jakarta, Indonesia within the MIT Urban Risk Lab, School of Architecture + Planning. Her work designs strategies of implementation and interfaces of investigation that bridge across platform, scope, and inquiry.

MATTHÄUS REST

Nepalko pani janatako lagani: Nepal's Water for Nepal's People?

Matthäus is a social anthropologist interested in the relations between the environment, the economy and the future. In his PhD thesis he dealt with the ramifications of an unbuilt hydropower project in Nepal. His current research is concerned with peasant dairying bacteria and the fermentation collectives that sustain them.

Water in Nepal is a highly seasonal thing: 50% of the annual precipitation happens on just 15 days while there is hardly any rain at all between October and April. This has severe ramifications on Nepal's energy generation that relies heavily on hydropower yet has only one reservoir scheme. While some of the run-of-the-river projects produce more energy than the transmission lines can carry during monsoon, in winter Nepal has to import large quantities of electricity from India. Yet for some years now, a substantial part of the political and economic elites has been collectively engaged in the construction of a vision for the future of Nepal that denies all of these fluid complexities. Instead, in this telling, water and gradient are the ingredients for future wealth through the export of electricity. In this framework, every drop of water that leaves the country's borders without producing hydroelectricity is imagined as wasted. The promise of a future hydropower nation has been highly successful among the general public. This became apparent in January 2017 when an online crowdfunding platform for new hydropower projects raised 1.5m US-Dollars in its first three days.

My paper will ask: what happens when the fluid conditions and seasonal variability of water and hydroelectricity are reconceptualised as a steady stream to be capitalized? How is the public image of the monsoon changing in these circumstances where water is now a resource to be exploited and a potential investment?

ANTHONY ACCIAVATTI

Ganges Water Machine: Changes of State Across the Ganga Basin

Anthony is the author of *Ganges Water Machine: Designing New India's Ancient River*. He has spent over a decade hiking, driving, and boating across the Ganges in order to create a dynamic atlas of this monsoonal landscape. Dr. Acciavatti is an adjunct professor at Columbia University and is a Mellon Fellow at Princeton University.

Since the middle of the nineteenth century, the Ganga River basin has functioned as a laboratory to test and build a new civilization around the culture of water management. Jointly authored by human actors and their shifting natural heritage, the basin has been transformed into an unwieldy machine to temper the supposedly capricious monsoons. Today the entire region functions as a highly engineered hydrological super-surface. This surface has been constructed from innumerable interventions operating at vastly different scales, from massive state-sponsored canals to individually drilled tubewells. Because of the mixture of actors, the scale of inhabitation, and the widely varying techniques of interventions, visualizing this landscape of infrastructure requires a different kind of atlas—a dynamic atlas—one that takes into account the abundance of infrastructure and the dynamism of the monsoons.

In this presentation, I will focus on how and why the basin occupies a number of soluble states: it is at once water, mud, dirt, dust, deity, and atmosphere. The term “state” not only refers to the coincidence of physical changes of state (molecular transformations from solid to liquid to gas)—but also political and cultural changes of state (the village, the town, the city, the nation as well as the religious festival and winter and spring harvests). In other words, the impact of weather and climate are intertwined in the matrix of everyday life in all of its manifestations. Drawing on over a decade of fieldwork and archival research, I will show how and why representing the static and mutable elements of basin sheds light on some of the most pressing issues confronting cities and regions throughout the world.

DR.RANEE VEDAMUTHUI

MS.R.H.RUKKUMANY

Storing Monsoon waters: The Tank systems of Tamilnadu

R.H. Rukkumany is Associate Professor at the School of Architecture and Planning, Anna University, Chennai. Her ongoing doctoral work is on traditional water management systems and the process of land use change of common-lands in Tamil Nadu.

Brimming with water for a few months in a year and appearing as a dry parched sandy depression in the land tanks are the ultimate expression of the monsoonal cycles of wetness and dryness. Just as the heat from the rising temperature is a requisite to the monsoon, the tank has to be dry and empty to hold the pouring waters of the monsoon. So what happens when they are perceived as waste land and filled?

The northeast monsoon unlike its counterpart the southwest monsoon is not reliable. There is either too much rain or too little that is produced by northeast monsoon. When the waters descend in torrents and a year's average of rainfall pours down in a couple of days, it is obvious that we have floods and drought. Floods and drought are not really opposites in this land; they follow one another. A good year or a few good years of monsoon may be followed by many years of insufficient monsoon. This seeming duality of overflowing and parched landscape has enabled a way of life that exists by storing monsoon water in the coastal tracts of Tamilnadu.

The tanks are an inevitable part of the landscape. Linked intrinsically with the society that sustains and is sustained by them, the tanks are part of a system which is a complex socio-economic phenomenon. This system has sustained agriculture and life for a long time in the state of Tamilnadu. However various factors have led to the decline of the system by undermining the linkages that sustained the system. This paper describes the components of the system, the inter relationships that exist between the various components and the ways in which the system has been disturbed.

PAMILA GUPTA

(Chair)

Pamila is Associate Professor at the Wits Institute for Social and Economic Research at the University of Witwatersrand in Johannesburg, South Africa. She holds a PhD in socio-cultural anthropology from Columbia University and her work explores Lusophone (post)colonial links and legacies in India and Africa. She's widely published and her monograph titled 'The Relic State: St Francis Xavier and the Politics of Ritual in Portuguese India' was published by Manchester University Press in 2014.

MARY GEAREY

Chronos and Kairos:

Time, water, memory and the wayfaring riverbank

Dr Mary Gearey is a Research Fellow within the University of Brighton's School of Environment and Technology. Mary undertakes empirical qualitative fieldwork to explore the relationships between practices of community resilience and water resources policy, planning and management in the context of sustainable futures.

Landscapes are both material presences and creations of our cultural imaginations. When we inhabit landscapes we experience both their unique, immediate physical aesthetics and recall other times, other places, other selves that these places bring to mind. We experience what the Ancient Greeks would describe as the confluence of Chronos and Kairos time; the time of Chronos, 'Big History', slow moving, chronological, geological time and 'Kairos' – faster moving, impactful, seasonal episodes which shape key experiences and define life's formative events. Like circulating water, shifting tides, Chronos and Kairos time are the ebb and flow of our sensory experiences through life, shaping ourselves and marking out the events which define who we are and how we live with others.

A landscape emblematic of Chronos and Kairos time is that of the riverbank, so vital to our embodied selves and sense of place, to our collective imaginations. At once bounded, defined, known, yet continually in transition, being reshaped, remade, through the erosion and deposition action of the water which demarcates them, riverbanks, like the communities and people that live adjacent to them, are constantly in motion, wayfaring across landscape and time, in processes of adjustment and redefinition.

Utilising empirical fieldwork undertaken in collaboration with a local community sheltered under the spine of the South Downs in a village which is hallmarked by chalk streams, hidden sewers, peripatetic springs and dew ponds, this paper explores how the act of recreating a riverbank in the midst of urban fabric is both a cultural and political act.

DAVID WHYTE

Surfing out of the Atmosphere: Lamenting the loss of saltwater in Man-made wave pools

David is a PhD candidate in anthropology at University College London. His research is based on the relationships cultivated between surfers and waves, and how surfing can be imagined as a collection of practices which allow the human body to communicate with atmospheric forces which would otherwise destroy it.

Every surfer dreams of the possibility of man-made waves that break to perfection at the touch of a button. In 2015 this became a reality with the opening of Surf Snowdonia in north Wales, home to a wave-pool capable of generating waves comparable to those that surfers surf in the ocean. Since 2015, artificial wave technology is advancing quickly, with the most recent prototypes generating what seem to be world-class waves which break at the behest of theme park owners, and not according to the movements of the atmosphere. Surfers are beginning to agree – either begrudgingly or excitedly – that the future of surfing is “looking more chlorinated by the day” (Howard, 2017).

This paper explores one key question: What is the difference between the relationship cultivated with the environment while practicing in a “wave-pool” versus while being submerged in saltwater at the coast? Surfers explain that their practice affords encounters with something natural, or powerful. This encounter is affected by the architecture of the wave pool, but mainly the isolation of surfers from the saline dynamism of the near-shore. Drawing from ethnographic work with surfers at Surf Snowdonia, but mainly along the Irish Atlantic coast, this paper will argue that surfers do not relate with waves per se, but rather that salt water acts as a mediator between human bodies and the forces of the oceans’ animation. Wetness, in surfing, is a means of extending the limits of human experience, beyond waves, through winds, and into the storms at sea.

BETH CULLEN

Eris as monsoon infrastructure: Re-imagining Chennai’s rainwater tanks

Dr Beth Cullen is an anthropologist and Monsoon Assemblages research fellow. Her work focuses on human-environmental relations using ethnographic and participatory visual and spatial research methods. Water has been a theme, including research on the impact of large-scale irrigation on pastoralists in the Rift Valley and rainwater harvesting interventions on farmers in the Ethiopian highlands.

Relations between the monsoon and lived space in Chennai have historically been shaped by infrastructures that manage monsoon matter. Eris, or tanks, are ancient structures that emerged in pre-colonial South India to regulate monsoonal flows of rainwater and silt. Tanks have modified the landscape and environment of Tamil Nadu over centuries on a vast scale, influencing associated human and nonhuman communities. As socio-ecological-technical assemblages, they act as mediating devices between people and the monsoon, storing rainwater and mitigating flooding.

During four hundred years of urbanization, tanks have come to operate in radically different contexts than when they first emerged. As they have been urbanized, tanks have been reworked and reimagined according to different socio-cultural, economic and political frames. These shifting interests are reflected in the different configurations of the tanks and these configurations in turn influence how people live with and experience the monsoon. Assemblage thinking is used to understand how the tanks operate as monsoon infrastructure; how this infrastructure has changed over time and the consequences of these changes for urban life, both human and nonhuman.

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