Smart Resilient Strategies and Sustainability Assessment for Future Communities 2021

Detailed breakdown of each session

1. Sustainability assessment methods and indicator development.

Rapid urbanization, environmental concerns, social equity, and equality has increased the demand for sustainable buildings, communities and cities thereby contributing positively to the popularity of Sustainability Assessment Tools. Sustainability assessment has become the premiere method of assessing, evaluating, comparing, and measuring the progress of buildings, communities and cities in achieving sustainability. Over the past decade there has been huge growth in the utilization of tools such as BREEAM, LEED, CASEBEE, DGNB. Moreover, there has been an increase in the development of more context specific tools, especially in the Asian region (BERDE, HKBEAM) etc. Also, health and well-being of building occupants has taken center stage in recent years due to rising issues related to mental and physical health, and even more so in the Era of COVID-19.Thus, more health oriented sustainability assessment tools have emerged and increased in popularity, these include WELL and FITWEL. Whilst the success of the assessment tools in increasing sustainability outcomes within the built environment is evident, there are unnoticed gaps that might hinder its future suitability for sustainable development, indicating that there is room for improvement. Therefore, to remain pertinent, sustainability assessment methods must address constantly evolving sustainability issues. Thus, this category invites articles that can lead to the improvement of current assessment tools across all levels (building, community, cities). These improvements can consider individual tools, broad sustainability issues or more context specific issues related to sustainability assessment. As is well known, criteria and indicators are a key aspect of sustainability assessment methods, providing much needed sustainability metrics (qualitatively and quantitatively) on how issues should be assessed. Hence, as a key element of sustainability assessment methods, research articles that investigates the optimization of the criterion and indictors are also imperative.

2. Integrated information-based cities (Ali)

In the age of growing information-based systems, we are encouraged to consider and utilise urban data networks for better solutions and strategies for our cities and communities. The integration of such data-driven and information-based methods enables us to create smarter and more resilient solutions. Through integrated information-based methods, we are able to evaluate urban data better and come up with solutions that could address urban sustainability factors. Cities and communities are important platforms for such interventions, particularly considering approaches of multi-objective and multi-spatial. In this sub-theme, we seek contributions that highlight the role of information-based platforms, such as city information modelling, big data analysis, system thinking, etc., in achieving or informing sustainable cities and communities. We look forward to successful case study examples that could be utilised as global models, those that can then be tailored to specific contexts and suggest integrated strategies for future communities.

3. ICT for smart resilient cities

Advances in Information and Communication Technologies (ICTs) have transformed many aspects of human lives. Cities around the world are increasingly relying on smart solutions enabled by ICTs to enhance the effectiveness and efficiency of their operations and improve the quality of life of urban residents. In fact, there are increasing hopes that smart city solutions can provide unprecedented opportunities to deal with a wide array of challenges that cities need to deal with. These include, but are not limited to, increase in the frequency and intensity of climate-induced adverse events, outbreak of

infectious diseases, economic downturns, concerns about safety and security, and increasing socio-economic inequalities. This sub-theme aims to enhance our understanding of the actual and/or potential contributions of smart city solutions to addressing these societal challenges. We seek contributions that, among other things, explore how smart solutions and technologies can contribute to achieving Sustainable Development Goals and meeting urban climate change adaptation and/or mitigation goals.

4. **Sustainable and resilient strategies for the urban environment (broad - climate change, ageing population)**

Cities are increasingly dealing with a wide range of socio-economic and environmental threats such as heat stress, flooding, storms, economic recession, pandemics, and aging population. These often lead to major human and economic losses. In fact, economic losses associated with these stressors are estimated to be billions of dollars annually. It is, therefore, no surprise that enhancing urban resilience has become a priority for many cities in the past 2-3 decades. Through resilience-building plans and programs, cities intend to improve their abilities to plan and prepare for, absorb, recover from, and adapt to adverse events. Ideally, resilience building should also contribute to approaching sustainable development. However, this may not always be the case as, for instance, resilience may be achieved through inefficient and unsustainable use of resources. In this sub-theme we seek contributions that deal with strategies aimed at enhancing urban resilience. We particularly welcome contributions that explore opportunities and strategies for addressing both resilience and sustainability simultaneously.

5. **Campus sustainability**

Sustainable development has become the de-facto requirement of this era. As a key aspect of development and built environment, green campuses are an important way to promote the construction of ecological civilization and advocate the concept of sustainability. Greening campus or sustainability campus both consider the operational aspects based on environment impacts and educational aspect based on satiability education. Nowadays, the work of green campus places more emphasis on spreading sustainable ideas and education due to their high societal impact. However, universities' own environmental impacts and resource efficiency cannot be ignored as there are over 13,000 universities worldwide and the number is still growing, especially in developing countries with more prominent environment problems. How to better uphold the concept of sustainable development and carry out green campus construction activities in line with national conditions has become a global concern and is the priority of this section. Thus, this subtheme invites contribution to campus sustainability to address the current needs to optimize the environmental, social, economic, and institutional sustainability challenges on campuses. This can be from a Global or more nuanced perspective.