

Editorial Introduction

Special Issue on “Sustainable Residential Areas”

Guest Editors:

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As cities change and evolve over time their adaptive capacity is regularly questioned. Cities can be vulnerable to the effects of population change, climate change and the pressures of modernisation and globalisation, or they can be designed and built with those effects and the capability to manage them, even benefit from them, in mind. Designing, creating and managing sustainable residential areas, those that last the test of time, is pivotal to providing liveable environments for residents. Sustainable residential areas provide adequate and secure housing, prosperous social and cultural environments, and ensure a well-educated, healthy and motivated workforce for local economies. In addition, as inhabitants are recognised for their diversity and are engaged in their living environments, public participation in urban planning is an essential step in the process of sustainable urban design. This special issue thus brings together urban planning research focusing on three key areas: the use and access of information technology to residents, residential area uses and divisions, and urban area renewal.

The first paper, by authors [Anrong et al. \(2016\)](#), focuses on smart community planning, exploring an approach for creating and promoting an information-sharing platform in Yishanwan, Jiangxia District, Wuhan, China. The framework consists of a base layer, sharing layer, application layer, service layer and portal layer with an implementation target of achieving a newly created smart community supporting improved and ongoing public participation.

This paper is followed by the research of [Chang et al. \(2016\)](#) who analyse the geography of the digital divide on a micro-scale in Nanjing, China. The research provides an index system based on cluster and regression analysis utilising survey data about personal internet usage patterns. The analysis finds that individual socio-economic attributes, as well as the location and housing of residents, has a significant impact on internet usage patterns. This finding may contribute to the planning of civil engagement as well as emphasize differing community educational requirements regarding smart, digital planning solutions.

[Zhang et al. \(2016\)](#) conducted research on the spatial and temporal patterns of residents' daily activities through the collection of GPS data by survey. The research found different patterns of movement for different activities as well as for differing times and days of the week. The study was based in Beijing, China, and found that despite the urbanisation of Beijing's residential areas, some are still lacking in job opportunities and shopping

facilities. The analysis of GPS data in this study demonstrates an effective method of identifying the needs of communities and providing information for future residential area planning.

The fourth paper of this issue, by [Bi and Zhang \(2016\)](#), looks at the influencing factors and policy distortions of school zoning areas in central Beijing using GIS mapping, survey and interview methods. The study identifies a contradiction within the Chinese public school enrolment system, where students may or may not be actually residing within the designated school zones and discusses the legitimacy underlying the current enrolment system. The findings of this research may be applied to the zoning of school districts, as well as the development of educational policies that address the requirements of modern urban families to create more sustainable communities.

[Chiranthanin and Suzuki \(2016\)](#) consider the concept of 'neighbourhood' in the context of Nimmanhaemin District, Chiang Mai, Thailand, where traditional residential areas are being increasingly encroached upon by commercial enterprises. The research uses community participation and questionnaire data to identify methods for urban management, including managing traffic flows, zoning, city image promotion and community design, in order to connect and consolidate residential areas and public spaces, while accommodating and promoting the unique industries and economic opportunities of each area within the district. This research provides strategies to create neighbourhood networks that operate within modern commercial areas where traditional zoning rules may no longer be applicable or sustainable.

[Yang and Lanchun \(2016\)](#) likewise research the long-term sustainability of traditional residential areas, looking in particular at the renewal of traditional residential social/public spaces in Shichahai, Xisibei and Nanluoguxiang, Beijing, namely typical courtyard spaces. The study conducts an investigation and quantitative analysis of the living spaces and social and economic problems of residents surrounding each courtyard and explores strategies for the improvement of public spaces within residential areas from the perspectives of physical space and public policy.

Looking specifically at individual buildings, [Suling et al. \(2016\)](#) explore a method for efficiently and intuitively protecting traditional buildings, including a Qing dynasty tea house in Guifeng Village, China. The research method uses a Building Information Model to collate, process and save building data which can then be used to create 3D virtual models utilising Revit Architecture software. This research demonstrates the virtual remodelling of traditional buildings within their existing contexts and provides a new method contributing to their protection and renewal.

The final paper of this issue, by [Huang et al. \(2016\)](#), identifies the need for a method of assessing the performance of the many urban renewal projects in Taipei City, Taiwan. Taipei City faces many typical problems of rapid urbanisation, including traffic congestion, a lack of public facilities and deteriorating environmental quality. This study categorises urban renewal projects by considering their environmental, economic and social impacts, then utilising a Data Envelopment Analysis method to evaluate the overall efficiency of each project. This study provides a method of evaluation that may be employed by government agencies or developers in order to propose efficient urban renewal projects for ensuring effective investment in future, sustainable project designs.

This special issue on sustainable residential design is an outcome of the annual Workshop on Urban Planning and Management in Kanazawa, Japan,

held February 27th to March 1st 2015. Sincere thanks goes to all organisers and both local and international participants of the event, particularly to the Urban Planning Laboratory of Kanazawa University for their hosting of the workshop. I would personally like to thank all authors and reviewers for their efforts invested in their research, submissions and throughout the publication process. I hope the body of research presented in this special issue may continue to thrive through further study and prove useful as reference material for urban design academics, planners and policy-makers alike.

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