

The Urban Book Series

Ying Long
Shuqi Gao *Editors*

Shrinking Cities in China

The Other Facet of Urbanization

 Springer

The Urban Book Series

Editorial Board Members

Fatemeh Farnaz Arefian, Bartlett Development Planning Unit, University College London, London, UK

Michael Batty, Centre for Advanced Spatial Analysis, University College London, London, UK

Simin Davoudi, Planning & Landscape Department GURU, Newcastle University, Newcastle, UK

Geoffrey DeVerteuil, School of Planning and Geography, Cardiff University, Cardiff, UK

Andrew Kirby, New College, Arizona State University, Phoenix, AZ, USA

Karl Kropf, Department of Planning, Headington Campus, Oxford Brookes University, Oxford, UK

Karen Lucas, Institute for Transport Studies, University of Leeds, Leeds, UK

Marco Maretto, DICATeA, Department of Civil and Environmental Engineering, University of Parma, Parma, Italy

Fabian Neuhaus, Faculty of Environmental Design, University of Calgary, Calgary, AB, Canada

Vitor Manuel Araújo de Oliveira, Porto University, Porto, Portugal

Christopher Silver, College of Design, University of Florida, Gainesville, FL, USA

Giuseppe Strappa, Facoltà di Architettura, Sapienza University of Rome, Rome, Roma, Italy

Igor Vojnovic, Dept of Geography, Michigan State University, East Lansing, MI, USA

Jeremy W. R. Whitehand, Earth & Environmental Sciences, University of Birmingham, Birmingham, UK

The Urban Book Series is a resource for urban studies and geography research worldwide. It provides a unique and innovative resource for the latest developments in the field, nurturing a comprehensive and encompassing publication venue for urban studies, urban geography, planning and regional development.

The series publishes peer-reviewed volumes related to urbanization, sustainability, urban environments, sustainable urbanism, governance, globalization, urban and sustainable development, spatial and area studies, urban management, transport systems, urban infrastructure, urban dynamics, green cities and urban landscapes. It also invites research which documents urbanization processes and urban dynamics on a national, regional and local level, welcoming case studies, as well as comparative and applied research.

The series will appeal to urbanists, geographers, planners, engineers, architects, policy makers, and to all of those interested in a wide-ranging overview of contemporary urban studies and innovations in the field. It accepts monographs, edited volumes and textbooks.

Now Indexed by Scopus!

More information about this series at <http://www.springer.com/series/14773>

Ying Long · Shuqi Gao
Editors

Shrinking Cities in China

The Other Facet of Urbanization

 Springer

Editors

Ying Long
School of Architecture and Hang Lung
Center for Real Estate
Tsinghua University
Beijing, China

Shuqi Gao
School of Architecture
Southeast University
Nanjing, Jiangsu, China

ISSN 2365-757X

The Urban Book Series

ISBN 978-981-13-2645-5

<https://doi.org/10.1007/978-981-13-2646-2>

ISSN 2365-7588 (electronic)

ISBN 978-981-13-2646-2 (eBook)

Library of Congress Control Number: 2018967423

© Springer Nature Singapore Pte Ltd. 2019

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

Urbanizing China has been longtime associated with expanding cities and booming economy by various of parties. As an emerging topic of urbanizing China, shrinking cities featuring population loss have started to attract increasing attention from academic and practice fields. In recent years, more and more Chinese scholars have been conducting research toward Chinese shrinking cities. Up to date, there are three edited special issues in Chinese urban planning journals and three initiated conferences/symposium as the output. We also established the Shrinking City Research Network of China (SCRNC), through which more extensive studies have been developed by the network members. The website of SCRNC is <https://www.beijingscitylab.com/projects-1/15-shrinking-cities> for readers' information.

According to our existing academic studies and past experience, shrinking cities in China are exhibiting different patterns in contrast to their counterparts in Western literature in terms of (but not limited to) shrinkage degree, physical performance, causality, and planning reaction. They would be good examples to contribute to the development of the shrinking city theory in the world. In such a background, we edit this book to introduce shrinking cities in China, the other facet of urbanization and a novel way to look at urbanizing China.

This book is versed in urban planning, urban studies, and geography domains. It starts with an introduction of the overall profile of shrinking cities in China, and follows with regional perspective of shrinking cities as well as case studies, ends with multiple highly related media reports. All chapters are contributed by leading urban researchers with specific expertise on shrinking cities in China. We also include some photographs from a well-reputed photographer in the book for readers' better understanding on shrinking cities in China.

In detail, the edited book is consisted of four parts, the overall pictures, regional analysis, case cities, and media reports. Part I is for introducing overall picture of shrinking cities in China, with Chap. 1 focusing on introducing the overall profile of shrinking cities in China and discussing the planning paradox in the filed in China. Part II is for analyzing shrinking cities from regional perspective, with Chap. 2 for Hunan Province, Chap. 3 for Beijing–Tianjin–Hebei Region and Yangtze River Delta, Chap. 4 for Jilin Province, and Chaps. 5 and 6 for Northeast China. Part III is

for the case studies in shrinking cities in China, with Chap. 7 for Yichun, Chap. 8 for Qiqihar, Chap. 9 for Dongguan. In Part IV, we include photograph from the photographer for a more visual show for shrinking cities in China as Chap. 10. We also introduce three media reports related to shrinking cities in China in Chaps. 11–13.

Potential readers may range from researchers and students with a background of urban planning, urban geography, urban economics, urban sociology or urban design, practitioners in urban planning and design, to those who are interested with the other facets of urbanizing China.

Beijing, China
Nanjing, China
November 2018

Ying Long
Shuqi Gao

Acknowledgements

This book is based on collective wisdom of multiple authors, who enthusiastically contributed their insights and time to help more people to understand shrinking cities in China. We applaud these authors' alert and braveness on paying close attention to the issue of shrinking cities, which is so-far politically unacceptable and academically undervalued in China. We also appreciate their collaborative attitude toward the editing process that requires them to provide personal information, publishing agreement, and multiple revisions of former drafts.

We would like to thank the publishers that permit the authors and us to translate and modify some of this book's chapters that have been published in Chinese. The publishers include the Modern Urban Research (Chap. 3), Human Settlements in West China (Chap. 4), Planners (Chap. 6), Urbanism and Architecture (Chap. 8), YIXI (Chap. 12), and The Paper (Chap. 13).

In addition, we are grateful to the National Natural Science Foundation of China that grant us a funding for researching Chinese shrinking cities and publishing related literatures including this book.

Finally, we are in great debt to Springer editors, Lisa Fan, Morgan Ma, and their colleagues who guide us the way to publish this book.

We are also grateful for the financial support of the National Natural Science Foundation of China (No. 51778319) and the MIT MISTI funding (Shrinking Cities in the US and China: A Transnational Comparison).

Contents

Part I The Overall Picture of Shrinking Cities in China

- 1 Shrinking Cities in China: The Overall Profile and Paradox in Planning** 3
Ying Long and Shuqi Gao

Part II Looking into Shrinking Cities from Regional Perspective

- 2 A Multi-scaled Analysis of the Shrinking Population in a Region with Out-Migration: A Case Study of Hunan Province** 25
Kai Zhou, Yan Yan and Fangfang Qian
- 3 Urban Shrinkage in the Beijing-Tianjin-Hebei Region and Yangtze River Delta: Pattern, Trajectory and Factors** 43
Kang Wu
- 4 Research on the Spatial Distribution and Influencing Factors of Shrinking Cities in Jilin Province** 63
Yongjian He and Lin Yang
- 5 Space-Time Analysis and Factors Attribution of Urban Shrinkage in Northeast China** 83
Jiahui Fan
- 6 Recognition, Analysis, and Corresponding Strategies for Shrinking Cities in Northeast China** 103
Shuqi Gao and Ying Long

Part III Case Study

- 7 Shrinking Cities' Depopulation Process and Spatial Pattern: A Transnational Comparison Between Yichun, Heilongjiang, China, and Youngstown Metropolitan Area, US** 125
Shuqi Gao
- 8 Analysis of the Variation in Quality of Street Space in Shrinking Cities Based on Dynamic Street View Picture Recognition: A Case Study of Qiqihar** 141
Zhi Li and Ying Long
- 9 Measuring Growth and Shrinkage in a Rapidly Urbanized Area: The Case of Dongguan** 157
Xun Li and Zhiwei Du

Part IV Media Report

- 10 Freezing Land** 173
Ronghui Chen
- 11 Urban Shrinkage in China: A Look at Three Northeast China Cities** 191
Yun Wang
- 12 While We Are Talking About Urban Expansion and Economy Growth of China, Have You Ever Noticed the Phenomenon of Shrinking Cities?** 213
Ying Long
- 13 Learning About Northeast China from the Close-up View of Shiling Town** 241
Ying Long

Editors and Contributors

About the Editors

Ying Long is an Associate Professor in the Department of Urban Planning at Tsinghua University in Beijing, China. His research focuses on urban planning, quantitative urban studies, and applied urban modeling. He has an education background in both environmental engineering and city planning. Before joining Tsinghua University, he has worked for Beijing Institute of City Planning as a senior planner for 11 years. Familiar with planning practices in China and versed in international literature, Dr. Long's academic studies creatively integrate international methods and experiences with local planning practices. He has published over 100 journal papers and led over 20 research/planning projects. Dr. Long is also the founder of Beijing City Lab, an open research network for quantitative urban studies.

Shuqi Gao is a Lecturer in the Department of Urban Planning at Southeast University's School of Architecture in Nanjing, China, specializing in the fields of planning for shrinking cities, fixing physical disorder, and urban redevelopment. He graduated from Tsinghua University with doctoral degree in urban planning on 2018. From 2016 to 2017, he was a visiting doctoral student at Massachusetts Institute of Technology's Department of Urban Studies and Planning, where he delved into the research of corresponding strategies for shrinking cities in the US. He has published several papers that related to the topic of shrinking cities on top planning journals in China. He has several working papers also on the field of shrinking cities and are supposed to be published on English planning journals.

Contributors

Ronghui Chen is a Chinese photographer and storyteller based in Shanghai, whose work focus on China's urbanization in long-term projects. He has devoted himself to the study the relationship between China's urbanization and individual's experiences. Known for his specific interest in these social issues, he had published his first collection of photographs named *Chen Ronghui*, which is one of the books among China's Contemporary Photography Catalog. His projects have brought him many awards, including World Press Photo prize, Three Shadows Photography Award & ALPA special prize, and Hou Dengke Documentary Photography Award. Outside of his own professional practice, Chen also acts as the head of the visual department in Sixth Tone, which is a Shanghai local English-language digital publication.

Zhiwei Du received his Ph.D. degree in Human Geography from the Sun Yat-sen University, Guangzhou, China. He is an Assistant Professor in the Guangzhou Institute of Geography, specializing in the fields of regional development and city planning, urban growth and shrinkage. He is managing two selected research projects from the National Natural Science Foundation of China and the GDAS' Special Project of Science and Technology Development.

Jiahui Fan is a postgraduate student majoring in urban and rural planning in College of Architecture and Urban Planning of Tongji University. She specializes in the fields of regional and urban space development. Particularly, she studies on issues about the urban spatial structure performance, regional and urban networks, and peri-urbanization. Besides, the interest in urban shrinkage motivates her continuously to remain focused and actively to conduct relevant research. She finished the bachelor degree of urban planning in Harbin Institute of Technology (2011–2016).

Yongjian He is an Associate Professor in the Department of Urban and Rural Planning in School of Architecture, Tianjin University in Tianjin, China, specializing in the fields of regional and overall urban planning. He was bachelor in the Department of Economic Geography and Regional Planning in Nanjing University and Ph.D. in Urban Planning of Tianjin University. He has been engaging in teaching and research on regional and overall urban planning, also hosting and participating in a number of practice projects. In recent years, he began to pay close attention to research on shrinking cities, including their development characteristics, mechanism and planning strategies. His study's objects mainly concentrated in the northeast of China, Tianjin, Gansu, and other regions. Besides, preliminary research results have been published in succession.

Xun Li is the director of urbanization institute and a Professor of School of Geography and Planning, at Sun yat-sen university, Guangzhou, china. his research interests include urban and rural planning, urban growth and shrinkage, regional integration, urban renewal, etc., he conducts several-related researches funded by the national natural science foundation of china, entitled "urban growth and

shrinkage in the pearl river delta region under the new normal circumstances” and “city integration and rescaling: comparative research of guangzhou-foshan, shenyang-fushun, and chang-zhu-tan”, and so on.

Zhi Li is a Graduate Student of School of Information at University of California, Berkeley, focusing on data science. He got his master’s and bachelor’s degrees in Architecture at Tsinghua University, where he did researches about the application of data science in city and regional planning, which is also his main academic interest. Now, he is continuing his studies and researches in this interdisciplinary field at UC Berkeley, aiming to acquire a better understanding of cities using state-of-the-art techniques like big data, deep learning, etc.

Fangfang Qian is a Postgraduate Student from School of Architecture, Hunan University, specializing in the field of urban and regional planning. She is also a volunteer of Shrinking City Research Network of China (SCRNC) and participant of the first seminar in Guangzhou. She worked on researches of China’s shrinking cities, investigating the Leng Shuijiang City as an example. She conducted quantitative analyses regarding the shrinking population phenomenon at multiple geographical scales, from provincial to township, in Hunan Province in central China.

Yun Wang is a journalist at The Paper. She graduated from Fudan University and worked in Dongfang Morning Post for quite a few years before joining The Paper. She has covered various issues and started her interest in covering shrinking cities since the late 2016.

Kang Wu is an Associate Professor in the Department of Urban Economics and Public Affairs at Capital University of Economics and Business in Beijing. Dr. Wu’s research interests include urban economic geography and planning. His most recent research focus on polycentric city regions and urban networks, urban big data analysis, and shrinking cities in China. Dr. Wu has published more than 40 peer-reviewed papers in geography and planning journals, he is the Executive Director of Beijing Key Laboratory of Megaregions Sustainable Development Modelling and also as an associate director of Beijing City Lab.

Yan Yan is a Master’s Student in the School of Architecture of Hunan University, studying urban and rural planning. During the postgraduate study, she set about the research on the localization of international “Shrinking City” theory. Her study selected Hunan Province, which is a province with a large population output, as a regional research object. Through quantitative analysis and qualitative induction, its shrinking cities were discovered while the contraction mechanism was explained. Finally, Under the framework of this subject, she took the new requirements of the age of population contraction as the origin to ponder the key issues of urban planning with systematic and strategic thinking.

Lin Yang is an urban planner from company of Arcplus East China Architectural Design & Research Institute, Shanghai, China, who is engaging in urban design and micro-community regeneration. She graduated from School of Architecture, Tianjin University, working on issues related on shrinking cities and urban renovation. Her hometown is also a shrinking one which used to be one of the ten major coal-mining cities in China. She expected to call for more scholars and experts from different fields to form a cluster strength to realize the revival of her hometown.

Kai Zhou is an associate professor in urban planning, Head of Urban Planning Department of Architecture School in Hunan University, China, specializing in the field of regional and urban planning. He works on understanding shrinking cities in China's rapid urbanization, analyzing social justice issues in planning decision-making, and developing effective ICT tools for public participation. He holds degrees from Nanjing University and the University of Manchester.