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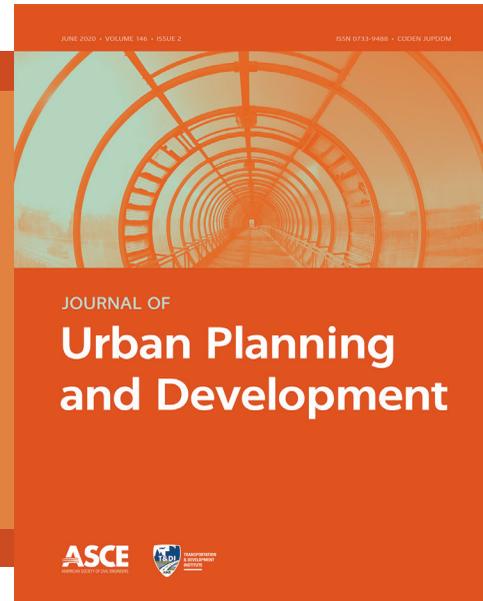
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Call for Papers

Special Issue Topic: Urban Physics and COVID-19 Pandemic Risk Management



Section 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. As a result, governments and authorities have raised a few de-urbanization solutions to control COVID-19 risks, such as decentralizing services and supplies, isolating communities, and restricting 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 applied for the COVID-19 case. Indeed, urban professionals have mainly focused on chronic diseases, while the attention to infectious diseases remained oversight.

Section 2. Aim and Scopes

According to prior pandemic studies (such as influenza and SARS), the environmental factors can aid particularly in managing pandemics. Therefore, 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 enhance life quality. Thus, it persuades us to rethink urban management. Previous studies indicated several urban physics factors affecting a healthy built environment: urban climatology, urban microclimate, urban meteorology, properties of surfaces and forms, airflow and

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ventilation, air temperature, streetscape design, and vegetation. Also, prior researchers indicated that urban geometry is the most influential factor that impacts 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 controlling 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 a vital link with urban management sciences. It encourages transdisciplinary collaboration to generate robust knowledge and strong recommendations, exchanges the lessons learned and best practices, and discusses universal solutions for urban resilience against the COVID-19 pandemic. Some examples can include implementable amelioration strategies, mitigation policies, designs, data simulation, and modeling. This Research Topic invites urban professionals and other practice-oriented professionals worldwide 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 3. Target Audience and Avenues

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

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Section 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 on 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 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 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 Associate Editor, Professor Dr. Arezou Shafaghat, in their cover letters.

Important Dates:

- Manuscript Submission Deadline June 29, 2022
- Author notification September 29, 2022
- Revised Manuscript Submission December 29, 2022
- Final Acceptance February 29, 2023