



同濟大學
TONGJI UNIVERSITY

Towards Healthy China 2035: Sustainable Urban Infrasystems

An International and Interdisciplinary Newton Fund
Researcher Links Workshop



27-29 Nov. 2020

Rationale

The overall aim of this workshop is to enhance our understanding of complex human-environment interactions and their sustainability outcomes. Activities aim to advance systems approaches for infrastructure (incl. sanitation, water, energy, transport) which situate basic human functions within wider human ecosystems of critical social, economic and environmental resources and social institutions, cycles and order (Machlis et al, 1997).

Speakers (by keynote order)

Dr Alison Browne (University of Manchester)

Prof Hongbin Chen (Tongji University)

Dr Guanglei Qiu (South China University of Technology)

Dr Deljana Iossifova (University of Manchester)

Ulysses Sengupta (Manchester Metropolitan University)

Dr Murilo da Silva Baptista (University of Aberdeen)

Organizers

Dr Deljana Iossifova (University of Manchester)

Prof Feng Luan (Tongji University, Shanghai)

Workshop Website

<https://susinfra.com/towards-healthy-china-35>

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National Natural Science Foundation of China



Contents

| | |
|--------------------------------|----|
| SCHEDULE OVERVIEW | 4 |
| Fri. 27 November | 5 |
| Sat. 28 November | 7 |
| Sun. 29 November | 9 |
| SPEAKERS BIOGRAPHIES..... | 10 |
| PARTICIPANTS BIOGRAPHIES | 15 |
| UK PARTICIPANTS..... | 15 |
| CHINA PARTICIPANTS..... | 19 |
| EXTERNAL GUESTS..... | 23 |

● SCHEDULE OVERVIEW

| Time CN | | Time UK |
|--------------------------------|--|-------------|
| Friday, 27 November | | |
| 18.30-19.30 | Opening Ceremony | 10.30-11.30 |
| 19.30-21.00 | Keynotes - Dr Alison Browne (University of Manchester), Prof Hongbin Chen (Tongji University), Dr. Guanglei Qiu (South China University of Technology) | 11.30-13.00 |
| Saturday, 28 November | | |
| 08.30-17.30 | Site Visit | 00.30-09.30 |
| 19.00-21.00 | Symposium - Dr Deljana Iossifova (University of Manchester), Ulysses Sengupta (Manchester Metropolitan University), Dr Murilo da Silva Baptista (University of Aberdeen) | 11.00-13.00 |
| 21.00-22.00 | Introduction to Case Studies | 13.00-14.00 |
| Sunday, 29 November | | |
| 09.00-12.00 | ECR Seminar China | 01.00-04.00 |
| 22.00-01.00 | ECR Seminar UK | 14.00-17.00 |
| Tuesdays, 1-22 December | | |
| 22.00-00.00 | Collaborative ECR Progress Presentations | 14.00-16.00 |
| Wednesday, 23 December | | |
| 0:00 | SUBMISSION DEADLINE COLLABORATIVE PAPER | 16:00 |

Yellow cells indicate events that the UK participants and External Guests will attend

Fri. 27 November

Site: B5, Floor 3, Building A, College of Architecture and Urban Planning, Tongji University (Virtual for UK Participants and External Guests)

18:30-19:30 (CN) | 10:30-11:30 (UK) Opening lecture participants' introduction

19:30-21:00 (CN) | 11:30-13:00 (UK) Keynotes

19:30-20:00 (CN) | 11:30-12:00 (UK) Dr Alison Browne: "Everyday Practices and Water Demand: Using practice theory and environmental humanities to shape water policy in the UK"

Abstract: This session explores a variety of water and sanitation focused work in the UK through the lens of 'everyday practices' including an introduction and exploration of a previous body of work on everyday practices and water and how we have shaped water policy research in the UK. The Department of Environment, Food and Rural Affairs (Defra - the government department responsible for environmental protection) has recently invested in 10 years of longitudinal policy research on the practices of water demand. This investment will enable Defra and partners to understand current patterns of water demand and to track change to water practices over time. In this introduction to the talk I will overview the advantages of, and possibilities for, understanding water demand through the lens of everyday practices. We will overview how water demand is generated by social, material, temporal and habitual dynamics that our everyday lives. We will explore the history of this water practices work in the UK (e.g., the Patterns of Water project), and explore what centring water practices within water research and policy offers conceptually, methodologically and practically. I will also reflect on two recent research projects: one on 'unflushables' (sanitation waste and disposal) and changes to water demand during Covid-19.

Further Readings:

- Alda-Vidal, C., Browne, A.L., Hoolohan, C. (2020). 'Unflushables': Establishing a global agenda for action on everyday practices associated with sewer blockages, water quality and plastic pollution. *Wiley Interdisciplinary Reviews: Water*, 7 (4), e1452 <https://doi.org/10.1002/wat2.1452>
- Alda-Vidal, C., Smith, R., Lawson, R., Browne, A.L. (2020). Understanding Changes in Household Water Consumption Associated with COVID-19 in England and Wales. [project reference 7006; Report number AR1380]. Artesia Consulting and University of Manchester. <https://bit.ly/3eJQCg0>
- Browne, A.L. (2015). Insights from the everyday: Implications of reframing the governance of water supply and demand from 'people' to 'practice. *Wiley Interdisciplinary Reviews (WIREs) Water*, 2, 415-424. <https://doi.org/10.1002/wat2.1084>

20:00-20:30 (CN) | 12:00-12:30 (UK) Prof Hongbin Chen: TBC

20:30-21:00 (CN) | 12:30-13:00 (UK) Prof Guanglei Qiu: "Phosphorus Removal and Recovery from Municipal Wastewater: Biologically and with Membrane Related Technology"

Abstract: Phosphorus is a pollutant but a non-renewable resource. While its removal from wastewater is essential to prevent the contamination of receiving waters, its recovery would also provide benefits by counteracting the depletion of phosphorus resources. In this report, we would like to share our efforts in the development of a forward osmosis membrane bioreactor and its hybrid processes for direct and facilitated phosphorus removal and recovery from municipal wastewater; and our works in exploring unrevealed mechanisms in the biochemical and eco-physiological aspects of the enhanced biological phosphorus removal process.

21:00-21:30 (CN) | 13:00-13:30 (UK) Free discussion

Sat. 28 November

08:30-17:30 (CN) | 00:30-9:30 (UK) Site Visit

17:30-18:30 (CN) | 9:30-10:30 (UK) Dinner

19:00-21:00 (CN) | 11:00-13:00 (UK) Symposium

19:00-19:30 (CN) | 11:00-11:30 (UK) Dr Deljana Iossifova: "Introduction: human ecosystems, sustainable infrastructures and ways forward for collaborative research"

Abstract: This brief session will present current transdisciplinary research on sustainable infrastructure across a number of rapidly transforming contexts. Iossifova will introduce the human ecosystem approach and how it may help to frame and connect perspectives from the natural and social sciences. She then provides a brief overview of the activities suggested as part of this workshop, and closes in outlining possible avenues for future collaboration among early career researchers and how collaborative projects may be funded.

19:30-20:30 (CN) | 11:30-12:30 (UK) Ulysses Sengupta: "Practices and Infrastructure: Comparing Agent-based Modelling (complexity), Microsimulation Models and Time Geography approaches"

Abstract: The [CPU]Lab (Complexity, Planning and Urbanism) undertakes research on urban transformation by combining theoretical frameworks and approaches from the complexity sciences with the development of new digital tools allowing simulation and understanding of spatio-temporal urban phenomena. Recent methodological research on temporal patterns and dynamics have led to a comparison of alternative methods to explore their relevance to the understanding of the city as a complex adaptive process. The comparison has been

undertaken for application on the SASSI and TOSSIB projects, where the focus is on insight into linkages between practice and urban infrastructures in transition. Agent-based Modelling (ABM), Microsimulation Models (MSM) and Time Geography (TG) each provide approaches with differing focus and limitations in this context. Only ABM has an explicit complexity focused approach. A methodological understanding of the different types of insight possible and the limitations based on practicability of these methods in this project framework are presented as avenues for further research.

20:30-21:00 (CN) | 12:30-13:00 (UK) Dr Murilo S. Baptista: "Real-world applications of the science devoted to understand from data the cause and effect relationship"

Abstract: The study of the cause-and-effect relationship - so called causality - lies at the heart of the scientific method. In this talk, I will briefly introduce the ideas and fundamentals behind methods to study causality in complex systems, and approaches developed by my group, to study causality from data obtained from real world systems with different spatial and temporal characteristics. I will then present several real-world applications to infer the connectivity of neural networks from time-series, to characterize how socio-economic cause-and-effect variables modify after a natural disaster in the Brazilian municipalities, and to determine how long one must collect information about the positive cases of Covid19 to be able to predict with a given accuracy the number of posterior deaths in a region of the world.

21:00-21:30 (CN) | 13:00-13:30 (UK) Case Studies Introduction

21:30-22:00 (CN) | 13:30-14:00 (UK) Questions and Open Discussion

Sun. 29 November

Site: B5, Floor 3, Building A, College of Architecture and Urban Planning, Tongji University (Virtual for UK Participants and External Guests)

09:00-12:00 (CN) | 1:00-4:00 (UK) ECR Seminar China

09:00-10:25 (CN) | 1:00-2:25 (UK) Group sharing and discussion

10:25-10:35 (CN) | 2:25-2:35 (UK) Tea break

10:35-12:00 (CN) | 2:35-4:00 (UK) Group sharing and discussion

12:00 (CN) | 4:00 (UK) Closure ceremony

12:00-13:00 (CN) | 4:00-5:00 (UK) Lunch

22:00-1:00 (CN) | 14:00-17:00 (UK) ECR Seminar UK (Groups Presentations)

● SPEAKERS BIOGRAPHIES

By Keynote Order

Dr Alison Browne is a Senior Lecturer in Human Geography (affiliated with the Sustainable Consumption Institute, Manchester Urban Institute). Alison's research primarily focuses on the social, performative and material dynamics of everyday life related to water, sanitation, energy, waste, and food. In a mixed methodological and transdisciplinary way she play with ideas of how such practices come to be disrupted, changed and governed. This includes a focus on everyday life and infrastructure and materiality, but also a consideration of the ways in which the practices of professionals shape the emergence, and governance, of everyday practices. She engages with a range of theories from social practices, feminist and everyday geographies, material culture, intervention and (urban) experimentation. Her work spans discussion of the transitions in everyday practices and sustainability related to water, energy and food in the UK, China, Australia, and Europe.



She is the SEED (School of Environment, Education and Development) Associate Director of Research: Business Engagement and Internationalisation. From 2015-2020 she chaired the Society and Environment Research Group in Geography, and has contributed to the Management Group of the Sustainable Consumption Institute, leading and coordinating Business Engagement, Knowledge Exchange/Impact and Internationalisation strategies and activities within the SCI.

In 2018 Alison was nominated by her PhD students, and awarded, 'Faculty of Humanities Supervisor of the Year' within the Manchester Doctoral College Excellence

Awards. Her work has been funded by the ESRC, EPSRC, NERC, Research England, Interreg-IVB, and a range of government and industry collaboration projects.

Prof Hongbin Chen is a Professor at the College of Environmental Science and Engineering, Tongji University. He leads the Shanghai Water Pollution Control Public Service Innovation Platform. His work is concerned with wastewater reuse strategies and technologies and the biological treatment of polluted water. He will contribute his expertise in water infrastructure, international cooperation key projects and enterprise cooperation projects on polluted raw water treatment and wastewater reuse.



Dr Guanglei Qiu is an Associate Professor in the School of Environment and Energy, South China University of Technology. He obtained his PhD degree in Environmental Engineering from the Beijing Normal University in 2011. After that, he worked at the National University of Singapore and the Nanyang Technological University as research fellow. His research interests lie primarily in the field of biological wastewater treatment and resource recovery



with a focus on enhanced biological phosphorus removal and membrane biotechnology. To date, He has published 50 papers in highly ranked peer-reviewed journals with a H-index of 22. For his work, he was awarded the “Outstanding Young Researcher” by the American Institute of Chemical Engineers Singapore

Local Section in 2015, and was granted the “The Pearl River Talent Recruitment Program” in 2019. Now, He serves as a Young Professionals Associate Members of the Membrane Technology Specialist Group of the International Water Association, an academic editor of PLoS ONE, and a reviewer of 20 peer-reviewed journals.

Dr Deljana lossifova is a Senior Lecturer in Urban Studies at the School of Environment, Education and Development and Director of the Confucius Institute at The University of Manchester. She is the Chair of the Urban Studies Foundation. She is PI and International Lead on a portfolio of projects studying urban sanitation transitions in China, India and Brazil (www.susinfra.com). lossifova is the author of 'Translocal Ageing in the Global East' (Palgrave, 2020) and lead editor of 'Defining the Urban' (Routledge, 2017). She trained as an architect at the Swiss Federal Institute of Technology (ETH Zurich) and has a PhD in Social Engineering from Tokyo Institute of Technology.



Ulysses Sengupta is a Reader at the Manchester School of Architecture (MSA). Sengupta is the founding director of the Complexity Planning and Urbanism research laboratory [CPU]Lab and leads the masters design atelier [CPU]Ai. He uses a complexity framework for transdisciplinary research between design, natural and social sciences. This involves development of new digital tools, computational thinking and urban theory addressing urban transformations. His research spans Future Cities, Smart Cities, the Internet of Things, agile governance and cities as complex adaptive systems (CAS).



Dr Murilo S. Baptista is a reader at the University of Aberdeen (since 2014), having joined this University in 2009 as a Senior Lecturer. Before joining UoA, he has worked as a postdoc at the University of Maryland (USA), 1997-1999, the University of São Paulo (Brazil), 1999-2003, the University of Potsdam (Germany), 2004-2006, as a guest scientist in the Max-Planck-Institute for the Physics of Complex Systems (Germany), 2007-2008, and as a Guest Assistant Professor at the Centre for Applied Mathematics at the University of



Oporto (Portugal), 2008-2009. He obtained his PhD from the University of São Paulo, Brazil, on the response of non-linear dynamical systems under external perturbations. One of his main current themes of research is related to unraveling the complex relationship among information, collective behaviour and structure in large networked complex systems for its posterior modelling. His approaches to the

study of causality in real-world systems provide a first step to modelling. Systems of his interest are the smart-grid, communication networks, urban systems, the brain, and socio-economic-political systems. He has also interest on data-driving modelling using techniques from data sciences, nonlinear time-series analysis and machine learning.

● PARTICIPANTS BIOGRAPHIES

By Last Name Alphabetical Order

UK PARTICIPANTS

Dr. Sohail Ahmad is a Research Fellow (Urban Studies) in the GCRF Centre for Sustainable, Healthy and Learning Cities and Neighbourhoods (SHLC), School of Social & Political Sciences, University of Glasgow. Ahmad's work investigates low-carbon urban development options and socio-spatial exclusion issues in built environments and housing in south Asian cities. Focusing on low-carbon development, his work explores distribution and determinants of household greenhouse gas emissions spatially. Currently, he works on the effects of



neighbourhoods' socioeconomic characteristics on sustainable outcomes in 14 cities across Asia and Africa, including Chinese cities. Previously, he worked at the United Nations University, School of Planning and Architecture, Vijayawada, and TU Berlin.

Dr Carlos Jimenez-Bescos received a BSc in Mechanical Engineering in 2004 and a PhD in Biomechanics in 2013 from Anglia Ruskin University and an MBA from Blekinge Tekniska Högskola in 2019. He is currently an Assistant Professor in Building Services and Environmental Design at the Department of Architecture and Built Environment at the University of Nottingham. His research



interests include sustainability, passive design, energy efficiency, IAQ monitoring, data analytics, low carbon technologies and

thermal comfort. He engages at International, National and Regional research, with a focus on engaging stakeholders to adapt to

climate change and understand the best low carbon technology solutions.

Debapriya Chakrabarti is a doctoral researcher in Architecture and Urban Studies at the University of Manchester. Her doctoral thesis investigates the socio-spatial transformation of a household-based crafts industry in a marginalised inner-city slum neighbourhood in Kolkata due to shifting governance policies. She is interested to carry on research in the Southern cities studying the wider social, economic, and cultural aspects of communities which are affected by fragmented



infrastructure. She has worked as a research consultant at Manchester's Knowledge Transfer Programme and works as a tutor in Architecture. She is a registered architect and urban planner trained in India.

Purva Dewoolkar was a Research Associate on TOSSIB. Currently, she is associated with the Right2Water project and completing a PhD at the University of Manchester, funded by SEED. Her research is concerned with the negotiations and struggles through which sanitation infrastructure is produced in Mumbai, India. She is deeply involved in campaigns on the Right to Water and the



Development Plan of Mumbai 2014-2034.

Dalton Price is a PhD candidate in anthropology at the University of Oxford, where his research lies at the intersection of anthropology and global public health. Moving between Colombia, Venezuela, and the United Kingdom, Dalton studies the informal, transnational pharmaceutical marketplaces that cropped up in response to the Venezuelan humanitarian crisis and shortages in essential medicines that followed. He is particularly interested in the grassroots, vernacular forms of humanitarianism that emerged in this context—all led by local Venezuelans hoping to forge a way forward for their communities—and how they can help us reimagine alternative futures for global health, international development, and humanitarian governance more broadly. Outside academia, Dalton has worked in technical roles with the Florida Department of Health,



the World Health Organization, Partners In Health, and other groups across four continents. For this work, Dalton was awarded the Future Global Leaders Fellowship, Jack Kent Cooke International Award, Gateway Kingdom of Saudi Arabia Fellowship, John F. Kennedy Memorial Award, Forbes Under 30 Award, and several research grants. Additionally, he has published opinion pieces with HuffPost, Common Dreams, Global Health NOW, Daytona Beach News-Journal, and Cornell Daily Sun and contributed to pieces in the New York Times, Wall Street Journal, and ABC Action News.

Lakshmi Priya Rajendran is an architect and urbanist, and she is currently working as a Senior Research Fellow in Future Cities at the School of Engineering and Built Environment at Anglia Ruskin University, UK. Her research interests deal with urban and cultural studies, resilient futures, media



studies, spatial representation and practice, identity negotiations, and cultural encounters in cities. She is interested in an interdisciplinary understanding of social, spatial, temporal and material practices

Dr Simone Vegliò is based in the Department of Geography at University College London. His work analyses socio-spatial and political transformations of the urban environment in relation to global economic processes as well as to transformation at the level of the nation state, both historically and at present. Among other works, he has published a book "The Urban Enigma. Time, Autonomy, and Postcolonial Transformation in Latin America" (Rowman & Littlefield,

in cities and a comparative study of these practices in Global North and South, to effectively respond to the complex urban challenges for sustainable and resilient urban futures.



2020) and co-edited a special issue in the Journal of Latin American Geography JLAG (2019). He has also worked on the figures of José Martí and Antonio Gramsci.

Dr Jin Xing is an Early Career Lecturer (Assistant Professor) in the School of Engineering at Newcastle University, United Kingdom. His PhD has been awarded in Geographic Information Science (GIScience) from McGill University's Department of Geography in 2018. His work bridges geospatial data science and civil engineering, transforming data to information, knowledge, and decision-making in infrastructure systems, such as the modelling of interconnected physical and social infrastructure, sensing and intelligent decision-



making for urban infrastructure management. His research has been published in top journals of GIScience and remote sensing, and presented at various conferences.

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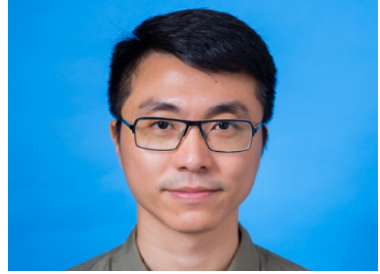
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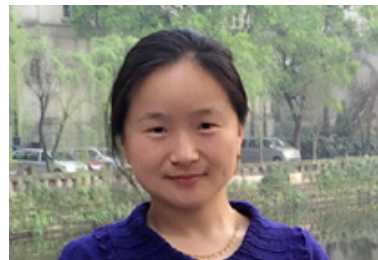
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Post doctoral researcher; Shenzhen
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EXTERNAL GUESTS

Yanting Fan is a PhD candidate in Urban Planning from Xi'an Jiaotong-liverpool University (XJTLU). She obtained her master degree in Urban Planning from XJTLU and BA in Environmental Engineering from East China University of Science and Technology. She has worked as a research assistant in several research projects related to resettlement neighborhoods, watershed management and water pollution. Her research interests includes



the effects of air quality on urban infrastructure (transportation, housing, etc.) and how the spending on sustainable urban infrastructure affects air quality.

Wenjing Zhang is a PhD Candidate who joined the school of geography, university of Melbourne in 2017. Wenjing is currently working on the relationship between water availability and urban development, with a focus on how to provide water resources for the new city of Xiong'an, located outside Beijing, and how it will use water resources for urban planning. Her research interests include environmental governance, urban sustainability and future cities. Research funded by Australian research council



discovery project: Technopolitics of China's South-North Water transfer project. Wenjing's works have been published in Land Use Policy, Sustainable cities and society, Journal of Environmental Management and Journal of Cleaner Production.
