

SPECIAL ISSUE - CALL FOR PAPER

ASCE, Journal of Urban Planning and Development

Topic: Urban Physics and COVID-19 Pandemic Risk Management

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Section 1.1. Introduction and Problem Statement

The COVID-19 pandemic has affected intensively on millions of people and communities. The world-shaking communicable coronavirus disease has become a pandemic threat and a challenge to our health and, subsequently, to the built environment, which forced governments to enforce new and innovative commitments to public healthcare. The impacts of COVID-19 on people's health and well-being have been investigated and debated by hundreds of researchers worldwide. Governments and authorities have raised a few de-urbanization solutions to control COVID-19 risks, such as decentralizing services and supplies, isolating communities, and restrictions on social behaviors. However, these solutions are short-term treatments, not long-term consolidated treatments.

Through a few studies in this short period, the researchers found that COVID-19's spread and growth can be affected by heterogeneities in demographic structure, seasonal effects, population mixing, the network of the transmission process, incubation period after the saturation, and of course, built environment. However, there is no sufficient evidence on the urban management's best practices and lessons learned from prior pandemics and preventative measures which can be applied for the COVID-19 case. Indeed, urban professionals have mainly focused on chronic diseases, while the attention to infectious diseases remained oversight.

Section 1.2. Aim and Scopes

According to prior pandemic studies (such as influenza, and SARS), the environmental factors can aid particularly in managing pandemics. Focusing on urban physics studies can exceptionally aid us by creating a healthy and guarded built environment against COVID-19. In general, urban physics promotes socio-environmental and economic-sensitive urban management to create a quality built environment and enhancing the quality of life. It persuades us to rethink urban management. Previous studies indicated several urban physics factors affecting a healthy built environment, mainly, urban climatology, urban microclimate, urban meteorology, properties of surfaces and forms, airflow and ventilation, air temperature, streetscape design, and the vegetation. Also, prior researchers indicated that urban geometry is the most effective factor impacts on a healthy built environment change. Importantly, the researchers have explored there is an association between urban physics and human comfort and well-being. Indeed, urban physics constituents are the primary sources of respiratory diseases, cardiovascular diseases, and infectious diseases.

Therefore, urban physics principles and attributes can promote public health and well-being. Urban physics can control and manage the COVID-19 pandemic risks considerably. This issue persuades us to investigate the effects of built environmental and urban physics measures and metrics in control of COVID-19. In particular, urban physics can play a

disputable role in controlling, precluding, mitigating, and surpassing the transmission and spread of the aforementioned infectious diseases. This is an inter-disciplinary subject with great potential to combine environmental science, climatology, physics, social science, public health, mathematics, and statistics. Associating these fields may maximize the urban capacities to defend collectively against the pandemic outbreak, minimizing the threats of pandemics significantly. It is vital to implement urban adaptation strategies, protocols, or other optimum solutions.. This international interest provides an integral link with urban management sciences. It encourages transdisciplinary collaboration to generate robust knowledge and strong recommendations, exchanges the lessons learned and best practices, and discuss universal solutions for urban resilience against COVID-19 pandemic. This can include implementable amelioration strategies, mitigation policies, designs, data simulation, and modeling as some examples. This Research Topic invites urban professionals and other practice-oriented professionals around the world to share their findings of reliable alternatives for urban management in and after pandemic periods. This special issue also aligns with the United Nations Sustainability Development Goals (SDGs); SDG 3: Good Health and Well-being; SDG 9: Industry, Innovation, and Infrastructure; SDG 11: Sustainable Cities and Communities; and SDG 13: Climate Action.

Section 1.3. Target Audience and Avenues

The government authorities, non-government organizations, private sectors, and civil society stakeholders, as well as, academic institutions are the main avenues of this special issue. Also, this special issue invites scholars practicing urban studies, in particular, the scholars in urban development/redevelopment, urban planning, transportation planning, built environment, urban microclimate focusing on public health, and social well-being would be the target audiences of this special issue.

Section 1.4. Research Domains

Based on these premises, this special issue aims at exploring the following emerging research domains:

- a) **Urban adaptation and resilience;** to understand how to enhance urban resilience and adaptation capacities to ensure community health in pandemic sequences
- b) **Urban climatology and geometry;** to understand the impact of urban geometry, microclimate, and shared airflow dynamics to the pandemic transmission and spread patterns.
- c) **Urban and building materials;** to understand the impact of material mixtures and compositions of buildings and urban surfaces in minimizing pandemic risks.

Section 1.5. Research Disciplines

Due to the interdisciplinary and complex nature of the special issue topic, a manuscript submission from a mixed range of the following research disciplines are highly welcome;

- Urban Air Quality and Ventilation
- Urban Microclimate, Climate Change
- Urban design/planning legislation and strategies
- Urban construction and material science
- Environmental Impact assessment
- Public health, immunity, and Quality of life
- Policy-making and decision-making
- Simulation and Modelling
- GIS (Geographic Information System)
- ICT (Information and Communications Technology)
- Transportation and infrastructure management
- Big data
- Artificial intelligence and virtual reality
- Decision Support Systems / Tools

The team of Guest Editors, particularly welcome manuscripts, critically studied practical urban planning and management, coupled with case study research, demonstrating evidence-based results and the feasibility of innovative urban solutions. We strongly hope that the findings of this special issue aid the government leaders, policy-makers, scientific communities, and of course, our societies to control and mitigate the COVID-19, or maybe similar diseases in the future.

Section 1.6. Submission Information:

- ♣ The authors should submit their manuscripts following the ASCE Journal of Urban Planning and Development's Author guidelines.
- ♣ The manuscripts should be submitted through the journal's Editorial Manager, selecting this special collection.
- ♣ The authors need to include the Special issue title, "*Urban Physics and COVID-19 Pandemic Risk Management*," and the name of the guest editor, *Professor Dr. Arezou Shafaghat*, in their cover letters.

Important Date

Manuscript Submission Deadline
 Author notification

June 29, 2021
September 29, 2021

Team of Guest Editors

This special issue shall be managed and edited by the team of Guest Editors, who will be acting as handling editors for the manuscripts submitted to this collection.

The team of guest editors has professional degrees, outstanding backgrounds, and several publications to this special issue topic. Significantly, the team has exceptional track-records in multidisciplinary environmental studies, merging built environment and public health. The diverse expertise and extensive experiences of the team collective support CIFAL Atlanta's strategic focus on the promotion and implementation of UN's Sustainable Development Goals (SDGs), particularly on SDG 3: Good Health and Well-being; SDG 9: Industry, Innovation, and Infrastructure; SDG 11: Sustainable Cities and Communities; and SDG 13: Climate Action. The following presents the short biographies of team members, briefing their academic backgrounds and research experiences.

♣ **Guest Editor:** Professor Dr. Arezou Shafaghat (*Primary Guest Editor*)

Short Biography: Dr. Arezou Shafaghat is a professor, scientist, and professional researcher of sustainable urban development and public health, close to ten years leading and supporting research projects. Dr. Arezou's consulting activities are spread to worldwide countries, mainly to the United States, Malaysia, Qatar, South Korea, and Australia. She has been working with the Massachusetts Institute of Technology, Georgia Institute of Technology, UC San Diego, Kennesaw State University, Duy Tan University, University Technology Malaysia, and Qatar University, in different roles (as a managing editor, research project leader, and faculty). She has published five books and more than seventy articles and supported more than fifty start-ups as a scientific advisor in sustainable development, design, and planning. She has received honorary Professorship from Korea Invention Academy in 2016 for these achievements. She has been the guest editor and reviewer in several journals, selected, *Urban Studies*, *Sustainable Cities and Society*, *Engineering, Construction, and Architectural Management*, *Science of The Total Environment*, and *International Journal of Construction Management*.

♣ **Co-Editor #1.** Professor Dr. Ali Keyvanfar

Short Biography: Dr. Ali Keyvanfar is a full-time faculty at the College of Architecture and Construction Management, Kennesaw State University (KSU). He received the Korean World Scientific Award in Material science in 2016. He is an experienced academician, R&D project manager, start-up investment advisor, and international professional consultant with close to ten years of record in sustainable construction engineering and management (by method and material) in Malaysia, South Korea, Australia, Qatar, Bahrain, Nigeria, Ecuador, and the United States. He has been the leading quest editor, and reviewer of several journals, and has received several outstanding reviewer awards.

♣ **Co-Editor #2.** Professor Dr. Binbin Jiang

Short Biography: Dr. Binbin Jiang, Director of CIFAL Atlanta, also serves as a Professor of International Education, Leadership and Research, and Executive Director of the Division of Global Affairs at Kennesaw State University. Dr. Jiang is an international scholar and leader with over 25 years of experience in teaching, research, and administration in multiple international contexts around United Nations SDGs. Dr. Jiang's recent books include: *Transforming America: Cultural Cohesion, Educational Achievement and Global Competitiveness* (2011); a co-edited volume in Chinese, *Educational administration of Elementary and Secondary Schools in the United States* (2012); and the co-edited volume *Transforming Education: Global Perspectives, Experiences, and Implications* (2013). In addition to serving on editorial boards of national and international journals, Dr. Jiang also served as the Editor-in-Chief of the journal *New Waves: Educational Research and Development*, and has published over 60 scholarly works as journal articles or book chapters.

♣ **Co-Editor #3.** Professor Dr. Hasanuddn Lamit

Short Biography: Dr. Hasanuddn Lamit was the head of the Landscape Architecture department at the Faculty of Built Environment, Universiti Teknologi Malaysia (UTM). He is an experienced academician, R&D project manager, international professional consultant with close to thirty years of record in social science research in architecture, public health, landscape, and urban design in Malaysia, UK, Australia, Qatar, New Zealand, and the United States. He has been the guest editor and reviewer in several journals, selected, *Sustainable Cities and Society*, *Building and Environment*, and *Journal of Cleaner Production*. He has published several books and more than seventy articles.

♣ **Co-Editor #4.** Professor Dr. Richard Halstead-Nussloch

Short Biography: Dr. Richard Halstead-Nussloch is a Professor of Information Technology at Kennesaw State's College of Computing and Software Engineering. He has much experience in all phases of helping people learn to use technology better and, more importantly, to shape technology to serve people better. Starting in the late 1960s and through the 1970s, he researched, designed, developed, implemented, assessed and improved Monte Carlo computer simulations to teach scientific research and engineering application; he also completed surveys and interviews into the welfare-to-work programs to determine what environmental and behavioral characteristics foster the successful transition. During the late 1970s, he researched transportation safety problems and designed product and behavioral countermeasures that still effectively reduce public-health loss by preventing vehicle crashes. During the 1980s and early 1990s, while at IBM, he effectively used computer-user data and computer-use experimentation to identify, design, develop, implement, assess and improve user capability, interaction, and experience working with computing technology. From the late 1990s through now, he has effectively taught Kennesaw State's (KSU) graduate and undergraduate students how to research, design, implement, assess and improve computing technology to best serve the people using it. During this tenure at KSU, he has also performed funded research and development, e.g., in individual, corporate and community use of the World Wide Web, effective adult and online learning, digital government, and using team wisdom to research, design, develop and implement intelligent models to harness technology to serve people.