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Qisheng Pan · Weifeng Li
Editors

Smart Growth and Sustainable Development

Selected Papers from the 9th International
Association for China Planning Conference,
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Preface

During the past three decades, China has made remarkable progress with respect to its urbanization. This has not been without its consequences, however, as China is also experiencing a series of urban problems, including low-density and inefficient suburban development, deepening regional imbalances, a Hukou and social welfare system, an aging population, wholesale environmental degradation, traffic congestion, inadequate natural and cultural heritage preservation, and the loss of identity of existing communities.

To address these imminent urban issues, on March 16, 2014, the Chinese government launched its first official urbanization plan, “National New-type Urbanization Plan (2014–2020).” The plan sets numerical goals for China’s long-term urbanization. It aims to increase China’s urbanization rate to 60 % by 2020. It emphasizes the leading role of major cities, while promoting the growth of small and medium-scale cities. It also highlights the dominance of high-density, mixed-use, and transit-oriented compact communities in future development patterns. The plan aims to create a harmonious and pleasant urban environment with basic public services accessible by all permanent urbanites. It also calls for reforms to remove the barriers related to household registration, land management, social security, finance and taxation, institutional management, as well as ecologies and the environment. It is clear that urban planners and scholars face enormous challenges including implementation, financing, protection of the vulnerable groups, and social justice induced by the plan.

This book aims to tackle these challenges and urban problems by applying the international lessons learned on the subject of smart growth. It includes 15 peer-reviewed and rigorously edited papers, which were presented at the 9th International Association for China Planning (IACP) Conference held June 19–21, 2015, at Chongqing University in Chongqing, China, on the theme: New Urbanization: Smart Growth and Sustainable Development.

In Chapter “[Distinguishing Characteristics of Urban Form from Evolutionary Perspective—The Case of Chengdu in China](#),” Xu Li et al. identified historical structure of urban forms and examined the characteristics of the existing city. They employed Chengdu in China as an empirical case and collected satellite data,

historical literatures and maps, integrated history investigation, geographic information, and morphologic analysis to study the evolution of historical urban forms. The characteristics of the environments, cultures, and urban spatial structure can help planners and designers to maintain cultural continuity of the city.

In Chapter “[The China Paradox of Migrant Labor Shortage Amidst Surplus Rural Laborers: An Alternative View](#),” Chen Chen offered an alternative view on the simultaneous existence of a migrant labor shortage and surplus rural laborers in China’s recent urban development. By examining the national-level household survey data, he found that the age cohorts of laborers affect the migration choices of individuals. The role of local off-farm work in migrant-sending areas and housing conditions in migrant-receiving areas have limited rural-urban migration. The findings of the research have important implications for policy makers to turn temporary migration into permanent settlement in urban areas as proposed by China’s New-type Urbanization Program.

Dongzhu Chu and Shuxiang Wei examined the spatial range and temporal patterns of riders within radiation realm of the rail transit stations in Chapter “[From Polysemous Affect to City Integration: The Definition Thinking and Frontier Method to Radiation Realm of City Rail Transit Station](#).” They introduced the concept of the influenced urban realm around station and proposed a theoretical model to measure it. The rail transit stations in the city of Chongqing were selected for empirical demonstrations. Their research highlighted the effects of the influenced urban realm around station in the integrated development of land use and transit system.

In Chapter “[The Optimizing Strategies of Three-Dimensional Walking System in Mountainous Cities: Take Chongqing Yuzhong District for Example](#),” Xiyue Li and Ling Huang examined the components, structures, and life features of walking system in Chongqing city. They also conducted a residents’ satisfaction survey for mountain trails in Hong Kong and found that the main propose of the walking system design is to satisfy the different needs of various citizens. Based on the findings, they proposed some optimal strategies for developing three-dimensional walking trail system for mountainous cities.

Zhenlong Zhang addressed job housing balance in Chapter “[A Study on Urban Spatial Structure in the Context of the Jobs-Housing Balance: A Case of Suzhou, China](#).” He explored the spatial structure of Suzhou City, China, using job housing balance index, independent index, average commuting distance, average commuting time, etc. The job housing balance characteristics at both district level and street level were explored. He found that overall job housing balance index in Suzhou is in a reasonable range, but its spatial distribution is very different and its structure is under a rapid reorganization.

In Chapter “[Analysis on the Spatial Impact Factors of Poverty and Its Planning Suggestions: A Case Study of Guizhou Counties](#),” Zhengxu Zhou and Wenning Zhao explored the spatial characteristics of poverty in Guizhou Province, the poorest region of China. They intended to develop a theoretical framework to find the connection between poverty and space. Based on the results using a partial least squares regression (PLSR) model with empirical data from 75 counties in Guizhou

Province, they found that several spatial factors have significant impacts on poverty generation, including the contradictions between people and land, the lower level of county economic and urbanization development, and weak infrastructure. They argued that poverty management policies should focus on these spatial factors.

A key element for transportation planning is to evaluate and forecast road traffic conditions. Chapter “[Research for Increasing FCD Map Matching Accuracy Based on Feature Extraction of Continuous Traffic Flow and Interrupted Traffic Flow](#)” by Zhiping Zhang and Hangfei Lin intended to improve the accuracy of GPS floating car devices (FCDs) installed on a vehicle for recognizing real traffic conditions. They obtained the FCD data from taxi on-board devices in Shanghai and applied both gray relational analysis approaches and fuzzy pattern recognition methods to extract features of both continuous traffic flow and interrupted traffic flow. They found that their feature extraction mechanisms can effectively improve the accuracy of map matching and path recognition under the parallel road network.

In Chapter “[Visual Impact Analysis and Control Method of Building Height for Landscape Preservation of the Traditional Gardens: A Case Study on the Suizenji Jōjuen in Kumamoto City](#),” Li Lin, Riken Homma, and Kazuhisa Iki constructed a 3D urban model and selected main view points as observation points to simulate real vision of observers. They measured the degree of landscape destruction caused by high-rise buildings and explored how to control the height of buildings for preserving landscape of the traditional gardens. Suizenji Jōjuen, a traditional Japanese strolling garden located in Kumamoto city, was selected for the empirical study.

Liuchangyue Li, Xin Dong, and Zhu Jing analyzed the relationship between the status of Internet usage among elderly people in urban communities and the degree of elderly life satisfaction in Chapter “[Satisfaction Level of Elderly People’s Life in Urban Communities Based on the Status of Internet Usage—A Survey Covering Different Types of Communities in Xi’an](#).” They conducted a random sampling survey on Internet usage of elderly people in Xi’an’s different communities. They employed logistic regression to measure the correlation of Internet usage status and degree of elderly life satisfaction. They found that Internet services can effectively mitigate the prevailing problems of inadequate community eldercare service facilities.

Chapter “[Study on Characteristics and Policy Recommendations of Small Towns in View of Regional Development Strategy in the Coastal Area of Jiangsu Province, China](#)” by Shuping Cui and Wei Fu investigated the changing characteristics of small towns in the coastal areas of Jiangsu Province, China, after the implementation of the coastal development strategy. They found that these small towns have experienced some improvement in economy, society, and environment at different degrees, but they are also facing challenges of a lack of comprehensive planning, unreasonable industrial structure, and low capacity and attraction. They made some policy suggestions for the small towns to avoid shrinking in the rapid urbanization process at the regional level.

Yong Huang and Jie Feng introduced slow mode transportation as an inevitable trend of green sustainable urban transportation development in Chapter “[Space](#)

[Design of Slow Mode Transportation System of Mountainous City.](#)” They focused on a mountainous city and explored the design of slow transportation space elements, including slow mode node, slow mode corridor, and slow mode unit. They also examined slow mode transportation and fast mode transportation transfer design. Their discussion and summary of space form design for slow transportation may offer some beneficial references to develop and improve mountain cities’ slow mode transportation system.

In Chapter [“Combined Commuting Mode for Residents in Big Cities by Public Health—A Case Study of Xi’an,”](#) Zirui Lyu and Jing Zhu addressed healthy urban planning for commuters of large cities in China. They collected random samples from questionnaire survey and interviewed commuters in Xi’an, one of the largest cities in Northwest China. They examined commuting distance, commuting time, and the body energy consumption of those commuters. A hierarchical analysis model was employed to measure the healthy levels for different commuting modes, and the factors associated with commuters’ mode choice were examined. Finally, they sorted out the healthy combined commuting mode and made policy suggestions to promote healthy commuting for commuters in large cities.

Fan Yang investigated the major problems of industrial land use planning in urban and rural areas of Shanghai in Chapter [“Problem Analysis of Urban-Rural Industrial Land Use in Metropolitan Areas Under the New Urbanization Policy—A Case Study of Shanghai.”](#) First, he reviewed some relevant research on industrial land renewal in China and pointed out some drawbacks of existing studies. Next, he used Shanghai as an empirical case to analyze the problems in urban-rural industrial land use. Then, he discussed some possible improvement for the studies on urban-rural industrial land use. Finally, he highlighted the values of urban regeneration theory and called for the setup of a performance evaluation system of industrial space.

In Chapter [“Following Natural Features—Planning Method Research on the Spatial Arrangement of Blue-Green Webs Around Urban Core Areas,”](#) Zhong Xing, Xizi Tang, Qiao Yu, and Xiaobo Xu explored the planning method to create blue-green spatial patterns around urban core areas. They expected the method to be instructive for efficiently conserving and managing natural blue-green spaces within central urban authority areas, which is required as one of the main tasks for “improving construction ability” enabling new urbanization.

Urban greenbelt has been employed as an important containment policy for preventing urban sprawl. However, there are many debates about its effects. In Chapter [“A Comparative Study of the Evolution of Greenbelts in London and Beijing,”](#) Mingfei Ma intended to find the differences in the approaches by comparing the greenbelts in London and Beijing. He first reviewed the ongoing debate regarding greenbelt policies and their role in managing urban expansion. A comparison of the urban expansion history of London and Beijing showed the differences in greenbelt policy designs which resulted in different policy performances. This research identified the factors that led to the success of London’s greenbelt and also pointed out the inappropriate planning policies that caused Beijing’s persistent difficulties.

As the proceedings of the 2015 IACP annual conference, the key contribution of the book is to present cutting-edge strategies for smart growth and sustainable development. The audiences of the book include, but are not limited to, the faculty members, students, practitioners, and the general public interested in the subjects of urban and regional planning, urban studies, urban design, housing and community development, infrastructure planning, geographic information system (GIS) technology and applications, climate change and ecological planning, environmental planning, social equity, disaster planning, and others. The discussion will contribute to the advancement of urban planning in China as well as the world.

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Description and Purpose of the Work

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