PATHWAYS TO URBAN SUSTAINABILITY: PROTECTING CULTURAL HERITAGE AND ECOSYSTEMS AND ACHIEVING A BETTER QUALITY OF LIFE

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As the global population passes seven billion (United Nations, 2012), humans face significant economic, environmental and social challenges related to increasing demand for and consumption of natural resources. These activities lead to a variety of issues including climate change, food and energy shortages, habitat degradation, air and water quality issues, and increased pollution. Thus, there is an urgent need for significant changes in the way we design and retrofit our cities to accommodate a future of growth without compounding our current problems. Developing sustainable communities requires resilient and efficient economic, environmental and social systems.

The international community has harnessed the momentum with several key events, such as the September 2015 release of the 2030 Agenda for Sustainable Development (United Nations, 2015). The groundbreaking plan is the first international agreement to acknowledge sustainable urban development as the fundamental precondition for the prosperity of cities. The agreement comprises 17 Sustainable Development Goals (SDGs) and 169 actionable targets that aim to be achieved by 2030. Particularly relevant is the 11th SDG—sustainable cities and communities— which seeks to "make cities and human settlements inclusive, safe, resilient and sustainable" by recognizing urbanisation and urban growth as a transformative force for sustainable development (United Nations, 2015).

Across the world, many cities are placing themselves on a path toward sustainability and implementing innovative ideas to efficiently manage urbanisation (e.g. Copenhagen, New York, Singapore, Seoul, and so forth). However, many other cities are in urgent need of effective planning and financing strategies to meet today's critical urban challenges. In line with this realisation, the Urban Sustainability Framework has been developed by the World Bank (2018) to help build a shared understanding of sustainability within an urban context, and provide practical guidance to cities on how to pursue urban sustainability through integrated approaches, among others. The USF provides tools and methods that cities of different sizes and levels of development can use to improve their sustainability over time.

The measuring framework builds a shared understanding of sustainability within the urban context through two "enabling" and four "outcome" dimensions. The enabling dimensions and their associated goals are as follows:

(1) **Governance and integrated urban planning:** to achieve integrated, well-planned urban development;
(2) **Fiscal sustainability:** to ensure accountable governance and fiscal sustainability.
Whereas the outcome dimensions and their associated goals are as follows:
(1) **Urban economies:** to attain sustainable economic growth, prosperity, and competitive across all parts of the city;
(2) Natural environment and resources: to protect and conserve ecosystems and natural resources into perpetuity;
(3) **Climate action and resilience:** to work toward mitigating greenhouse gas emissions while fostering the overall resilience of cities;
(4) **Inclusivity and quality of life:** to work toward creating inclusive cities and improve cities' livability, focusing on reducing poverty levels and inequality throughout cities.

Three of the above-mentioned urban sustainability dimensions, i.e. "Governance and integrated urban planning", "Natural environment and

resources" and "Inclusivity and quality of life", are the broad categories of the nine papers presented in this special issue. Each of the papers in this special issue is unique in its emphasis. However, there are several consistent areas of overlap (see Table 1). This editorial paper first provides a cursory overview of this special issue. It then explains the four key focus areas, and under each area, a brief introduction to relevant paper(s) of this special issue is presented.

Table 1: Focus areas of nine papers presented in this special issue

Urban Sustainability Dimensions	Key Focus Areas	Authors
Governance and integrated urban planning	Cultural heritage	Zulkifli, Ibrahim and Zakariya Mohamed dan Harun Yeong, Abd Rahman, Ismail and Utaberta
Natural environment and resources	Ecosystems and biodiversity	Pornelos and Navarra Fontanoza and Navarra
Inclusivity and quality of life	Health and well-being	Sidenius, Nyed and Stigsdotter Stigsdotter, Sidenius and Grahn Ali, Ja'afar and Mat Sulaiman
	Social cohesion	Waijittragum

Overview of this Special Issue

This special issue of Alam Cipta contains a collection of nine extended papers from the International Conference on Resilient Smart Technology, Environment and Design (ReSTED 2018), held on 13-15 November 2018 in Bangi, Selangor. ReSTED 2018 was jointly organised by Universiti Putra Malaysia (UPM), Universiti Kebangsaan Malaysia (UKM), Asian Reflective Foil Association (ARFA), and Integrated Environmental Solutions (IES). The conference aimed to provide an advanced platform for researchers, academicians, and industry professionals to present their research results and activities regarding topics on three broad areas: 1) renewable energy technologies and applications; 2) building performance, simulation and energy-efficient design and technologies; and 3) sustainable planning of landscape, neighbourhoods and cities. With the central theme "Creating Solutions for Future Survival", the ReSTED 2018 emphasised a balanced approach to environmental, social and economic aspects of sustainability to build a better future. This conference provided myriad opportunities for the delegates to exchange new ideas, set up research relations, and find partners for future collaboration. After rigorous double-blind refereeing processes, 44 papers were accepted and presented at the conference. The presenters and attendees of the conference were from Malaysia, Singapore, Thailand, the Phillippines, Denmark, and the UK.

After the conference, we sought papers that received good reviews from the conference reviewers and are relevant to Alam Cipta journal, mainly non-technical or non-engineering papers. The authors were then invited to revise their conference paper for journal publication and in accordance with customary practice to add 30% new materials. The revised papers again went through the normal journal-style review process and finally, nine extended papers had been accepted and presented to the readers in the present form.

Cultural Heritage

A city that seeks to establish a unique and memorable sense of place will make it different from other cities. A unique sense of place can be established by protecting and incorporating natural features such as rivers, harbours, lakes, forests, and hills. Unique city identity can also come from protecting and conserving the city's cultural and historical heritage (monuments, townscapes, landscapes, archaeological sites, and culture) (Hmood, 2019). This result benefits the city by enhancing social cohesion and encouraging a sense of pride in the city. It also strengthens the appeal of the city to businesses and tourists (Said, Aksah and Ismail, 2013).

Sustainability recognises the critical importance of 'sense of place' and heritage in any plans for the future (Government of Western Australia, 2003). In some definitions of sustainable development, the concept of compatibility between the use and the qualitative and quantitative conservation of resources has been extended considerably: from looking purely at natural resources to including the conservation of cultural assets and collective historical memory for the benefit of future generations. The preservation and continued use of historical buildings may produce additional benefits for the community over and above those which more modern buildings provide (Hmood, 2019). These additional benefits arise from:
- their historical and architectural importance;
- their role in the development of a sense of identity for the local community; and
- their role in encouraging tourism and investment.

The first three papers of this special issue emphasise on the preservation of cultural and historical heritage, each at different spatial scale. Zulkifli, Ibrahim and Zakariya's paper titled 'Integration of rural landscape characters of the Pahang-Terengganu coastal route for tourism route planning', call for the preservation of certain viewpoints, vistas, natural backdrops and cultural sceneries in the future planning and development of coastal areas of Pahang and Terengganu states. They suggest that maintaining the unique and scenic landscape settings of the region is essential for the sustainability of its tourism industry.

In 'Morphogenetic process of spatial structure in Malay town: A case study of Kota Bharu, Kelantan', authors Mohamed dan Harun analyse the spatial formation and transformation process of the old town centre of Kota Bharu city. Through archival research and site observations results, the authors reveal the structural changes throughout the historical development of the old town. They hope that the results would guide the city's urban conservation planning in the future.

The third paper calls for historical heritage preservation at a building scale; titled 'Challenges of sustaining design identity in Chinese Taoist Temples built in the 19th Century in Klang Valley, Malaysia' by Yeong, Abd Rahman, Ismail and Utaberta. This qualitative research paper highlights the poor maintenance of a 19th-century Chinese temple in Malaysia that results in the loss of its original design identity. It provides a deep understanding of appropriate preservation measures for all 19th-century Taoist temples in the country to ensure the sustainability of the temples' antique design characters.

Ecosystems and Biodiversity

Sustainability acknowledges that all life has intrinsic value, is interconnected and that biodiversity and ecological integrity are part of the unique life support systems upon which the earth depends (Government of Western Australia, 2003). Growing greener cities involves the promotion of activities that employ, recognise, or conserve nature in its many helpful forms to sustain urban life while limiting or reducing its depletion. A sustainable city is renowned for its many beautiful public parks, gardens and public spaces (Lehmann, 2011). This pride is best formed through a strong focus on local biodiversity, habitat and urban ecology, wildlife rehabilitation, forest conservation, and the protection of regional characteristics. Protecting, conserving, restoring, and promoting ecosystems, natural habitats, and biodiversity are vital to the effective functioning of city systems. For example, they provide water, attenuate floodwater, filter particles from the air, promote pollination, help control climate, support nutrient cycles. The loss of biodiversity can be mitigated by enhancing the natural environment, increasing urban vegetation, as well as landscaping and planning the city using ecological principles.

The next two papers of this special issue promote ecological integrity in the Philippines context. The paper by Pornelos and Navarra, titled 'The fractality of a garden city: A comparison of the relationship of road network and green spaces in Singapore and Quezon City, Philippines', argues that the building of roads greatly facilitates habitat fragmentation or influences the surrounding ecological patches. Based on their results of fractal dimension, the authors call for protection of green areas or patches with a high fractal dimension to be protected from road construction and expansion to reduce habitat fragmentation.

The next paper, 'Using mean patch size as a landscape metric to determine the effectiveness of the National Greening Program in Quezon City, Manila', by Fontanoza and Navarra, highlights a method to measure the expansion of green patches in a city. The authors subsequently demonstrate the success of the Philippines government's greening program that was implemented between 2011 and 2017 in Quezon City. This paper provides insights not only into the method used in the research but also the worthiness of replicating the similar greening program in other cities or regions.

Health and Well-being

One of the aims of sustainable development strategies is to improve the quality of life and well-being continuously. A healthy population can enjoy a good quality of life and make a full contribution to the economy (Mella and Gazzola, 2015). Access to adequate health care services is essential for promoting and maintaining health, and achieving health equity, and so on. Effective welfare services are also crucial for ensuring people have access to adequate care, accommodation, and nutrition care to support health. Good access to public parks, open spaces, gardens and recreational facilities, along with walkable streets, also encourages healthy lifestyles (Braubach et al., 2017). They provide health, recreational, cultural, and spiritual benefits to city residents, which are the essential components of a healthy city (Lehmann, 2011). Research has shown that positive interactions in urban green space can bring social cohesion, social capital and vital health-promoting behaviors that may enhance psychological health and well-being (Jennings and Bamkole, 2019).

The subsequent three papers of this special issue promote human health and well-being through two different perspectives and approaches. Sidenius, Nyed and Stigsdotter's paper titled 'A new approach to nature consumption post nature-based therapy', draws attention to the potential of the natural landscape as a therapeutic to restore the health and well-being of those diagnosed with stress-related symptoms. Through a mixed-method approach, the authors show positive results among nature-based therapy participants. Specifically, they would use nature more frequently, have better insights into nature consumption, and have a higher ability to gain their nature-based

experiences for their health and well-being.

The next paper also uses the landscape approach: 'From research to practice: Operationalisation of the eight perceived sensory dimensions into a health-promoting design tool' by Stigsdotter, Sidenius and Grahn. The authors argue that the capability of green spaces in promoting mental restoration depends on eight Perceived Sensory Dimensions (PSD). These PSDs (Serene, Space, Nature, Rich in Species, Refuge, Culture, Prospect, and Social) were identified through a questionnaire survey and later applied through a demonstration project involving an establishment of eight different yet connected spatial settings on a two-hectare land. The authors then develop an appropriate design tool that put the eight PSDs into use, together with six steps as practical guidance for landscape architects and urban planners.

On the other hand, Ali, Ja'afar and Mat Sulaiman's paper, 'The influences of geographical and physical attributes on user activities in Erbil Square, Iraq', highlights the social values of urban squares in urban lives. The paper argues that such values fall short in Iran due to weather and design factors. Through a quantitative pilot study with Erbil Square as the case study, the authors provide an early indication of a positive correlation between geographical and physical qualities of urban square design on users' activities.

Social Cohesion

Social cohesion is also one of the critical changes identified in the sustainable development strategy. Sustainability recognises that an environment needs to be created where all people can express their full potential and lead productive lives and that significant gaps in sufficiency and opportunity endanger the earth (Government of Western Australia, 2003). Communities that are active and well-connected with one another contribute to the bottom-up creation of a city with a strong identity and culture. An inclusive society overrides differences of race, gender, class, generation, and geography and ensures inclusion and equality of opportunity. Engaging multiple stakeholders in decision making helps align different perspectives, leverage knowledge, and ensure that no group or community is side-lined.

The last paper of this special issue, however, addresses social inclusion, not at an urban scale but product scale. 'Visual communication on food products packaging for Japanese elderly persons' by Waijittragum, focuses on the application of graphic design in Thai food packaging targeted for elderly Japanese consumers living in Thailand. The paper explores the thesis that Japanese older people are usually more attentive to the functional attributes rather than the aesthetic attributes of product packaging. The paper suggests that packaging with certain visual communication approach and material has

a better potential to attract elderly Japanese consumers.

To conclude, it is hoped that this special issue will contribute to the readers' awareness that sustainable design (at urban, township, site, building or product scales) is a moral obligation. However, it is essential to note that the pathways towards achieving urban sustainability cover actions beyond key areas highlighted by articles in this special issue. In a nutshell, a holistic, sustainable urban development encompasses actions cross environmental (resource consumption with environmental impact), economic (resource use efficiency and economic return), and social (social well-being and health) dimensions. Hopefully, with recent political, technological, social and cultural developments, there will be more ideas and insights for critical research, pedagogical experiences and projects that can help create better places and contribute immensely to achieving urban sustainability in cities around the world.

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