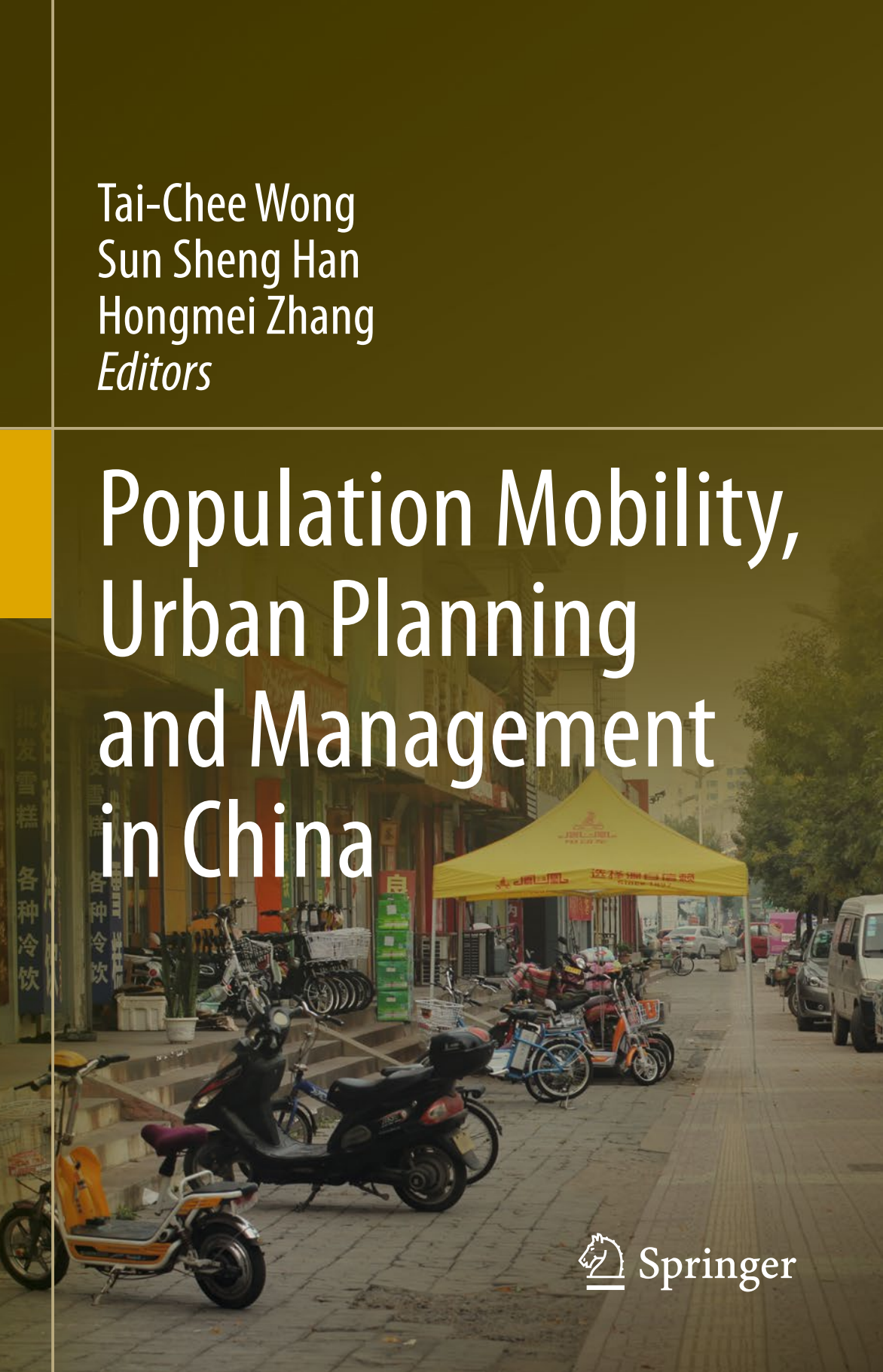
Tai-Chee Wong
Sun Sheng Han
Hongmei Zhang
Editors

Population Mobility, Urban Planning and Management in China



Springer

Population Mobility, Urban Planning and Management in China

Tai-Chee Wong • Sun Sheng Han
Hongmei Zhang
Editors

Population Mobility, Urban Planning and Management in China

Preface by Richard LeGates

Springer

In Association with Guizhou University of Finance and Economics, College of Resource and Environmental Management

Editors
Tai-Chee Wong
Guizhou University of Finance and Economics
Guiyang City, China

Sun Sheng Han
University of Melbourne
Parkville, Victoria, Australia

Hongmei Zhang
Guizhou University of Finance and Economics
Guiyang City, China

ISBN 978-3-319-15256-1 ISBN 978-3-319-15257-8 (eBook)
DOI 10.1007/978-3-319-15257-8

Library of Congress Control Number: 2015935748

Springer Cham Heidelberg New York Dordrecht London

Cover illustration: A commercial street in a county town in Shandong Province, China (photograph by Sun Sheng Han).

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media (www.springer.com)

Preface

Tai-Chee Wong and Sun Sheng Han and the authors of selections in this groundbreaking anthology have made a major contribution to understanding the current status and probable future of urbanization, urban planning, local governance and urban finance in China. In addition to a wealth of current information, this anthology makes significant theoretical and methodological contributions. Even well-informed China-planning-watchers will find a wealth of new information and original interpretations that shed light on this important, complex, and rapidly changing subject matter.

Nineteen articles provide a rich range of content, methods, and theory. While the selections are grouped into Parts on "Population Mobility and Urbanization", "Spatial Planning", and "Management Approach", as Wong and Han point out, changes in the different areas are closely related to each other and change in one area impacts others. The introductory chapter by Wong and Han synthesizes main themes and illuminates the interconnections. Patterns of migration, urbanization at different scales, economic development, changes in the boundaries and authority of different administrative units, and the division of authority and finance between the central and local governments in China have changed and continue to change rapidly. Wong and Han's introduction does a masterful job of placing the current situation in historical context and synthesizing information on new developments and emerging trends.

The contributions are varied, but have one thing in common. All address significant issues that are critical now and likely to be even more critical in the future. While overall China's modernization and economic development are a success unparalleled in human history, they have created many urban problems. The Chinese leadership is able to quickly change urban-related policies and is committed to a "new style" of urbanization in the future that will address many of China's current urban problems. Pragmatism—"Crossing the river by feeling the stones"—occurs at every level.

In a country as large and varied as China, national-level generalizations do not capture reality on the ground. Another strength of this anthology is the wealth of

concrete, detailed information on conditions in different regions of China. Throughout the book there is a great deal of up-to-date empirical information, much of which is from the authors' own work or available only in scattered Chinese sources. Notable new research includes chapters on changes in migrant behavior (Wang and Maino), Beijing's "ant tribes" (Gu, Sheng, and Hu), and the role of rural towns (Zhao and Zhang).

Until recently too much of China's past scholarship about urban planning and policies was driven by ideology unrelated to implementation. In contrast, the selections in this book are written in the best spirit of "scientific" policy-oriented planning and policy making: data-driven, objective studies that describe shortcomings honestly and propose workable solutions. Readers will find constructive criticisms and innovative ideas for improvement in many areas: allowing some slums to remain or emerge, making Hukou statistics better represent reality, improving strategies to reduce spatial and class disparities, better managing peri-urban regions, reducing cities' carbon emissions, integrating planning of China's mega regions, fostering green urbanism and environmentally-friendly transport plans, making better policy for locating affordable housing, improving public services for rural towns, and a host of others.

In addition to Wong and Han's introductory chapter, a number of the selections take the form of broad syntheses of the existing literature and existing secondary data about a topic, plus the author's own recommendations. These include syntheses and policy recommendations about the wisdom of "slumless cities" (Wong), varied patterns of development in the peri-urban regions around Chinese cities (Yang, Day, and Han), a typology of China's mega regions and recommendations for better institutional integration of planning for them (Han), regionalizing urban development in order to improve environmental planning (Chung), China's land trading policy (Ye and Qin; Han and Wei), management of Beijing's urban villages (Liu), financial management and support for small town development in Western China (Zhang and Zhu), citizen participation (Tian and Zhu), and real estate management in China (Han and Liu). These prove excellent introductions to the most important urban challenges China faces.

Other of the contributions are case studies: one of the best social science methodologies for providing in-depth understanding that cannot be captured in secondary data or survey research. Case studies include examinations of foreign direct investment (FDI) in Suzhou (Kim), sustainable transport planning in Guiyang (Wong), characteristics of residential housing in Nanjing (You, Wu, and Han), and citizen participation in Yangzhou (Tian and Zhu).

Zhao Min and Zhang Li's study of the role of towns in Chinese urbanization is a good example of good methodology. Zhao and Zhang based their chapter on a combination of macro-level secondary data analysis and survey research exploring how individuals and household migrants' opinions and behaviors impact their decisions about where family members live and work. As Chinese statistics become more reliable, market socialism allows a much wider range for individual choice, and as decentralization increases differences in subnational government policies, more

research using mixed methods like this kind of macro-level structural data analysis and micro-level examination of individual and household choices is possible.

There is a lot of good comparative research in these selections. The current generation of China-born scholars has increasing mastery of the Western planning literature and the selections draw on the best current Western scholarship. They also make contributions to global understanding by illustrating differences between urbanization and urban plans and policies in China and other countries. Qin Bo and Wu Jianfeng's chapter on CO_2, emissions for example extends the global debate on density and CO_2 emissions. Western scholars such as Peter Calthorpe have long argued that in the age of urbanism higher average densities are the key to reducing CO_2 emission. David Owen argues that cities should be "more like Manhattan": America's densest city where per capital greenhouse gas emissions are lowest. Qin and Wu's finding that CO_2 emissions in China do, in fact, increase with urbanization, but that this impact tends to be weaker when urbanization is higher is significant for China, and other countries worldwide. Western contributors knowledgeable about China also pioneer the kind of comparative research that can benefit scholars in different countries. Van Dijk's chapter comparing Chinese and European eco-cities is a notable example.

San Francisco State University
San Francisco, CA, USA
November, 2014

Richard LeGates

Acknowledgements

The editors wish to thank the chapter contributors for their support and cooperative efforts in making this volume another useful contribution to the world on the understanding of contemporary China's rapid urbanization, growth patterns and the accompanying unique features. Special gratitude must go to the President of Guizhou University of Finance and Economics, Mr. Chen Houyi, and Dean of the College of Resource and Environmental Management of this University, Ms. Xu Zhuyan, for their encouragement and generous support. We are also indebted to Ole Fryd, Kevin O'Connor, Chen Kang, Fan Gangzhi, Ross King, H Detlef Kammeier, and Richard LeGates, and some chapter authors for their contribution to reviewing the chapters and providing constructive comments for improvement. Moral support from Wu Fulong, Cindy Fan as well as Gu Ming, Luo Tianyong and Shan Xiaoya of Guizhou University of Finance and Economics was moreover gratifying.

Contents

Editors and Contributors

Editors

Hongmei Zhang is Vice Dean and Professor of Guizhou Institute for Urban Economics and Development, Guizhou University of Finance and Economics. She is leader in research teams and projects in financial assessment and management areas such as comprehensive evaluation, management optimization, forecasting and decision-making, and data analysis of development issues. Over the last five years, she has won over one million Yuan worth of research funding for 10 projects including those sponsored by the national government, and has published more than 30 academic papers and two academic books. She has also been selected by Guizhou provincial government to serve as a specialist consultant in its bureau for decision-making services.

Sun Sheng Han is Professor of Urban Planning in the Faculty of Architecture, Building and Planning at the University of Melbourne. His research focuses on urban economic and spatial changes in the Asia-Pacific region. He has published widely in urban studies journals, and is co-author of *The Theory and Practice of TOD in China* (China Transportation Press 2010, in Chinese). He is also the leading editor of *Towards Low Carbon Cities in China: Urban Form and Greenhouse Gas Emissions* (Routledge 2015).

Tai-Chee Wong received his Ph.D. from the Australian National University. He is currently employed as Distinguished Professor at Guizhou University of Finance and Economics, China. His main research interests are in urban and regional issues on which he has published widely in international journals such as *Environment and Planning A, Land Use Policy, Habitat International, Urban Policy and Research,* and *Geographical Review*. Among his 13 self-authored and edited book volumes, the two most recent ones are: T-C Wong & Jonathan Rigg (eds), Asian Cities, Migrant Labour and Contested Spaces (Routledge, London 2010); and T-C Wong & Belinda Yuen (eds). Eco-city Planning: Policies, Practice and Design (Springer, Dordrecht 2011).

Contributors

Bo Qin is Associate Professor of the Department of Urban Planning and Management, Renmin University of China. His research interests include internal spatial restructuring in transitional cities, peri-urbanization, and low carbon city planning in China. He has published numerous articles in both international referred journals such as *Urban Studies*, *Habitat International* etc., and Chinese urban studies journals. He is also the author of *The Location-choice of Firms and Urban Spatial Restructuring: A Case Study in Shanghai* (China Architecture and Building Press 2012, in Chinese).

Calvin King-Lam Chung is a Ph.D. student in the Bartlett School of Planning, University College London. His research interests concentrate on the transformation of urban spaces in Greater China, with particular focus on spatial planning initiatives for environmental and social sustainability. He has contributed to collaborative journal article publications in *Environmental Monitoring and Assessment* and *International Development Planning Review*.

Chaolin Gu is Professor of Urban Planning in the School of Architecture at Tsinghua University. His research expertise includes urban and regional planning, regional economics, and urban geography in China. He has published 26 monographs and more than 340 papers since 1986. His recent publications include "Beijing: Socialist Chinese Capital and New World City" in Stephen Hamnett and Dean Forbes edited Asian Cities: Risks and Resilience (Routledge 2011), and "Transformation of the urban spatial structure under a service economy: the case of Beijing" in Anthony G O Yeh and Fiona F Yang edited Producer Services in China (Routledge 2013). He is a member of the Science and Technology Committee, Ministry of Housing and Construction, and sits in the Expert Panel for China's National Development and Reform Commission (NDRC).

Hai Zhu obtained his Economics degree from Jilin University of Finance and Economics, Changchun, China in 2013. He is presently a master's student in College of Finance, Guizhou University of Finance and Economics. He has worked as research assistant and has published recently a joint paper entitled "The Study of Comprehensive Evaluation of the Level of Development of Urbanization in Western China".

Han Wen received her master's degree from the School of Finance, Southwestern University of Finance and Economics, China. She is Associate Professor lecturing at Guizhou University of Finance and Economics. Her main research interests are in the theory and practice of finance and insurance. Her recent publications have appeared in *Zhejiang Finance, Communication of Finance and Accounting,* and *Journal of Anhui Agricultural Sciences* (in Chinese). She also has two recent co-authored books published by Economic Science Press, Beijing 2012, on early warning of financial risk and price forecast and by Atlantis Press, Paris, 2014 on property insurance and business.

Hao Wu is Senior Lecturer in Property at the University of Melbourne Australia. He has conducted research relating to property markets and cycles in China and Australia. His research interests include valuation, economics, institutions, and sustainable urban growth.

Hyung Min Kim is a Lecturer in the Department of Urban Planning and Design at Xian Jiaotong-Liverpool University. He received his Ph.D. from the University of Melbourne. His research interest is on economic and spatial dynamics of the Asia-Pacific cities. His current research project focuses on globalizing Chinese cities. He has published in international journals such as *Cities*, *Progress in Planning*, and *Habitat International*.

James Maino was an Honours student in the Department of Resource Management and Geography at the University of Melbourne, Australia. His research areas are migrant workers and urban labour market.

Jennifer Day is a Lecturer in Urban Planning at the University of Melbourne. Her recent work has focused on the economic welfare outcomes for families subject to involuntary resettlement in Shanghai, drivers of economic growth in Indonesian cities and South Asian cities, the decline of the traditional media and the associated outcomes for public participation in urban planning decisions in the USA, and the adherence to economic development policies in Melbourne, Australia. She regularly consults as a urban economist for the World Bank on issues of urbanization and economic development.

Jia You received her Ph.D. from the University of Melbourne, Australia. She is Lecturer of property studies in the Southeast University in Nanjing, China. Her research interests include housing economics, real estate development and property management.

Jianfeng Wu is an Assistant Professor at School of Economics, Fudan University. He studies regional and urban economics, and has published several academic papers in international journals such as *China Economic Review*. He received his Ph.D. in 2009 from the National University of Singapore and has been at Fudan University since then. He was the Principle Investigator of the research project, *The Spatial Evolution of Industrial Activities in China*, sponsored by National Science Foundation of China, 2010–2013. He was one of the key researchers on the project *The Studies on China's Urbanization*, sponsored by the Ministry of Housing and Urban-Rural Development of PRC, 2009.

Li Zhang is currently Professor of School of Social Development and Public Policy at Fudan University, Shanghai. His research areas include migration, urbanization, and regional development in China. He is the author of China's limited urbanization: under socialism and beyond (Nova Science Publishers, New York, 2004). He has also published a large number of articles in international journals,

including *China Quarterly, Cities, International Journal of Urban and Regional Research, Urban Studies, Geoforum, Habitat International, International Regional Science Review, Asian Survey, Regional Studies,* and *China Economic Review*.

Li Zhang is Associate Professor of Urban Planning in the College of Architecture and Urban Planning, at Tongji University. His research focuses on China's urbanization, strategic spatial planning, and rural development. He has published widely in both English and Chinese journals, and received excellent paper awards from the Urban Planning Society of China. He is co-editor of *New Urbanization: Transformation and Countermeasures* (Tongji University Press, 2014), and is currently working on *Contemporary Chinese Urbanization: Demographic, Spatial, Economic, and Social Trends Since 1978* to be published by Edward Elgar Press in 2015.

Lingqian Hu is an Assistant Professor in the School of Architecture and Urban Planning, University of Wisconsin–Milwaukee. Her research interests include transportation planning and policy, land use, and urban economics.

Longbin Zhu obtained his Ph.D. from the Habitat Unit, Berlin Technical University, Germany. He worked many years as senior technical advisor and project manager for German Technical Cooperation Program. He was involved in a number of international development cooperation projects including Urban Upgrading Strategy of Yangzhou (Cities Alliance), Sino-German Sustainable Urban Development Programme (GTZ), Low Carbon City (ISC) etc. He is now Professor of Urban Planning at Nanjing Tech University, China, and Director of Eco-city Research Institute. His main research interests are in urban ecological planning and design, green architecture, old city rehabilitation, and community development planning, on which he has published widely.

Mark Y.L. Wang is Professor in the School of Geography at the University of Melbourne. He is the author of *Mega Urban Regions in China* (China Ocean 1998), the co-author of *China's Transition to a Global Economy* (Palgrave McMillan 2002), *China's Urban Space* (Routledge 2007), *Old Industrial Cities Seeking New Road of Reindustrialisation* (World Scientific 2014) and co-editor of *Towards Low Carbon Cities in China* (Routledge 2015), *Transforming Chinese Cities* (Routledge 2014), and *Urban China in the New Era* (Springer 2014). He is also credited with numerous articles in a range of geography, migration and urban studies journals.

Meine Pieter van Dijk (Ph.D. Economics Free University Amsterdam) is an economist and Professor of Water Services Management at UNESCO-IHE Institute for Water Education in Delft, Professor of Entrepreneurship at Maastricht School of Management (MSM) and Professor of Urban Management at the Institute of Social Studies (ISS) and at the Institute of Housing and Urban Development Studies (IHS) of the Erasmus University in Rotterdam (EUR), all in the Netherlands. He is

member of the research schools CERES and SENSE. He worked on and in developing countries since 1973 and as a consultant for NGOs, the Asian Development Bank, the Inter-American Development Bank, the World Bank, different bilateral donors and UN agencies.

Min Zhao is Professor of Urban Planning in the College of Architecture and Urban Planning, at Tongji University. He researches into several urban planning and related fields including urban economics, urban sociology and urbanization. He has published more than 100 articles in urban planning journals, and won several excellent paper awards from the Urban Planning Society of China. He is one of the frequently cited authors in urban studies in China. His two most recent books are: *The Provincial Strategies on Urbanization* (South-East University Press, 2012) and *Planning Evaluation on Urban Major Spatial Developments: Method and Practice* (South-East University Press, 2013).

Mingjie Sheng is a Ph.D. candidate in urban planning at Tsinghua University. She holds a bachelor's degree in architecture from Tsinghua University. Her research focuses on urban social space. She has published five articles in academic journals such as C*ity Planning Review, Human Geography,* and J*ournal of Urban and Regional Planning*.

Qianli Wei completed her degree of Master of Urban Planning from the University of Melbourne in mid-2013. She is a Research Assistant at the Beijing Urban Development Institute. Her current research focuses on "The decentralization of non-core functions of the Capital City-Beijing", "The strategic positioning of Beijing in the context of Beijing-Tianjin-Hebei collaborative development", "The protection of landscape and culture heritage of old Beijing", and "The new urbanization in Hebei province".

Ran Liu won her Ph.D. from Nanyang Technological University and is a Lecturer in Urban Geography in the College of Resource Environment and Tourism, Capital Normal University, Beijing. Her research interests focus on low-income housing and neighborhoods, low-income groups' residential mobility following (re)development-induced displacement, urban informalities, and floating population's residency rights in transitional and globalizing cities in China. She has published papers on Beijing's "urban village" (chengzhongcun) issues in *Environment and Planning A* (2012), *Asia Pacific Viewpoint* (2013), and some Chinese journals.

Ting Tian received her master's degree from College of Architecture, Nanjing Tech University, China. Recently, she completed a graduate program at College of Architecture, Munich University of Applied Sciences, Germany. She is currently employed as Lecturer at College of Resource and Environmental Management, Guizhou University of Finance and Economics, China. Her research areas include urbanization, heritage management and public participation in old city regeneration.

Xiaoxi Liu graduated with an Economics degree from Shandong Institute of Economics in 2011. She is currently a master's graduate student in Guizhou University of Finance and Economics, China. She has worked as a research assistant, and her main research direction is in analysis and management of credit risks.

Xin Yang is a Ph.D. candidate in the Faculty of Architecture, Building and Planning at the University of Melbourne. Her thesis examines residential location choice and travel pattern associated with new town development in China's urban periphery using a case study in Kunming city, Yunnan Province.

Yumin Ye is Professor and former Chair of the Department of Urban Planning and Management, Renmin University of China. Her research focuses on urbanization, coordinated urban-rural development, and peri-urban planning in China. She has published widely in top Chinese economics and urban studies journals. She is also the leading author of *Coordinated Urban and Rural Development in China: Learning from Chengdu* (Edward Elgar Press 2013) and *The Pathway of Urbanization in China* (fifth version, Commercial Press 2011, in Chinese).

Chapter 1
Population Mobility, Urban Planning and Management in China: An Introduction

Tai-Chee Wong and Sun Sheng Han

Abstract Pre-reform and post-reform are two distinct periods symbolizing a sea change in China's urban landscape. Over the last three decades, this great nation has witnessed massive population mobility, dramatic urban expansion and high rates but also highly inflationary economic growth. This dynamic process has mobilized a great diversity of development strategies, urban planning skills, and management expertise to respond to economic reforms and to make modernization work. A series of chain activities has in consequence combined population mobility, urban planning and management effects, taking place vigorously across China's cityscape. It is this strong academic interest initiated by a unique and peculiar growth-led urbanization in China that this introductory chapter has presented the essence of 19 valuable contributions from highly qualified authors.

1.1 Introduction: Background of Urbanization in China

From the mid-1950s to 1978, cities in China were tightly controlled in physical and population size and peasants were kept attached to land producing food and basic necessities to support the proportionally small urban population regulated by a ration system (Liu et al. 2012; Zhang 2011; Hald 2009). This "illusionary rural–urban equilibrium" was maintained by an ideology-driven egalitarian model characterized by little mobility, be it intra-city, intra-national or transnational in

T.-C. Wong (✉)
College of Resource and Environmental Management, Guizhou University of Finance and Economics, Guiyang 550025, China
e-mail: taicheewong@yahoo.com

S.S. Han
Faculty of Architecture, Building and Planning, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: sshan@unimelb.edu.au

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_1

magnitude. The *hukou* residency system which was legislated in 1955 to restrict rigidly mobility between registered places of residence served well the prevailing heavy industry-driven industrialization in the cities led by the Marxist-indoctrinated working class. Peasants' rural–urban migratory flows were seen as "undesirable" (Chan 2010), and perhaps a destabilizing factor to the anti-revisionist "Cultural Revolution" launched by Mao which lasted 10 years from 1966 to 1976.

Mao's "politics in command" development priority was quickly replaced by pragmatic, developmental and pro-growth leaders in post-Mao China after 1978. What has followed thereafter is however a complex pattern and pathway of urbanization, influenced by a mix of and multiple responses to the world situation from within and without the absolute centrally controlled economic system. Within this system, urbanization followed a planned pathway on local and national scales. A case in point is the rural–urban division of spatial and economic functions in cities and regions. Adopted from the 1950s under heavy Marxist indoctrination aimed at minimizing rural–urban disparity, the Chinese government incorporated into its emerging planned economy a spatial division of cities into urban districts and rural counties, and a sectoral division of its population into agricultural and non-agricultural. Residents were given a non-interchangeable residency status whereby peasants' from rural counties are not allowed to shift freely to urban districts within the same city. In this sense, urbanizing Chinese cities means "urbanization from within" the planned economy by transforming rural counties into urban land use and its people into a non-farm livelihood and urban lifestyle.

In terms of from without, it is the accumulated experimentation of what would work and what would not work in the course of testing Deng's socialism with Chinese characteristics which allows the ruling Communist Party a firm control of the country under reforms. Economic priority policy has assimilated key elements of market-led neoliberal measures to facilitate growth, and cities are perceived as centres of wealth creation (Henderson 2009; Wu 2007a). International trade, science, technological and educational advancement, domestic and foreign investments, and mobility of rural surplus labour are all indispensable to bring about a sea change to a once relatively "stalemate" pre-reform society.

What has followed over the last three decades in China is massive population mobility, basically rural–urban bound, urban expansion, high rates but also highly inflationary economic growth. This dynamic and exciting process has called upon the application of development strategies, administrative reforms, urban planning skills, and management expertise to play their respective role in making modernization work. This process of change has seen the emergence of a series of chain activities that combine population mobility, urban planning and management. Their strong relationship is reflected in the form of causes and effects, interwoven and vigorously at play across China's cityscape. It is the dynamics of this intriguing interplay initiated by a unique and peculiar growth-led urbanization in China that have drawn the focus of this book volume.

1.2 Growth-Led Urbanization: Uprooted Mobility and Urban Movements

With this background, as Deng and his followers saw the great urgency in the late 1970s after Mao's death to expedite China's four modernization pursuits via "reform and open" policy postulated as a key source of economic growth and take-off, cities have been assigned a new role in China's national development (Kwok et al. 1990; Pannell 1992; Han and Wong 1998). As observed by many Chinese urbanization experts including Cui and Ma (1999), Wu (2007a, b), Zhang (2011), urbanization has taken place from both ends. One end is the large cities, and the other is small towns. Despite the on-going debate about containing the growth of China's large cities, they grew at extraordinary speed as a result of urban (enterprise) reforms introduced in 1985, which allowed flexibility in management, finance and labour recruitment (Han and Wong 1994). In the countryside, local counties and peasants capitalized on household responsibility system and the more liberal market as well as investment opportunities provided to achieve local economic development and wealth via rural industrialization. This led to the mushrooming of small towns (Kwok et al. 1990). These two magnets of urbanization have generated in China a massive movement of population by seeking employment opportunities in cities on the one hand, and escaping from rural poverty on the other. As such, the less productive rural labour trapped in tiny per capita farm parcels was transferred into more productive non-farm activities (see Deng et al. 2010; Cui and Ma 1999). Arguably, the viability was also assisted by large rural population exodus providing consumption-based economies of scale that have supported the growth of small towns as well as larger cities in both manpower and demand for goods and services.

On the local scale, urbanization has taken place within the cities and their adjoining areas including suburbs and beyond. The process hinges on transforming and reorganizing land spaces in two key aspects. The first aspect involves urban economic restructuring and change in urban land use functions towards higher value production and output, including expansion and intensification of urban core activities, and moves to the suburbs (Han 2010; Shen and Wu 2013). In their empirical study on China's urban change during the late 1980s and 1990s, Deng et al. (2010) have found that there was a close association between economic growth and urban core expansion measured by gross domestic product. In the suburban expansion of Shanghai, for example, different types of household neighbourhoods have emerged out of different needs from local native residents from central districts and migrants from the largely rural sector. They have established a juxtaposed coexistence in the newly shaped suburban new towns and dynamic spaces (Shen and Wu 2013; Lu et al. 2005). Such a market-led neoliberal suburban housing market has inevitably been dominated by social stratification and spatial disparity in its physical setting.

The second aspect deals with transforming the rural setting into modern urban setting, and the transitional landscape is characterized by dramatic rural–urban conversion of land use and problems in settling "city" peasants into urban occupations. Hasty top-down and strongly enforced land conversion has generated dualistic problems involving "urban villages", a transitional urban form, and compensations to land-losing peasants and their adaptation to urban lifestyle. Specifically, the urbanization scenario is not just about urban expansion encroaching on rural lands but is further complicated by in situ urbanization, also known as "rural urbanization" or "urbanization from below" where rural settlements have transformed themselves into urban or quasi-urban settlements. Here, most of the original residents have stayed on site but have taken up non-farm occupations. Such urbanization process has taken place mostly in densely populated coastal areas. Over the last three decades, about 20,000 small towns and 100 million people have transformed themselves this way (Zhu et al. 2013). In their study of Fujian province, Zhu et al. (2013) found that, due to the increasingly blurred rural–urban distinction and merger of counties in highly populated areas, there is an urgent need to address the issues of new city regions. Changing urban functions have thus emerged in traditional farm-based counties.

Beyond the local scale, urbanization has taken place as a result of endogenous innovation and exogenous transfer of value and people, characterized respectively by fiscal reforms and city-bound migrants from without the cities. From an inflexible centrally managed financial control system, the reforms have used fiscal decentralization to motivate local authorities to promote economic growth. Lin and Liu's (2000) empirical study revealed that over the period 1980–2000, local governments took the decentralization opportunities to improve their economic efficiency via good use of local knowledge, and problem-solving skills. Other advantages cited were: (a) more effective resource allocations with higher level of flexibility and productivity; (b) more responsive and responsible local receiving constituencies; and (c) greater capital accumulation at local level and non-state sector as a result of rural reforms.

Transferring China's extremely large pool of excessive surplus labour in the farm sector engaged in intensive but lowly efficient peasantry has provided pro-growth reformist leaders both hope and worry. In 1978, the Chinese peasantry made up nearly 80 % of the national population in a populous country with a low 18 % urban population (Wong 2011). In terms of hope, uprooting radically the peasantry was a strategy and an imperative to facilitate and mobilize an enormous manpower to support urbanization and urban reforms in a slow but a sure manner. The worry was however their sheer numbers which could eat deeply into the national and municipal welfare budget thinly available during the early reform days. A harsh alternative was taken by reformist leaders to accept their economic input but deny them of their basic rights and welfare in the cities (Chan 2010; Roy 2012).

The urbanization-cum-modernization process such as urban renewal, rural–urban transformation within cities notably in the handling of urban villages, informal settlements housing low-income and low-skilled migrant and native workers again needs to be planned and systematically managed. Conflicts of interests among

stakeholders (developers, peasants, migrants, public authority officials) and lack of expertise and management skills during the early stages have filled the pathway of modernization with much confusion and sometimes violence. Consequently, there have been trials and errors and ups and downs when peasants were released to the cities, and peasants with their farmlands appropriated for built-up infrastructure and construction.

Indeed, urbanization is not just about expansion of urban spaces and mobilizing peasants to support urban activities. It is also about other official concerns as to how to build and provide a prosperous urban image in commensurate with the visionary dream of new Chinese cities (Wu and Yusuf 2004; Ma and Yan 2004). Informal settlements or urban villages in existence within urbanized areas are often seen as "chaotic, dirty and dangerous" places as well as marked by "dismay concentrations of poverty, a tangible manifestation of economic marginality, or as alternative and autonomous urban orders, patched together through the improvisation and entrepreneurship of the urban poor" (Roy 2012: 691; Li and Wu 2013: 23). Their unsightly presence and low potential value returns to prime lands are used as a justification for demolition and exclusion, allowing the state to undertake modern rebuilding and value enhancement, despite that residents in these neighbourhoods may not necessarily be unsatisfied with their living there (see Li and Wu 2013).

Spatial planning, as a soft science, is essentially a tool to bring about spatial changes subject to political decisions, availability of resources and commitments. Where political-economic system has been modified from a fully centrally planned to market-led mechanism, as in China today, urban spatial structures have changed too. For example, the advantages of agglomeration economies have continued to facilitate the growth of large mega-urban regions enjoying strong investment interests, and high level services than smaller cities. Under neo-liberal influences with a firm state control in land use and planning, urban spatial planning outcomes in China are primarily subject to planning regulations, market forces, and investment interests including public infrastructure provisions having an effect on accessibility and land values. Despite all meaningful efforts, well-conceived planning intentions may turn out unforeseen and unintended spatial outcomes (see Bertaud 2004). Deterring factors could be the consequence of lack of implementation/enforcement rigour, resources support, top-down political interference or grassroots protests etc. Nonetheless, once the preset spatial structure is established, it will influence or reduce future available development options.

More recently in China, under international pressure and domestic pressure, environmental conservation and ecological protection have also been placed on the urban development agenda aimed at achieving a more environmentally friendly and sustainable living environment. Building sustainable cities including eco-cities has become no doubt a fashionable mode and planning priority (Wong and Yuen 2011). All these concerns are closely associated with national growth and prosperity, ecologically sound and long-term interest of the country and its population. Finally, urbanization and planning including image building of world class cities with prestigious and visionary imagery has to be met with appropriate management capability of high standards. All three components form the pillar of this book volume.

1.3 Objectives of the Book

The present volume is intended to cover an important component of contemporary urban and regional planning and development studies of a gigantic transitional economy undergoing rapid urban change in spatial, economic and social dimensions. This change within China has asked for drastic state interventions in planning and management measures, the process of which has presented unprecedented challenges and dynamics. The volume will be an added valuable contribution towards a better understanding of the policies and operational mechanisms involving different actors at play in the chain relationship between rapid urbanization, spatial planning and management. The stakeholders include top level policy makers and state planning and management agencies, private developers, consultants, and the planned target groups – users of various urban services, and citizens who use cities to make a living in the formal and the informal sectors.

The grand scale of the state-driven urban development in China has shown that resource allocations and preferences, urban planning, municipal management activities as well as formal and informal, top-down and bottom-up responses have all become a political protocol that commands the operational agenda at national, provincial and local levels today. As the second largest world economy in absolute GDP terms with the largest world population and a rising influence in the world forum, China's rapid urban change will have no doubt an enormous impact on the world politics and economy. With such a tremendous interest, the volume has called upon the participation of highly qualified academics and practicing specialists with rich research and/or hands-on experience. Their familiarity with the urbanization processes, planning and management practices adopted by the Chinese public authorities has provided many insights into the internal dynamics and *modus operandi* found within the current urban conditions in China.

Like all innovative and new undertakings, implementation problems and conflicts between planning decision-makers and targeted recipients are inevitable. Consequently conflict resolutions and remedial measures are always needed in the process, with nevertheless sustainable urbanization set as the ultimate goal. The book's key objectives aim to reflect the following:

- The causes and consequences of rapid urbanization which have led to a series of environmental, economic and social planning and management measures with an aim to achieve quality urban living;
- The operational mechanisms and dynamics that have taken place in the planning and management processes, and conflict resolutions used in resolving land and other disputes; approaches and efforts in adopting latest planning options in city building such as specific urban planning approach in planning large city regions, building cities without slums, constructing new townships, green urbanism including eco-city and sustainable transport; and
- Financial management and support as a means to support urbanization and urban economic growth in less developed regions, and the problems encountered and resolved.

1.4 Organization of the Volume

The edited volume contains a total of 20 chapters. This introductory chapter has provided a broad theoretical background of the contemporary urbanization process in general, and unique Chinese urbanization features in particular as well as an outline of all chapter contributions. The remaining 19 chapters are organized in three parts: (a) Part I: Population Mobility and Urbanization; (b) Part II: Spatial Planning; and Part III: Management Approach. A short account of each chapter is given in the following section.

1.4.1 About the Chapters

Part I: Population Mobility and Urbanization

The first part begins with Tai Chee Wong's chapter on 'Developmental Idealism: Building Cities without Slums in China', showing that pro-growth and image conscious China has continued to use the residency control system to restrict low-wage and low-skilled rural workers from settling down in host cities. Using cities as a growth machine, massive inner city renewals and urban expansion towards city fringes and beyond have already substantially removed traditionally built habitat and replaced with high-rise modern buildings. The chapter indicates that a combination of factors such as pro-market neoliberalism, modernization dream and monopolistic land ownership have given the state the upper hand to test out a model of slumless city conceptualized as good governance. This approach will however force the state to rethink whether rising social disparity can be mitigated by eliminating the visible habitat form of poverty to enhance image and modernist construction.

Li Zhang's chapter on 'Interpreting Definitional Complexities of China's Non-*hukou* Migrants' takes the size of non-*hukou* migrants as the vantage point for understanding China's post-reform socioeconomic dynamics driven by migration and urbanization, and examines the definitional complexities. This chapter provides an in-depth understanding of non-*hukou* migrants, and the specifics of statistical variables used by various bureaucracies to define them, out of a statistical artifact of different definitions. More importantly, one needs to know that the interpretation of various non-*hukou* migrant definitions in transitional China has to be conceptualized within the political economy of migration that monitors closely migrant mobility.

Mark Wang and James Maino's chapter explores migrant behavioral change in China by analyzing a survey dataset constructed in early 2009, which covered 2,543 samples from 143 rural villages in 24 provinces. By closely examining migrant workers' individual characteristics, working history, and home village attributes in the dataset, the study is able to differentiate rural-to-urban migrants from other forms of migration, and identify factors influencing destination choice of workers. The findings show that recent government policy to develop inland regions by

priority have to an extent reduced disparities with the coastal regions. This has an effect on inland migrants' decision in destination choice, resulting in the fall of their flow to cities of eastern coast. Also, distance, age and accumulated work experience are other important factors. As inland migrant workers get older with more working experience, they tend to prefer to work closer to their home villages.

The investigation of 'ant tribes' in Beijing by Gu, Sheng and Hu demonstrates one of the spatial outcomes of urban-rural divide and rapid expansion of the education sector in the Chinese society. In recent years, many low-income new college graduates in Chinese mega-cities, classified as 'ant tribes', have resorted to substandard housing in urban villages to make ends meet. Their two Beijing case studies illustrate the spatial characteristics and effects of the 'ant tribes'. Their findings show that young graduates' choice for substandard built environment is a unique urban phenomenon deeply rooted in China's transitional process characterized by the interweaving pro-growth strategy via higher education expansion and the legacy of an urban-rural divide.

Yang, Day and Han's chapter looks into China's urban peripheries where both urban and rural expansion forces have shaped new town development. They argue that the urban forms emerging in the peripheries are neither monolithic, nor directly molded by formal policy and spatial planning. Instead, they are formed through multiple interrelated processes that are representative of activities from both formal and informal development approaches. Two particular types of peri-urban development are highlighted in the chapter, namely the urban new towns developed from a "top-down," city-centric urban expansion process, and the rural new towns developed from a "bottom-up," rural-centric urbanization process. Both types of urbanization, as the authors argue, should be acknowledged in China's formal planning system, as the "top-down" formal process is not the only legitimate modes for peri-urban development.

Bo Qin and Jianfeng Wu's chapter examines an environmental effect of rapid urbanization in China: how urban concentration affects CO_2 emissions using data across 24 provinces in China over the period 2000–2008. Moving beyond current literature on the relationship between urbanization and CO_2 emissions, this study provides two novel findings. The first is that the degree of urban concentration has a significant corresponding impact on CO_2 emissions. The second is that urban concentration initially contributes to CO_2 emissions but this impact tends to be weaker when the level of urbanization is higher. It implies that the environmental impacts of urban concentration vary across different stages of urbanization. The research suggests that how cities grow and are organized spatially is important in decoupling CO_2 emissions from urbanization and economic development.

The last chapter in Part I by Hyung Min Kim adds in another dimension of urbanization by extending the discussion to foreign direct investment (FDI). Kim notes that to a large extent the Chinese government has relied upon FDI to stimulate economic growth. Using a case study of Suzhou city, Kim has provided evidence that inward FDI, which has expanded massively in China after the opening up policy, is significant to Chinese cities at least in three aspects. First, inward FDI contributes to economic vitality as it is predominantly urban-based production

activities. Second, foreign firms have facilitated rural-to-urban migration, a process that has stimulated urban growth associated with mostly labour-intensive manufacturing contributed by rural migrants. Third, foreign firms have brought foreign nationals to Chinese cities who have created demand for multicultural services and a more vibrant city life.

Part II: Spatial Planning

Part II begins with Sun Sheng Han's chapter on the giant city-regions in China's new urbanization policy. Han believes that the designation of seven giant city-regions in the twenty-first century urbanization of China represents a significant change in spatial configuration of China's economic geography. This chapter examines the planning efforts, the role and type of the giant city-regions, and through policy and planning analysis, it reveals that these urban giants are expected to serve as spatial platforms of China's national development. Four basic types of city-regions are identified featuring spatial dimensions and main forces of formation. Though planning efforts are discernible at three levels, the seven giant city-regions under study have no systematic plans at all the levels. Moreover, no institutional integration is found in the plans and this calls for serious attention of planners and policy-makers. Heavy top-down planning approach is also being queried for its legitimacy and effectiveness.

Calvin King-Lam Chung's chapter examines how the Chinese state has attempted to reassert its control over environmental governance through urban planning with successive rounds of scalar reconfiguration since the 1990s. The chapter shows that along with utilizing the traditional regulatory hierarchies, a green urbanism agenda has been forced in local planning regimes through three forms of upscaling, namely, regionalizing urban development, intensifying intercity competition, and fostering global–local alliances. There is nonetheless limited immediate success, and some new attempts have induced new problems that the Chinese authorities have to deal with in their urban environmental protection measures.

Meine Pieter van Dijk's chapter provides an analysis of the Chinese eco-cities in comparison with European experiences. The chapter shows that many cities have taken initiatives to become more sustainable or ecological cities. However, few efforts have been made to assess critical dimensions such as ecological policies, water management, energy saving, infrastructure policies, and integrated urban management. By discussing eight Chinese and two European eco-cities, the chapter identifies the differences and common challenges in eco-city planning and development. The analysis of the Chinese eco-cities shows that their approach is often neither integrated nor strategically visionary, but focused on one or two sectoral issues such as water cycle, energy saving. Integration could have happened via urban management but it should involve stakeholders in implementing and facilitating ecology-driven initiatives at the city, neighbourhood, building and household levels.

Tai-Chee Wong's chapter contributes to the discourse of sustainable transport planning using Guiyang, China, as an example. Wong believes that unprecedented

urban expansion in many major Chinese cities has resulted in transport load exceeding their carrying capacity. While pre-reform street users (cyclists and pedestrians) have been replaced by fast increasing vehicular traffic, noise nuisance, heavy discharge of pollutants and other adverse effects have required new eco-infrastructure and sustainability measures to deal with such problems. This chapter first examines the feasibility of three basic issues of sustainable transport from the economic, ecological and social equity perspectives. With great hope in promoting green urbanism, Guiyang's karst hilly terrains conditions are however a dilemma, challenging the sustainable transport prescribed in its Masterplan (2009–2020) in consideration of the cost, feasibility and effective use of land space.

You, Wu and Han's chapter turns to the location options of affordable housing as a planning issue where they examine the spatial dimension of housing development using Nanjing, China as a case study. The chapter builds upon classic location theory associated with individuals' locational choices in a competitive housing market. They view that affordable housing is nevertheless treated as a partial public good whose physical and spatial attributes are influenced by the government. This study identifies the location characteristics and explores the forces behind the government's location decisions. After analyzing all the affordable housing projects (2002–2011) in Nanjing supported by policy documents, interviews and project data, the authors conclude that the locational choice is attributable to the local governments' effort to minimize land revenue loss while answering the central government's concern of social equity. Affordable housing locates in accordance with market principles with some adjustment to existing administrative municipal boundaries.

The last chapter in Part II by Li Zhang and Min Zhao discusses the role of rural towns in China's rapid urbanization, using Hubei Province as a case study. Their aim is to recognize the importance of rural towns in China's urbanization. Based on fieldwork in Hubei province where the authors conducted interviews and surveys about the development mechanisms of rural towns, this chapter looks into the industrialization process in rural towns and examines whether or not manufacturing is the exclusive factor that drives town development. It also explores how rural people become urbanized and why they have a strong desire to migrate into rural towns, and the mechanisms underlying flows of rural migrant labourers into and out of urban areas. The findings reveal that urban-bound rural workers faced many obstacles leading to their decision to return to their homelands, especially rural towns. The chapter concludes that rural towns in China which provide basic public services to rural people have served as a bridge connecting villages with cities.

Part III: Management Approach

Part III begins with Yumin Ye and Bo Qin's chapter on 'The diversified models and outcomes of applying the urban-rural land trading policy in China'. The chapter shows that the new urban-rural land trading policy enacted by the Ministry of Land and Resources in 2006 had profound implications on China's urban and rural land

use patterns. This policy is a bold move in institutional change for land-use right transfer between urban and rural users. Though nearly one million villages have applied the policy, its effects are mixed due to differences of local governance, implementation, reimbursement, consideration of residents' willingness. The chapter focuses on the discussion of three different models for applying the "bundling up addition with reduction" (BAR) policy, their implementation mechanism, and diversified outcomes in different regions of China, followed by policy suggestions for improvements.

Han and Wei's chapter deals with another land management issue examining the land trading policy using a case study from Yandu Xincun, Xianghe County, Hebei Province. The research addresses how the land trading policy is implemented, who the main stakeholders associated with its implementation are, and what the impact the land trading policy has been on the in-situ urbanization affecting employment and lifestyle. Based on a field survey, it is found that the policy contributed to significant urban expansion compromising arable land quality. Among the positive and negative effects on the built environment and residents' lifestyle, one end-product of the policy was the promotion of rural non-agricultural employment leading to the return of migrant workers.

Ran Liu's chapter looks into the governance issues relating to the management of urban villages in Beijing. Since the 1980s, Beijing's rural lands have been largely expropriated and transformed formally into modern commercial and residential uses. Many local urban villagers build informal housing to get rental income and to compensate their losses from farm revenues. This chapter questions the public authority's non-compromising practices that give low tolerance to the slum-like informal housing which meets the needs of low-skilled migrants and low-income local residents. The chapter also examines the origins and operational mechanisms of urban informalities in China and compares them with other management styles towards slum areas in Latin America and India.

Hongmei Zhang and Hai Zhu's chapter moves on to study the financial management and support for small town development in Western China, acknowledging that such support is critical in promoting urbanization in the Western region. Literature review has shown that multi-layer financial demands of small towns in China have promoted economic development of small towns and their agglomeration effects. In analyzing the functions and mode of financial operations, the authors suggest ways to improve the present financing system with the hope to promote a healthy growth of small towns in Western China.

The interest of Ting Tian and Longbin Zhu shifts to citizen participation, another aspect of urban conservation management approach. Citizen participation, though started late in China, has an increasing public support. Tian and Zhu first introduces the background and framework of internationally acknowledged principles relating to citizen participation's conservation efforts with reference to China. Based on an in situ investigation of the historic city area in Yangzhou in late 2006, they elaborate with two pilot projects which had involved public-international collaboration, each providing a systematic account of citizen participation experiences, and the participation levels of all stakeholders. The chapter has also made suggestions

aimed at enhancing citizen participation as an instrument to promote sustainable urban regeneration in China.

The final chapter by Wen Han and Xiaoxi Liu discusses real estate management in China with a particular focus on the financing of large-scale projects in cities. The authors recognize that effective response to rising financing demand will help towards constructing a sustainable business ecosystem to break the current bottleneck faced by real estate projects especially large-scale urban complexes. After analyzing and identifying the problems the financial sector faces, the study explores new and innovative financing modes to improve the current system, which include a low-risk, highly efficient and diversified measures with bank loans as the basis of support. Other potential contributory factors essential for building a sustainable business ecosystem include more efficient capital allocation, cost cutting in investment of property companies, and enhancement of agglomeration effects of urban complexes.

References

Bertaud A (2004) The spatial organization of cities: deliberate outcome of unforeseen circumstances? mhjfbmdgcfjbbpaeojofohoefgiehjai/index.html. Accessed 27 Sept 2013

Chan K-W (2010) The household registration system and migrant labor in China: notes on a debate. Popul Dev Rev 36(2):357–364

Cui GH, Ma LJC (1999) Urbanization from below in China: its development and mechanisms. Acta Geograph Sin 54(2):106–115 (in Chinese)

Deng XZ, Huang JK, Rozelle S, Uchida E (2010) Economic growth and the expansion of urban land in China. Urban Stud 47(4):813–843

Hald M (2009) Sustainable urban development and the Chinese eco-city: concepts, strategies, policies and assessments. Fridtjof Nansen Institute, Lysaker

Han SS (2010) Urban expansion in contemporary China: what can we learn from a small town? Land Use Policy 27:780–787

Han SS, Wong ST (1994) The influence of reform and pre-reform policies and Chinese urban growth in the 1980's. Urban Geogr 15(6):537–564

Han SS, Wong ST (1998) Revolution, space and urbanization, the ideological foundation of Chinese urban development. Asian Profile 26(2):91–120

Henderson JV (2009) Urbanization in China: policy issues and options. China Economic Research and Advisory Programme. www.econ.brown.edu/. Accessed 27 Sept 2013

Kwok R, Parish WL, Yeh A et al (1990) Chinese urban reform: what model now? M.E. Sharpe, New York

Li ZG, Wu FL (2013) Residential satisfaction in China's informal settlements: a case study of Beijing, Shanghai, and Guangzhou. Urban Geography online publication: 22 July 2013. 10.1080/02723638.2013.778694. Accessed 8 Sept 2014

Lin JYF, Liu ZQ (2000) Fiscal decentralization and economic growth in China. Econ Dev Cult Chang 49(1):1–21

Liu R, Wong TC, Liu SH (2012) Peasants' counterplots against the state monopoly of the rural urbanization process: urban villages and small property housing in Beijing, China. Environ Plann A 44(5):1219–1240

Lu Q, Wu PL, Lu LX, Wang GX (2005) The relation between the characteristics of the migrants and the economic development in Beijing and the regional differentiation of their distribution. Acta Geograph Sin 60(5):851–862 (in Chinese)

Ma YD, Yan XP (2004) 20 years of reform in Zhuhai: a rational reflection on urban development. Econ Geogr 24(1):67–71 (in Chinese)

Pannell CW (1992) The role of great cities in China. In: Guldin GE (ed) Urbanizing China. Greenwood Press, New York, pp 11–39

Roy A (2012) Urban informality: the production of space and practice of planning. In: Weber R, Crane R (eds) The Oxford handbook of urban planning. Oxford University Press, Oxford, pp 691–705

Shen J, Wu FL (2013) Moving to the suburbs: demand-side driving forces of suburban growth in China. Environ Plan A 45:1823–1844

Wong T-C (2011) Eco-cities in China: pearls in the sea of degrading urban environments? In: Wong T-C, Yuen B (eds) Eco-city planning: policies, practice and design. Springer, Dordrecht, pp 131–150

Wong T-C, Yuen B (2011) Understanding the origins and evolution of eco-city development: an introduction. In: Wong T-C, Yuen B (eds) Eco-city planning: policies, practice and design. Springer, Dordrecht, pp 1–14

Wu FL (2007a) From "state-owned" to "city Inc".: the case of Shanghai. In: Segbers K (ed) The making of global city regions. The John Hopkins University Press, Baltimore, pp 207–231

Wu WP (2007b) Shanghai: the evolution of China's future global city. In: Segbers K (ed) The making of global city regions. The John Hopkins University Press, Baltimore, pp 113–134

Wu WP, Yusuf S (2004) Shanghai: remaking China's future global city. In: Gugler J (ed) World cities beyond the West: globalization, development and inequality. Cambridge University Press, Cambridge, pp 27–58

Zhang L (2011) The political economy of informal settlements in post-socialist China: the case of Chengzhongcun(s). Geoforum 42:473–483

Zhu Y, Lin M, Lin LY, Chen JM (2013) The extent of *in situ* urbanisation in China's county areas: the case of Fujian province. China Perspect 3:43–52

Part I
Population Mobility and Urbanization

Chapter 2
Developmental Idealism: Building Cities Without Slums in China

Tai-Chee Wong

> *Modernism is simply a support of modern ways, and modernity is the condition of being modern, referring to a specific time and place and new social relationships and spatial conditions … [M]odernity is thus associated with industrialization, capitalism, and enlightened social thinking. Each of these has a distinct urban character. (Short 2012: 53)*

Abstract Having inherited a stringent residency control of citizens, China has continued to use the *hukou* system to restrict low-wage and low-skilled rural workers from settling down in host cities. At the national scale, massive inner city renewals and urban expansion towards city fringes and beyond have removed progressively slum-like and rural habitat, replacing it with high-rise modern residential blocks. This chapter is organized into three parts. It first portrays neoliberal wealth creation, modernism pursuit and monopolistic land ownership by the state as key factors that have rendered it possible to build cities without slums. The second part examines the living conditions of migrant workers and their hidden potential to build up slum-like habitat in the cities. The final part relooks at the more inclusive policy measures undertaken to eliminate urban poverty in its physical form, and the image building and modernist dream conceptualized by the state as good governance. But the controversy between physical removal of poverty and rising social disparity remains.

2.1 Introduction

At the eve of the turn of twentieth into twenty-first century, the United Nations Secretary-General, Kofi Annan appealed to all nations to commit themselves to building cities without slums and take it as a form of good urban governance

T.-C. Wong (✉)
College of Resource and Environmental Management, Guizhou University of Finance and Economics, Guiyang 550025, China
e-mail: taicheewong@yahoo.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_2

(see Annan 2000; Tuts 2002). Characteristically, this developmental and idealistic appeal has received implicitly the most enthusiastic response from China in its planning and action plans. Ever since the post-Mao Chinese leaders in the 1980s opted reformist measures with a developmental thought, the "socialism with Chinese characteristics", the new path is purposively interpreted as the "universal truth of Marxism" for ideological legitimacy and conceptual continuity. The content of this ideology was however heavily infiltrated by key neo-liberal production elements of the time as a basis for market-led reforms to modernize Chinese society (see Lim 2014; Brenner et al. 2012). Much of this content is developmental idealism as it is both modernist and utopian in nature.

This modernist urbanization process is portrayed in a hypothetical investigation shown in Fig. 2.1, reflecting the utopian slumless city as an intended final product of "socialism with Chinese characteristics", set as an ideal city planning and development goal. This flow chart can well be explained that modernization herein would be used as a means to expedite economic growth by way of a rapid urbanization process. Strategically and led by the developmental state, China's long-standing rural-dominant peasantry features which had maintained, until the early 1980s, some 80 % of the national population engaged in subsistence farming would have to be uprooted. Uprooting of this peasantry's surplus labour would release an amply

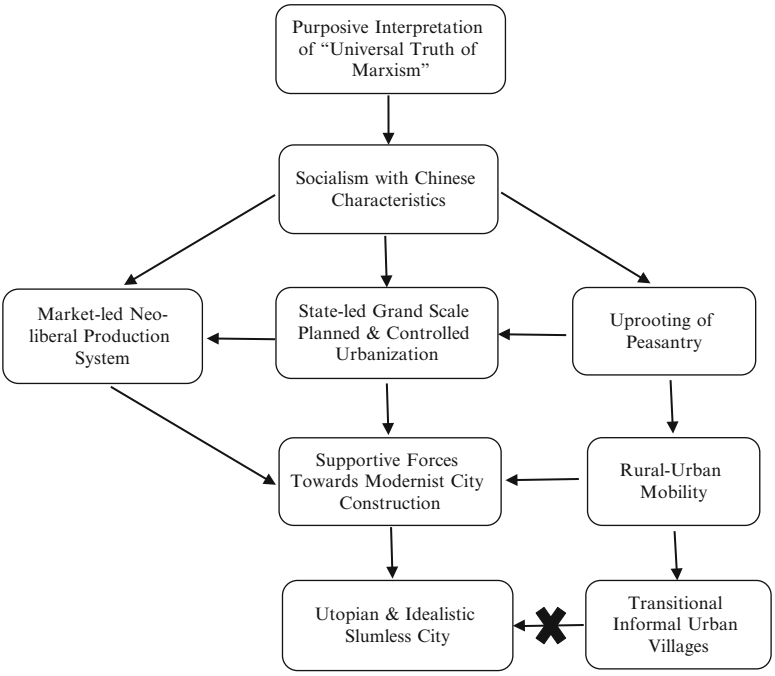


Fig. 2.1 Building Utopian slumless city in China (Conceptualized by author)

available rural labour, acting as a gigantic force to support modernist city construction. However, peasants' presence as migrant workers in the cities is welcome for economic input but excluded for social and political reasons (Zhang 2011; Tang and Yang 2008).

On the top of such considerations, the modernist-cum-image minded state leading an unprecedentedly grand scale urbanization would also see by necessity the control of the physical existence of the overwhelming influx of rural migrants into the cities. First and foremost, in the eyes of the Chinese central authorities, the recurrence of Latin American or Indian style of slum formation in Chinese cities is theoretically unacceptable. While migrant workers' existing rental and traditional habitat in poor-serviced urban villages in and around cities may be tolerated, such habitat is perceived as a transitional and informal one (see Liu et al. 2012), and therefore would not qualify for an ultimate and idealistic slumless cityscape.

This chapter first explores the ways the steadfastly growing Chinese cities are deployed to generate wealth and economic growth as well as centres of modernism with strong influence from neo-liberalism infused into the Chinese socialism. This is followed by investigations into the fate of urban migrant workers who are socially excluded but constitute a powerful economic contributing force in making modernism happen. The final section enquires if migrant workers are really potential slum builders, and re-examines the strong state's latest meticulous approach to rule out slum formation.

2.2 Cities as State-Led Growth and Modernist Centres

Urbanization in reformist China carries a specific modernist mission which needs to radically transform the rural-dominant development path inherited from Mao's era (1949–1978). To the new economic-priority leaders, rural peasantry encompassing the great majority of the national population is not only seen as a social burden but also an obstacle in building up an economic powerhouse and a great nation of international prestige. Recently, Chan (2011) has demystified that China's reformist urbanization drive is founded on the assumption that rural–urban shift would transform subsistence farmers into urban workers with higher incomes and make them a massive consumer class. Such argument is valid as China has already made itself a world factory in producing low-value manufactured goods but this does not support sustainably high GDP growth as and when wages of Chinese labour loses its competitive advantages. Alternatively, higher domestic urban-based demand is seen to be more essential to lead future national growth (Li 2012; United Nations 2011). In practical terms, moreover, the ideal of turning peasants into genuine urban consumer class is expected to take a relatively long time even if the complications of allowing free conversion of peasantry to full right city citizens are resolved by China's centralized state authority.

Amidst the complications from the perspective of the state, the longstanding rural–urban divide institutionalized from the 1950s in the form of *hukou* (residency

control), if abolished prematurely, would run into a high risk obstructing state objectives in many ways. Firstly, removal of rural–urban divide by granting migrant workers full citizen rights in the cities would entitle them equal social welfare benefits as local urbanites. This would represent a gigantic financial burden imposed on municipal governments and the central state that they are unprepared and unwilling to accept. This high cost consideration is shared by many scholars argued as the state rationale for rejecting migrant workers' residency rights in cities where they sell their labour (for example, Zhang 2011; Tang and Yang 2008). Consequently, until their residency and full citizenship rights are resolved, migrant workers would remain an underclass in cities as a "huge, almost inexhaustible, pool of super-exploitable labor". Their habitat has remained predominantly in dormitories and simple-equipped "urban villages" in city fringes (Chan 2011; Liu et al. 2012).

Secondly, another factor, perhaps more important, is the risk of slum formation, which is never publicly identified but implicitly a clear taboo to state leaders. The 260-million strong of low-skilled, low-income migrant workers who have been predominantly denied urban *hukou* would have in their own capacity established squatter areas or slums sporadically in and around large cities, had they not been constantly stopped. This risk of slum emergence would strongly counter China's dream of modernist image construction perceived as incompatible with slum-like habitat or dwellings in newly built or redeveloped Chinese cities.

Leaving economic considerations alone, this chapter focuses on the second factor of slum prevention in China's urbanization process. The political economy of urbanization in China today is characterized by mass deconstruction of the old, replaced by mass construction of the new, coupled with forced eviction of the old and obsolete. This movement serves the national objective in building consolidated integration with globalization, with cities acting as an agency of new state spaces in modernity and idealism (see Ren 2011). These new buildings are marked by grandiose architecture infused with national ambitions and international prestige. What Ren (2011) calls "urban symbolic capital" being built by political leaders is a new form of idealism in urban planning and development, which is sharply contrasted to the agrarian-based pre-reform Maoist control of urban growth.

2.2.1 Cities as Growth Machine

One of the key neo-liberal measures undertaken by the reformist regime from the 1980s is the use of cities as a stimulus to the growth of gross domestic product, and an engine of growth. At the top of the urban hierarchy, metropolises or very large cities enjoying talented human-capital and investment capital benefits as well as external services and advanced technology tend to favour the growth of mega-city formations. In turn, mega-city development and global integration will transform city regions into centres of production and consumption (Xu and Yeh 2011). In China, looking from the current trend, 95 % of the national GDP aggregate by 2025

is expected to be made in the cities, and the nation is projected to own by then 220 cities of one million residents or more (Potter and Watts 2014; Schafran 2014; Weston 2012). Besides the positive effects of agglomeration economies broadly believed to be important in urban clustering and wealth generation, many other factors have also been addressed and analyzed by scholars (see for example, Liu and Lin 2014; Chen and Partridge 2013; Hao et al. 2013; Chen et al. 2013; Ho and Lin 2004). More specifically, to be valid, examination here is focused on reformist China's present urban political-economic context from which analysis could best be made. One of these is land use conversion and intensification.

Land Use Conversion and Intensification

Land conversion has seen dramatic change immediately after the advent of reforms. China's built-up urban land accounted for a low 7,438 km^2 in 1981, but the figure went up in 2010 over five-fold to 40,058 $km^{2.}$ The same period also witnessed China's catching up with world average urbanization rate of about 50 %. The sharp rise of urbanization rate from 20 % in 1981 to 50 % in 2010 means substantial corresponding GDP per capita growth, notably after the 1998 Asian financial crisis when deepening of reforms occurred (Chen et al. 2013).

Since the adoption of the "tax sharing system" between central state and local governments in 1994, sales of municipal lands have become a key source of local revenues in Chinese cities, equivalent to an average of some 40–50 % of local municipalities' annual budget ever since. Consequently, land conveyance traded prices in land sales and subsequent speculative transactions between developers have indeed helped bolster GDP growth of the urban economy. Beneficiaries in this pro-growth coalition include the local government, developers and financiers. Revenues thus generated have similarly made possible promotional activities in infrastructure, housing construction and investment opportunities for both domestic and foreign firms through a chain of multiplier effects (Liu and Lin 2014; Chen and Partridge 2013).

Despite inflationary effects, such large-scale commodification of land sales has indeed helped achieve the state's goal by uplifting the GDP per capita, thus narrowing the gap rapidly with more developed nations. For this purpose, the 17th Party Congress had earlier in 2007 set a highly ambitious target of increasing the GDP by four-fold by 2020. High economic growth rates through modernist urbanization as a means is apparently seen as a key stabilizing factor and legitimacy for good governance. For the great majority of Chinese people long-entrenched under authoritarian rules, people's desire for Western-style democracy looks to be much weaker than their desire for upward social mobility. It is believed that this mobility could be made possible by modernist urbanization as a deliverable (Weston 2012). In the process, all development projects have been set to follow in principle Western-led international technological standards and norms, which has enabled China to move along the modernist path.

High-rise and high density development is symbolic of land use intensification in a market economy to provide ample floor spaces in highly accessible prime areas characteristic of high land prices. The bid-rent curve is typical of central business land which shows land's peak value at the core, followed by gradual declining values when distance is further away from the core. Urban planning in China has followed in general a high density norm to economize land-take and to promote compact form of design. High-rise and high density developments also meet the economies of scale in basic infrastructure and public services such as public transport, shops, schools, and other public services. Overall, high density sites create more wealth per unit land area than low density areas, and has the capacity to produce more affordable homes (see California Planning Roundtable 1993). Other than urban planning density specifications set by municipal master plans, density is often determined by market demand and location factors. A study conducted by Hao et al. (2013) on informal urban villages in Shenzhen, China shows that high building intensity in the villages is driven by high rental market demand from migrant workers. Migrant workers prefer rental locations in proximity to transit stops, industrial parks and construction projects where they work.

Expansion of the Chinese economy is followed by expansion of middle classes and hence higher end consumer services and multinational penetration. According to the UN Population Division and Goldman Sachs, by 2030, China should have over one billion middle class consumers compared to 365 million in the United States and 414 million in Western Europe (Rapoza 2011). China's massive size makes its growing middle class an important part of the global economy. Its relative poverty also makes moving up the income scale more impressive than it is in the United States. To date, around 300 million Chinese have disposable income to purchase discretionary items that was impossible a little over a decade ago. Multinationals like Nike are deriving larger portions of their earnings from big emerging markets. In 2010, Nike made over 60 % of its earnings mostly from the Asian emerging markets. The same holds true for Coca-Cola, which gets 70 % of its revenues from outside of the U.S. By 2025, China's urban consumption is projected to reach 33 % of its national GDP (Weston 2012).

With high rates of economic growth sustained over two decades, middle classes working in specialized sectors as professionals and managerial staff have grown substantially in numbers with rising real incomes. Higher end demand of these urban middle classes match aspirations of the municipalities and developers to supply more luxury apartments and shopping complexes. New and expanding markets thus created in the cities supported by rising consumerism are also expected to attract foreign investors in shopping malls; already we have witnessed the setting of big retail names these years in large Chinese cities such as Carrefour, Walmart. From 2014 to 2016, Walmart has planned to open up 110 new facilities offering 19,000 jobs in Chinese cities, including tier-two, tier-three and tier-four cities (Walmart 2014). All this works towards modernist and image enhancement of city planning and landscape.

2.2.2 *Cities as Modernist Symbol*

> Today, when one's plane lands in Beijing, one disembarks at one of the largest and most modern airports in the world before being whisked into the gleaming, futuristic, and endless unfolding capital city on massive highways crowded with internationally famous name-brand luxury cars and lined by high-rise office buildings sporting signs for multinational companies. (Weston 2012: 136)

As argued, China's remarkable economic growth over the last three decades is attributable to a market-led and urban-centric approach. Urban-based higher value added industrialization, higher producer and consumer services, and knowledge-intensive industries are now seen as a key symbol of modernization. In particular, advanced producer services may be considered key command functions of the globalizing economy in global financial operations. For China, it is an effective way to catch up with high-income economies and at the same time, a great opportunity to shake away from its "old and face losing dilapidated" low-rise habitat inherited from Mao's era. Undoubtedly, what is modern is also represented by rationality or reason, and this "reason" could be interpreted in one's wish; be it the China dream or city beautification that brings urban aesthetics and happiness to the general public. In the neoliberal sense, image building serves to a pro-growth regime something specifically important – attracting high-value international and domestic investments. In politico-economic terms, the process justifies the mobilization of available resources to fulfill the vision of both national and local level economic success (see Han 2010; Short 2012; Donald et al. 2009).

Modernization as an empowering institution has been China's nation-builders' dream in building up a strong power ever since China suffered successive defeats after contacts with Western powers from the mid-nineteenth century. To catch up from behind, one of the key quests is modernist urbanization but its path was filled with obstacles due to feudal protective conservatism against reforms during the late Qing dynasty, and subsequent civil wars following the establishment of the Nationalist Republic in 1911, and more recently the Marxist anti-urban ideological barrier prior to Deng's reforms (see Liu et al. 2012; Scharping and Chan 1987). In this specific politics of modernity, a renewed national identity with a strongly imaginary urban spatial form augmented by socialism of Chinese characteristics is in the making. This socialism with Chinese characteristics has been indoctrinated into the present-day neoliberalized ideology backed by state power.

As China's modernist urbanization serves its export-led economy and is dependent on integration with the advanced global economy, it has to be well linked with global metropolitan modernities in depth and in breadth. Nearly two decades ago, both political leaders and academics alike in China were anxious about the country's lack of first-class global cities of international scale and influence as well as to be command centres. Citing World Bank and John Friedmann's classified ranking of world cities in 1997, Zhou Yixing (2002), a retired leading professor of Peking University, expressed concern that China had no world city, except Hong Kong

(a city which was however not seen as a mainland Chinese city). As a Third World nation, China's GNP in 1997 was in seventh place, falling below Italy.

The hot chase or so called "international city craze" for global city ranking began in the mid-1990s in an attempt to put China's rising international influence on the world map and to get prepared to be a leader in international economic and political forum. Again, such a chase shows China's strong desire to enhance its enabling capacity in global economic competition in the race with global economic powers. Zhou (2002) identified six Chinese cities (Shanghai, Tianjin, Guangzhou, Beijing, Shenzhen and Zhuhai) which had substantially large foreign-funded industrial enterprises for having the highest indexes of internationalization. He also suggested that, to accelerate GDP growth, there was a need to further reform state-owned enterprises, build China's own powerful transnational corporations to be involved in greater depth in world market, upgrade technological level and moving on to higher value commodity exports, and be more pro-business at the global level. As it is now known to many, the heated pursuit for GDP growth has led to its being used as the yardstick to assess the performance of senior cadres in government departments. This has had adverse consequences. One example is the conflict of values arising between the top-down modernizing regime and bottom-up heritage conservation groups in that the aimed cause of the latter tends to be protecting built-up heritage and monuments, rather than the full potential of marketable land values.

In the midst of the pursuit for modernity, in the expression of Smith and Bender (2001: 2), there is a "relation between some real or imagined center of 'modernity' and a marginal place or people". In the context of the present study, the marginal people are, in an analogous way, the rural migrants who are found in their marginal place of the host cities. This top-down pursuit for modernity has a temporal and transitional relation with the marginalized migrants as the latter social group is not incorporated in the former's long-term city plan. For the state, the city's future physical form has to be slumfree, and has to suit the "normative notion of progressiveness" (ibid.). Marginalized migrants would be guided in the direction of modernity, and provided ideally with a new and normative identity.

2.3 Urban Migrant Workers: A Socially Excluded Economic Force

Mobility of city-bound peasants from the 1980s was, as a matter of fact, a state planned initiative. Contrary to the belief of some, the state has always acted as a facilitator in inducing rural labour badly needed for urban construction. During the early period, peasants were encouraged by the state to work in smaller cities and market towns for two reasons: (a) to pave a gradual and smoother path for peasants via more labour-intensive and less skill demanding occupations; and (b) smaller cities had more collectively owned and private enterprises than state-owned enterprises, therefore closer to home and easier for peasants to get employed (Ma and Lin 1993).

However, such a state's well intended presumption was quickly undermined by peasants' more economically calculated option preferring large cities. In the first place, migrants' low price and efficiency as a commodity was attractive to state agencies and industries under pressure during the reforms to raise their productivity and turn red balance sheets into black.

Amidst the then senior ranking central state officials, there was an ideological conflict between pro- and anti-reform groups who co-existed within a rather complex and compromising power structure; some might have remained neutral or restrictive towards the migrants in their stance. At the lower and local rural state level managing directly the farm-based counties and villages, officials had been openly supportive and dedicated to migration-promoting efforts in dealing with the de facto "surplus labour" problems. Through their collaborative efforts with state-owned urban enterprises, millions of rural workers were arranged to work in the cities. Of the total migrant workers in the cities, only a minority worked in the state sector, the great majority were engaged in mostly low-paid, low-skilled and labour-intensive private and informal sectors (Guang 2005). From 1989 to 2000, the total number of migrants who succeeded in acquiring urban residency status was only 12.94 million throughout China (Guang 2005: 367); this represents less than 10 % of the estimated total of 150 million in the year 2000.

2.3.1 Urban Conditions of Migrant Workers as Citizens

In China, the differentiated *hukou* or residency system which divided rural residents from the urban was established in 1955 by the State Council which set up a system of household registration rules. All individuals were required to register their official place of residence with the public security office in their place of origin. The system served a dual purpose. In following the Marxist doctrine, the first aimed at protecting the urban privileged working industrial class and public servants who were provided with pension schemes and low-price rationed food and other basic necessities. From the 1950s to mid-1990s, urban workers in state-owned units and large collectively owned factories received full labour insurance, retirement and medical packages, housing and life-time job guarantee (Lin 2014; Solinger 1999).

To restrict this highly subsidized public budget in the pre-reform socialist centralized urban economy where state enterprises were largely non-profit oriented, the number of beneficiaries had to be kept small and affordable. As a result of this, the second objective had to be designed by restricting the peasants' mobility and maintaining them as the sole producer of food and industrial raw materials in support of the operations of the urban economy. In the pre-reform rural sector, peasants led subsistence farming and were entitled to very little public welfare and benefits, left alone retirement package. To the peasants, old age or incapability to work meant absolute reliance on children or relatives for basic subsistence. Such a supportive role of peasants rendered them second-class citizens when they were allowed after the 1980s to move to cities to work but without being given urban residency status.

As argued, public cost saving and slum prevention are the key rationale at face value in differentiating rural migrants from local urbanites. At the deeper layer, one may have to dig further into the logic of neoliberalism which has influenced the regulatory framework of the socialism with Chinese characteristics. What then is the neoliberal market-oriented regulatory framework? First, neoliberal market-led forces do not support urban land values to be moderated in favour of low-income marginalized migrant workers. Bipolarism in which we see the coexistence of two contrasted worlds represented by rising urban middle classes and migrant workers (together with indigenous urban poor) is symbolic of neoliberalized socio-spatial outcome as a result of development projects and in operational and market regulatory terms (Brenner et al. 2012). In a sense, it is an institutional exclusion based on an economic *raîson d'être*. With strong emphasis on GDP growth for quick results, China neoliberal measures are more or less led by (ibid.: 29):

> politically guided intensification of market rule and commodification … [its] processes have facilitated marketization and commodification while simultaneously intensifying the uneven development of regulatory forms across places, territories, and scales. (italics in original)

Consequently, we can understand better why migrant workers are treated as second class citizens in the transitional period and their welfare and deserved benefits are delayed in their host cities until institutional transformation is done to include them as real stakeholders. At this very stage, we should not be surprised if we compare China with Germany and Japan in ways they treat migrant workers, China's rural migrant workers who share identical ethnicity as local urban groups have received significantly worse-off treatment as transient nationals than in Germany and Japan (Solinger 1999). Both migrant workers of China and foreign migrant workers in Germany and Japan have moved respectively to their host cities as contributors to economic development. But a bizarre situation turns out that even "ethnocentric" Germans and Japanese have granted more rights to their foreign workers than China to its own citizens of rural origins. By Germany's Federal Constitutional Court rulings, and through pressure from the trade unions from the 1960s, foreign children were brought into schools and foreigners were in principle entitled to welfare allocations (Solinger 1999). In contrast, in Beijing in 2010, an estimated 460,000 children born during the three preceding years to migrant parents could not be registered as official residents (Weston 2012). This brings us to address the intriguing issue whether migrant workers are potential slum builders.

2.4 Are Migrant Workers Potential Slum Builders?

It has clearly appeared that the disparity between the more established city locals, many of whom are middle classes and the rising numbers of much deprived migrant workers, is persistently a risk, given the potential of low-end workers in forming slums. Earlier studies by Ma and Xiang (1998) on the Zhejiang village in the south

of Beijing grouped largely with enterprising Wenzhou business people was exemplary of that risk. However, such a "less safe and orderly" urban village or peasant enclave sharing common features with other Third World cities in the capital city was quickly erased together with other similar enclaves in the name of urban redevelopment.

Looking from Beijing's perspective, the capital city is among the most attractive cities in China to migrant workers for being the nation's political and economic centre with substantial opportunities for higher pay jobs and high level services and infrastructure. According to the 2014 release by Beijing's Bureau of Statistics, of the total 21.14 million residents in Beijing in 2013, 8.03 million or 38 % were migrants, including employees, self-employed and students. Contrary to the intention planned by the municipal government to disperse migrant population to newly developed districts, their numbers have kept rising in the core functional zones where job concentrations are high. Rise of migrant workers from 2010 to 2011 alone was recorded to be 375,000. There were signs that the inflow had slowed down in the past few years but the overall trend was still on the upswing. Population density in 2011 was as high as 1,230 persons per square kilometre, rising by 35 persons compared to a year earlier. It was estimated that the population's annual average growth rate was 3.8 % over the period 2000–2010. This means if the trend continues, Beijing's population could double in slightly less than 20 years (People's Net 2014; Cui and Chen 2014; Central Government Net 2013a).

The potential of forming slums by migrant workers is always there. Rural migrant workers take up city jobs which are usually low-paid, low-skilled, labour-intensive, dirty and dangerous. It is estimated that they make up 70 % of construction workforce, 68 % of manufacturing and 80 % of coal mining; many of whom are provided with basic dormitories by employers while the rest settle for cheap shelters. In Liu and He's (2010) household survey on 796 urban villagers in six large Chinese cities in 2007, they found that migrant workers made up 52 % of the interviewees, as compared to local villagers (14 %) and indigenous urban residents (34 %) from largely poor housing areas nearby. Their monthly income per capita was a low 976 yuan, and it was highest for the urban residents (1,119 yuan), followed by migrant workers (999 yuan) and local villagers (545 yuan). With such an income which was much lower than the national urban average, and 77.5 % of them making a living from self-employment in petty trade, as manual or service workers and in informal occupations, it is perceivable that their path up the social ladder would be as difficult as those found in the shanty towns in large Third World cities in Africa, Latin America and India.

With the help of the residency control system, and monopoly of land ownership, China does not tolerate permanent filthy shanty towns built by rural newcomers as commonly seen in India and African nations. Migrant workers, together with local villagers, and low-income indigenous urban residents live in China's urban villages within or at the fringes of the city where farmers use their residential plots (*zhaijidi*) to build up premises and offer low rental accommodation. As farmers' lands within the city or at the fringe have usually been acquired by the local state, they are perceived as transitional dormitory sites awaiting for redevelopment one day.

In general terms, urban villages in Chinese cities are poorly serviced, and are not integrated with the formally constructed housing estates in the vicinity. Their physical environment has a very high horizontal density. Without official planning approval, its density could be much higher than the officially acceptable design standards, often characterized by narrow passageways, lack of adequate ventilation, greenery and public spaces. Land use is mostly disorganized, mixed with backyard workshops in highly crowded and chaotic human interface (Liu and He 2010; Weston 2012). In some cases, they co-exist side by side with tall and modern apartment blocks, office buildings and shopping complexes. This mismatch of residential habitat could show the typically contrasted imaging between highly exclusive gated community and neighbourhoods, and slum-like dormitory quarters inhabited by migrant workers.

Migrant workers are also there to stay. A mindset change had been observed amidst migrant workers between the early reform period and more recent period. In his personal investigations, Weston (2012), citing a 2008 survey by the China Youth Centre, found that the majority of early migrants were more inclined to spend a few years in cities and return home with savings for a better life. This phenomenon has changed as he found increasingly more migrants now sought ways to remain in cities. This is especially valid for those who are under 30 years of age who could adjust more easily life in cities. This implies migrants are basically for good in cities, making no difference from other Third World migrants who have left their poverty-stricken villages.

A study by Sohail et al. (2013) estimated that in 2007, over 40 % of India's urban households lived in slums or squatter areas. In the Indian national capital, Delhi where formal housing shortage was estimated at 1.13 million, slum and uncontrolled settlement dwellers accounted for as high as 75 %. It is important also to note in the finding of the study that slum dwellers' priority was not to improve their housing conditions even with rising income. Weston (2012) is pessimistic in his projection of migrant population in Chinese cities if the present trend is unchecked – by 2030, China's urban population may be made up of 50 % migrants. The question that needs to be addressed is: can China forbid slum formation or will slum clearance be enforceable if it ever becomes a reality? We need to examine what modernist China is doing in a great attempt to prevent slum formation from taking place.

2.4.1 Public Policy Towards Urban Shanty Towns (Penghuqu)

As discussed above, urban villages are marginalized neighbourhoods, close to shanty towns known as "*penghuqu*". They are managed by village committees which have little resources including mobilization of public funding to finance public infrastructure and services. Apart from a small proportion of peasants who have stricken gold via handsome compensations for selling land in property booming city suburbs, inhabitants in traditional low-rise slum-like habitat are mostly low-income and low-skilled local villagers, migrant workers and indigenous city residents. There is no sign that the Chinese government wishes to keep these shanty

settlements within or at the fringe of the cities offering them an opportunity to live permanently with "hope to move up the social ladder over time and over generations", as it is the case in Sao Paulo slums in Brazil.

By the definition of the Chinese government, "*penghuqu*" are low-rise settlements found within the city boundary with high horizontal density. They have been inhabited for relatively long periods of time, and are constructed with low-grade building materials. The houses are normally very small in size, poorly equipped with basic facilities and sanitary conditions. Often the environment is filthy and is seen to be a hot-bed to fire hazards and crime (cited in Baidu Wenkou 2014). Urban villages fall practically under this category of vulnerable settlements. At this historical juncture, one should also differentiate reformist China's existing poorly serviced and low quality urban housing inherited from Mao's era which needs renewal by state action from the potential emergence of slum-like habitat due to strong concentrations of migrant workers in the cities. For the modernist state, slum prevention is thus a two-pronged policy focusing at both renewal and deterrent measures.

Since the advent of Deng's urban reforms from the early 1980s, migrant workers collectively known as floating population have encountered a series of control measures while working in the cities. Table 2.1 is elaborative of the ups and downs in management measures from 1984 to 2012 occurring in Beijing which is quite representative of the overall national policy in China (see Cui and Chen 2014). In the early 1980s, residency permits were issued only to genuine workers or those doing small businesses, ruling out those who were "floating" around looking for jobs or begging. Jobs were more difficult to come by in the early days. This was soon followed by issuance of temporary stay permits. By the mid-1990s, when the economy was found to be under performing to support large numbers of migrant workers, rules became stringent again. After China joined the World Trade Organization in 2001, exports started to boom, and policy became more lenient. From then on,

Table 2.1 Evolution of the management policies towards floating population in Beijing, 1984–2012

Periods	Key policy measures by State Council/Beijing municipality
October 1984	Only those having residency permits or running a business or working/serving an urban enterprise were allowed to stay with their family members
November 1985	Temporary permits were issued to migrant workers who were not qualified for Beijing residency status
July 1995	Volume control of migrant workers by residency system (*hukou*) – tightening up of control measures
June 2003	Abolition of State Council decree of May 1982 which empowered police to retain jobless peasants and send them home. This was replaced by an assistance program
March 2005	Abolition of the control measures towards non-residents working in Beijing
January 2011	Start of the plan using "Control based on employment"
2012	Adoption of new concept aimed at "Livelihood first, service priority and integration as a necessity"

Source: Adjusted from Cui and Chen (2014)

though it remains difficult for migrant workers to obtain urban residency permits, their economic input is seen to be increasingly important. Most recently in 2012, the Chinese government adopted a more equitable and people-centric concept in dealing with migrant workers in which integration turned out to be an eventual option.

Hence, as the tide changes in favour of the fate of low-income migrant workers as a social grouping, their habitat has been framed at the same time for a radical change. In this aspect, three important decrees had been issued over the past seven years by the State Council stipulating the need to transform the "*penghuqu*" in order to improve the housing standards, quality of life and living environment of the low-income groups. By virtue of these decrees (No. 24 of 2007, No. 131 of 2008 and No. 25 of 2013), the Chinese government aimed to carry out the following policy measures vis à vis the sub-standard urban settlements, which are summarized essentially as follows (Baidu Wenkou 2014; Central Government Net 2013b):

(a) It is a "livelihood and developmental" engineering scheme which aims to transform the "*penghuqu*" into a secured and well serviced area, thus eliminating the dualistic character of the urban habitat;
(b) The transformation will help promote sustainable economic growth, improve the general living standards of the people as well as expand investment and consumption demands;
(c) Urban renewal projects should capitalize on local features, and insist on historic and monumental preservation etc.;
(d) The transformed site will be integrated with the surrounding urban setting and will enjoy an improved environment with quality services. Pace of implementation should be associated with the socio-economic level of the people affected and the financial capability of the municipal government. Some affordable rental housing may be provided;
(e) Any demolition must be compensated fairly, equitably and transparently according to the law and in consultation with the people; and
(f) The central and provincial governments will expand their financial assistance in various ways during "*penghuqu*" renewals. Private capital is encouraged to take part.

Indeed, the "creative destruction and transformation" scheme started in 2008. By 2012, some 12 million "*penghuqu*" households of different categories had been transformed throughout China, including urban, mining, forestry and resettlement areas. Correspondingly, the State Council has planned to transform another eight million urban households, and 188,000 households for the other three categories during the period 2013–2017. Most recently in August 2014, a new more lenient policy was announced by the new administration of Xi Jinping amidst his quest for deepened reforms. In the next five years, over 100 million rural migrant workers would be able to convert their residency to urban status, easier for smaller cities than large cities above five million people (Central Government Net 2013b; Lin 2014). With the unfolding of the transformation policy backed up by a strong state commitment and determination, the slumless city imaging and building is well on its way but the passage is anticipated to be eventful and challenging ahead.

2.5 Conclusion

Rapid urbanization in China with wealth accumulation centred at large metropolises has built up tremendous national aggregate growth. However, wealth accumulation in large cities has been gained at the expense of the growth for smaller cities and rural regions (Chen and Partridge 2013; Chen et al. 2014). This uneven development process arising from backwash effects has led to widening of rural–urban inequality, and acted as an added factor driving more peasants into the large cities.

From 1978 to 2009, it was recorded that the ratio of per capita income between urban and rural households had risen from 2.51 to 3.33 respectively. It should be noted that the gap would have been even larger if two other factors are considered. First, it is the exodus of peasants to cities who have brought back home large amounts of remittance and cash that have helped to transform and modernize the rural landscape and standards of living. Second, urban financial surpluses and high GDP growth have provided the central and provincial authorities with revenues to improve rural financial services, infrastructure including irrigation and flood control schemes, which since 2004 have been carried out as a measure to lift rural economy as advocated by the 16th National Congress (Chen and Partridge 2013; Weston 2012).

There is a dual character in the Chinese form of urbanization. It is Western, yet it has its own character and interpretations of what is good and what should be avoided. China's own attributes of market-led urbanization are characterized by state control (notably monopoly of land ownership), neo-liberal and market-oriented as well as globally modernist features encompassing imaging, prestige and slumlessness in physical morphology. For China itself, neoliberalism is an adopted institution which suits the reformist market-led economic take-off from the pre-reform dysfunctional and static economic base. It has acted as a transformative agent inducing change towards a new socialism with Chinese characteristics.

Rural migrants are predominantly found in large cities offering higher wages and job opportunities. It is here they have faced the greatest hardship in getting a permanent residency status and deprivation of urban-based welfare and benefits, though they have made substantial contributions towards this wealth accumulation with their cheap labour and hard work.[1] Their sheer number has created a great fear of forming slum-like habitat which the state has made every effort to avoid. There is nevertheless a notional change in China's state policy towards urban low-income groups that it has become increasingly people-oriented (*yirenweiben*). As reflected in Beijing's 2012 managerial concept towards migrant workers, more care has been given to their rights to livelihood, service demand, and therefore integrating them in the host cities is seen as a goal. But if their *implicit* demand, if this ever exists, is to build basic shelter meeting their own needs by taking up state land as it is the case

[1] According to a report by Economic Observer (2014), the central government has planned to offer 200 million peasants with local residency permits in mainly smaller towns during the period 2014–2020. For large cities, a residency certificate (juzhuzheng) will be issued to qualified migrants who will be entitled equal benefits as local residents.

in Mumbai, Mexico City or elsewhere in Latin America, the monopolistic state will be in no position to compromise. Existing urban villagers or "*penghuqu*" are tolerated as provisional existence awaiting modernist interventions led by the state. The ultimate urban form that the Chinese state aims at may not be "aestheticism" in Euro-centric sense of spatial morphology (see Hart 2004).

For the Chinese modernist state, the slumless place making intention constitutes the purifying of "illegitimate" occupation of space by undesired groups in its "legitimate" control of space functions, a localized but unique form of "aestheticism". Taken together, the rationale of the slumless place- and image-making which aims to minimize spatial segregation is more political and economic in objectives and, most important of all, in justifying sustained state governance. Lastly, in the midst of rising social disparity, building slumless cities may imply a public intent to hide social inequality in its physical form in urban morphology. But it will not be possible to hide poverty in substance and real life. Disparity in its extreme form will be a great source of social discontent that could threaten stability of the present regime pursuing world prestige and top class futuristic imaging effects.

References

Annan A (2000) We the peoples: the role of the United Nations in the 21st century. United Nations, New York

Baidu Wenkou (2014) What is "penghuqu" shanty town? http://wenku.baidu.com/link?url=fByz_ehz8V275ooQgwlDaPYVsvOUbKadjEraOMhwmACVzUJgEGjMUS5VVAbypKwVV5jyoubpZSgInrNEyX7c4mHBo8D4ASUrikK-DaCqEcy. Accessed 6 June 2014

Brenner N, Peck J, Theodore N (2012) Towards deep neoliberalization? In: Kunkel J, Mayer M (eds) Neoliberal urbanism and its contestations: crossing theoretical boundaries. Palgrave, New York, pp 27–47

California Planning Roundtable (1993) About affordable and high-density housing. http://www.abag.ca.gov/services/finance/fan/housingmyths2.htm. Accessed 10 June 2014

Central Government Net (2013a) An analysis on the place of origin of migrants in Beijing. http://wenku.baidu.com/view/a99c9bd7240c844769eaeefb.html. Accessed 6 June 2014

Central Government Net (2013b) Work under the State Council about accelerating the reform of shanty towns, released 12 July 2013. http://baike.baidu.com/link?url=P9OYSKllqVpLyiny5NpZsFN6X39scuYVG6PgeA_grN9zLtv_IWV444ND4pOXertd113f0lAbUD_8tNm9Zdf58a. Accessed 10 June 2014

Chan KW (2011) The myth of China's urbanisation. East Asia Forum. http://www.eastasiaforum.org. Accessed 20 June 2014

Chen AP, Partridge MD (2013) When are cities engines of growth in China? Spread and backwash effects across the urban hierarchy. Reg Stud 47(8):1313–1331

Chen MX, Liu WD, Tao XL (2013) Evolution and assessment on China's urbanization 1960–2010: under-urbanization or over-urbanization? Habitat Int 38:25–33

Chen JF, Chang K-T, Karacsonyi D, Zhang XL (2014) Comparing urban land expansion and its driving factors in Shenzhen and Dongguan, China. Habitat Int 43:61–71

Cui JF, Chen SS (2014) The new map of Beijing's floating population. Minsheng Weekly 1. http://dooland.com/magazine/article_357020.html. Accessed 6 June 2014

Donald SH, Kofman E, Kevin C (2009) Introduction: process of cosmopolitanism and parochialism. In: Hemelryrk SD, Kofman E, Kevin C (eds) Branding cities. Routledge, New York, pp 1–13

Economic Observer (2014) Central leadership on rural development: *hukou* reform will help 200 million peasants settle in urban areas in 6 years, (Jinjiguanchabao, 14 July 2014). http://news.sohu.com/20140714/n402207560.shtml. Accessed 28 Aug 2014

Guang L (2005) The state connection in China's rural-urban migration. Int Migr Rev 39(2):354–380

Han SS (2010) Urban expansion in contemporary China: what can we learn from a small town? Land Use Policy 27:780–787

Hao P, Hooimeijer P, Sliuzas R, Geertman S (2013) What drives the spatial development of urban villages in China? Urban Stud 5(16):3394–3411

Hart LK (2004) Space and place. In: Feuchtwang S (ed) Making place: state projects, globalization and local responses in China. UCL Press, London, pp 183–196

Ho SPS, Lin GCS (2004) Non-agricultural land use in post-reform China. China Q 179:758–781

Li KQ (2012) Thoroughly applying the strategy of boosting domestic demand. English edition of Qiushi J 4(2) Apr. http://english.qstheory.cn/leaders/201207/t20120705_168334.htm. Accessed 20 June 2014

Lim KF (2014) 'Socialism with Chinese characteristics': uneven development, variegated neoliberalization and the dialectical differentiation of state spatiality. Prog Hum Geogr 38(2):221–247

Lin T (2014) August 27 DTN China correspondent. China's citizenship reform should benefit farmers. http://agfax.com/2014/08/27/chinas-citizenship-reform-benefit-farmers-dtn/. Accessed 28 Aug 2014

Liu YT, He SJ (2010) Chinese urban villages as marginalized neighbourhoods under rapid urbanization. In: Wu FL, Webster C (eds) Marginalization in urban China: comparative perspectives. Palgrave, London, pp 177–200

Liu T, Lin GCS (2014) New geography of land commodification in Chinese cities: uneven landscape of urban land development under market reforms and globalization. Appl Geogr 51:118–130

Liu R, Wong TC, Liu SH (2012) Peasants' counterplots against the state monopoly of the rural urbanization process: urban villages and small property housing in Beijing, China. Environ Plan A 44(5):1219–1240

Ma LJC, Lin CS (1993) Development of towns in China: a case study of Guangdong province. Popul Dev Rev 19(3):583–606

Ma LJC, Xiang B (1998) Native place, migration and the emergence of peasant enclaves in Beijing. China Q 155:546–581

People's Net (2014) Beijing's regular residents number 21.14 million, migrant population was 8.02 million, 13 Feb. http://news.ifeng.com/gundong/detail_2014_02/13/33784581_0.shtml. Accessed 6 June 2014

Potter A, Watts HD (2014) Revisiting Marshall's agglomeration economies: technological relatedness and the evolution of the Sheffield metals cluster. Reg Stud 48(4):603–623

Rapoza K (2011) Within a generation, China middle class four times larger than America's. Forbes, 5 Sept 2011. http://www.forbes.com/sites/kenrapoza/2011/09/05/within-a-generation-china-middle-class-four-times-larger-than-americas/. Accessed 20 June 2014

Ren XF (2011) Building globalization: traditional architecture production in urban China. University of California Press, Chicago

Schafran A (2014) Rethinking mega-region: sub-regional politics in a fragmented metropolis. Reg Stud 48(4):587–602

Scharping T, Chan KW (1987) Urbanization in China since 1949. China Q 109:101–109

Short JR (2012) Globalization, modernity and the city. Routledge, London

Smith MP, Bender T (2001) The localization of modernity. In: Smith MP, Bender T (eds) City and nation: rethinking place and identity. Transaction Publishers, New Brunswick, pp 3–14

Sohail A, Choi MJ, Ko JS (2013) Quantitative and qualitative demand for slum and non-slum housing in Delhi: empirical evidences from household data. Habitat Int 38:90–99

Solinger DJ (1999) Citizenship issues in China's internal migration: comparisons with Germany and Japan. Polit Sci Q 114(3):455–478

Tang WF, Yang Q (2008) The Chinese urban caste system in transition. China Q 196:759–779
Tuts R (2002) Urban poverty reduction through good urban governance. UN-Habitat, presented at international conference on "Local Agenda in Development perspectives", Brussels, 4–5 Oct 2002
United Nations (2011) Population distribution, urbanization, international migration and development: an international perspective. Department of Economic and Social Affairs, Edited volume, New York
Walmart (2014) Walmart China factsheet. http://www.wal-martchina.com/english/walmart/. Accessed 24 June 2014
Weston TB (2012) China's historic urbanization: explosive and challenging. In: Weston TB, Jensen LM (eds) China in and beyond the headlines. Rowman Littlefield, Lanham, pp 134–153
Xu J, Yeh AGO (2011) Coordinating the fragmented mega-city region in China: state reconstruction and regional strategic planning. In: Xu J, Yeh AGO (eds) Governance and planning mega-city regions. Routledge, New York, pp 213–235
Zhang L (2011) The political economy of informal settlements in post-socialist China: the case of Chengzhongcun(s). Geoforum 42:473–483
Zhou YX (2002) The prospect of international cities in China. In: Logan JR (ed) The new Chinese city: globalization and market reform. Blackwell, Oxford, pp 60–73

Chapter 3
Interpreting Definitional Complexities of China's Non-*hukou* Migrants

Li Zhang

Abstract The size of non-*hukou* migrants, which is the vantage point for understanding China's post-reform socioeconomic dynamics driven by migration and urbanization, is affected by the definitional complexities. This chapter provides an in-depth understanding of non-*hukou* migrants whose numerical data are not readily apparent in making meaningful sense. It discusses the specifics of statistical variables used by various bureaucracies to define non-*hukou* migrants and the interrelation between the political economy of migration and changes in the administration of non-*hukou* migrants, which lead to definitional complexities. We argue that, on the surface, a substantial part of the numerical difference is statistical artifact arising from different definitions. Moving from beyond a statistical point of view, the interpretation of various non-*hukou* migrant definitions has to be conceptualized within the political economy of migration in transitional China that necessitates the persistence as well as changes in migrant control.

3.1 Introduction

Since the late 1970s, China has urbanized with the exclusion of the bulk of rural migrants from urban household (*hukou*) registration – the official identity of the urban residence rights (Zhang and Tao 2012). While 51 % of the total population is now considered urban statistically, it is estimated that around 40 % of the current urban population are *de facto* in cities but are not residents with urban *hukou* (China Development and Research Foundation 2010). Those migrants, who are not entitled for the full right of abode in the destination in substantive terms under the existing socioeconomic institutions, are known as non-*hukou* migrants.

The uncertainty remains about the exact size of this population. Estimates of its aggregate total are wide ranging from the variety of source materials at between 150 and 260 million (Lu and Duan 2012). Many underscore various estimates as an outcome of different definitions that are used to classify non-*hukou* migrants. Most

L. Zhang (✉)
School of Social Development and Public Policy, Fudan University, Shanghai 200433, China
e-mail: lizhangfudan@fudan.edu.cn

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_3

China-studies specialists agree that migration data published in official sources provide incompatible and inconsistent foundation on which to base further investigation, because of the existence of multiple definitions across data sources. Despite the concern on the "numerical chaos" of non-*hukou* migrants in the literature, critics are rarely aware of the statistical criteria how this category of migrants is defined in different published tabulations and what the underlying issues in definitional complexities are.

To fill the gap, this chapter focuses on an in-depth examination and understanding of the definitional complexities of non-*hukou* migrants whose numerical data are not readily apparent in making meaningful sense. One of the objectives of the chapter, based on the documentary evidence, is to review in details definitions of non-*hukou* migrants in major authoritative sources. The review provides clarification on the statistical attributes of key variables that are crucial to understand the definitional meaning of specific official data. Another objective of this chapter is to advance a rethinking of definitional complexities beyond a statistical matter, as a further step towards a better understanding of migration in today's China. We argue that, at the technical level, a substantial part of the numerical difference is statistical artifact of different definitions. Moving farther from a statistical point of view, the interpretation of various non-*hukou* migrant definitions has to be conceptualized within the political economy of migration in transitional China that necessitates the persistence as well as changes in migrant control.

In the following, the chapter first highlights general features of China's statistical reporting systems and migration data. This is followed by the documentation of specifics of statistical variables used by various bureaucracies to define non-*hukou* migrants. The chapter then explores the interrelation between the political economy of migration and changes in the administration of non-*hukou* migrants, which lead to definitional complexities. The final part concludes.

3.2 China's Statistical Reporting Systems and Migration Data

China's statistical reporting systems in different *xitong* (a grouping of bureaucracies in charge of a particular sector or task) are essentially organized through the long-existed administrative/spatial hierarchy. The hierarchy constitutes the political and economic relations from senior to subordinate governments, with which the upper-level governments always exercise ultimate authority over the lower-level ones. Official statistics of the particular sector, serving the bureaucracy in charge of that sector which needs data for making policy, are compiled under the aegis of the pertinent government departments at different levels of the hierarchy. As a general procedure, data are periodically filed by the lowest levels of the administration, and then reported regularly upward to the next higher-level of the hierarchy. Along the administrative pathways, the data are passed on level by level up the national

administration. Normally, the nationwide total is the sum of local disaggregated data. While rapid economic growth and structural change in past decades have led to both high demands and severe challenges for the compilation of statistics, the institutional and organizational arrangements of China's statistical reporting systems have changed little.

Understanding of official data hinges on definitional complexities. Since official statistics function as the counterpart of policy making, they suffer from various complications as a result of conscious definitional adjustment to suit the administrative purposes of different bureaucracies. Consequently, statistical variables pertaining to the same indicator vary across data sources in their choices of specific criteria. Issues of data distortion aside, this criterion inconsistency helps to explain significant part of the larger numerical discrepancies of the same indicator between authoritative sources.[1] However, our interpretations of China's socioeconomic indicators are often plagued by the dearth of technical documentation on definitional issues and data compilation.

By a general definition, a migratory move is a form of geographic mobility involving a relatively permanent change of usual residence between specifically designated political or statistical areas. Currently, the magnitude of non-*hukou* migrants is available regularly from several independent authoritative sources, including administrative registration records from the Ministry of Public Security (MPS) and the National Population and Family Planning Commission (NPFPC) (now renamed the National Health and Family Planning Commission of the PRC), as well as censuses conducted by the National Bureau of Statistics (NBS). Since 1982, in addition to the above sources, many special *ad hoc* surveys, some organized by various government agents and some carried out by academic institutes, have also attempted to collect migration data for the purpose of understanding an overall picture of migration driven by economic reforms. Important investigations in this direction include the 1986 Urban Migration Survey conducted by the National Academy of Social Sciences, the 1988 National Fertility Survey conducted by China's State Family Planning Commission, and micro-census surveys conducted by the NBS in 1987, 1995 and 2005, respectively. Operationally, several definitional criteria are normally considered in all sources, including the *hukou* registration status (the institutional criterion), the minimum duration of stay outside the place of origin and/or the minimum period spent at a new place before newcomers are counted as regular residents (the temporal criterion), and the spatial threshold to distinguish migration from routine circulation (the spatial criterion). These criteria are used differently in different sources to distinguish migrants from the resident population, and to distinguish *hukou* migrants from non-*hukou* migrants. In this regard, social and economic indicators with a demographic content (e.g. economy-wide employment and unemployment, or social security matters), which are compiled by different bureaucracies, are easily and heavily affected by the problems of

[1] Issues of data falsification are not examined here. The general observations have been made elsewhere, for examples, on population data, see Banister 1984; Scharping 2001; on migration data, see Liu and Chan 2001; on GDP statistics, see Rawski 2001; Holz 2003.

not only including/excluding migrants in compilation but also defining migrants. Without clarification on definitional complexities, it remains unknown to what extent various sizes of non-*hukou* migrants referred by different studies present a reliable measurement of the reality or they should be treated only as rough indication of broad trends.

3.3 The MPS Definition of Temporary Population

With the gradual establishment of the *hukou* system nationwide between 1951 and 1958, domestic migration began subject to government control for the government-claimed socioeconomic necessities (Cheng and Selden 1994; Chan and Zhang 1999). The term "temporary population" (*zanzhu renkou*) is used by the MPS to refer to non-*hukou* migrants who are supposed to return to their place of origin after a temporary stay on the basis of *hukou* management. A plethora of regulations contains the following stipulations with respect to the administration of *hukou* registration, transfer, and temporary stay outside the place of regular residence.[2]

- Each citizen should register as a permanent resident in only one place of regular residence. Local police organs are in charge of residence registration;
- When moving away from their areas of permanent registration jurisdiction (i.e., the jurisdiction of the *hukou* registration organ) to other localities, citizens shall apply for the outbound transfer certification in the original place of permanent residence with necessary documents,[3] and apply for registration of inbound transfer in the destination;
- Persons aged 16 years or older, who take up temporary residence for a certain period (3 days or more in 1958 regulations and 1 month or more in 1995 regulations) outside the jurisdiction of their *hukou* registration, shall apply for the temporary residence registration permit (*zanzhu zheng*) and should cancel the registration upon departure. Those who intend to stay longer than the duration specified in the temporary residence registration permit should either apply for an extension of their stay or institute procedures for *hukou* transfer. Otherwise they should return to their place of permanent residence; and
- For any moves within one's area of permanent registration jurisdiction, one does not need to change one's place of *hukou* registration.

Two definitional confusions need further discussion from the above stipulations in terms of non-*hukou* migration. One is the concept of the area of permanent registration jurisdiction, also known as the *hukou* jurisdiction zone (*hukou guanxiaqu*),

[2] Since their promulgation, some of the stipulations have amended at the local level in implementation but many remain unchanged.

[3] The documents, in the case of a transfer from rural areas to cities, may include employment certifications from urban labor departments, enrollment certifications from universities/colleges, or certifications permitting inbound transfers from urban residence registration organs.

which is the smallest and basic geographic unit to distinguish *hukou* migrants from non-*hukou* migrants. The designation of the *hukou* jurisdiction zone is not directly explained but implicitly articulated in the officially published materials. The 1958 *Hukou* Regulations stipulate that the administration zone of a police substation shall serve as the *hukou* jurisdiction zone in cities and townships that have set up police substations. Areas of township (*xiang*) and town (*zhen*) jurisdiction shall serve as the *hukou* jurisdiction zones in townships and towns which do not have police substations. One *hukou* jurisdiction zone may include several sub-zones and each of them monitors the *hukou* administration of about 600–700 households. Regarding the demarcation of the administration zone of the police substation, relevant regulations suggest that the main considerations for the establishment of a substation in a specific locale are the number of residents, the geographic size, and the administrative necessity (Ministry of Public Security 1954, 1978; State Council 2006). However, details of the demarcation criteria are not available publicly.

The following documents explicitly suggest that the *hukou* jurisdiction zone is part of urban administrative structures and is in general equivalent to the jurisdiction area of city resident committee. Administratively, Chinese cities normally consist of several city districts. A city district is further divided into several administrative streets (*xingzheng jiedao*). The Regulations for the Organization of City Street National People's Congress (1954) state that s street government office should be set up in a city district with 100 thousands residents or more. In cities, the administrative area of a street office generally corresponds to the *hukou* jurisdiction subzone. Article 6 of the Law of Organization of City Resident Committee of the Decree of the President of the People's Republic of China (1989) stipulates that a residents committee shall generally be established for an area inhabited by 100–700 households on the basis of the distribution of residents and on the principle of facilitating their self-governance.[4] The government at the city district level should decide the establishment or dissolution of a residents committee or its readjustment. With reforms of urban governance in the context of rapid urbanization and resulting changes in the urban morphological structure, the concept of the city community (*shequ*) is introduced and incorporated into the government's effort to improve city governance since the year 2000. Each city community is required to establish one residents committee. Correspondingly, the *hukou* jurisdiction zone is equated with the area of a city community. However, there are no standardized criteria for the designation of a city community. The geographic coverage of a city community varies substantially across cities, from 1,000 households in small cities to 3,000 households in large cities with high population density.

From the above elaboration, one may infer that the MPS definition of temporary population refers to those adults (aged 16 or over) staying outside their *hukou* juris-

[4] *Zhonghua renmin gongheguo chengshi jumin weiyuanhui zuzhifa* (*The Law of Organization of City Resident Committee of the People's Republic of China*), adopted at the 11th meeting of the Standing Committee of the Seventh National People's Congress on 26 December 1989, promulgated by Order No. 21 of the President of the People's Republic of China on 26 December 1989, and effective on 1st January 1990.

diction zones for over 1 month but without going through the administrative process of *hukou* registration transfer.

Another definitional confusion that needs to be addressed here is that the published tabulations of temporary population statistics by the MPS may refer to non-*hukou* migrants who are defined by the tempo and spatial criteria which are not exactly identical to those mentioned earlier. From 1997 onwards, the MPS publishes the size of temporary population annually (Ministry of Public Security, various years). Prefacing those statistics, the MPS explains that temporary population pertains to those staying in places other than the place of regular *hukou* registration for 3 days or more. In this explanation, the minimum duration of the stay can be just as short as a few days. Therefore, such data cover diverse groups of floaters/transients who make diurnal or seasonal short-term trips, including tourists, sojourners, and people on business trips. By nature, those statistics are the administrative records of those who have registered their temporary stay at the destination. Understandingly, considerable under-registration exists. Only a fraction of non-*hukou* migrants will register in the MPS and will regularly update their registration. But it remains unknown from any available information whether the term "the place of regular *hukou* registration" in the explanation refers to the spatial unit of a city/county or a *hukou* jurisdiction zone of the city.

3.4 The NPFPC Definition of Floating Population

The post-1978 economic and political transition witnesses a remarkable shift of state's stance on birth control away from the non-compulsory program implemented in the 1970s. It is widely believed that such shift represents an official response to China's ambitious stride towards four modernizations (in industry, agriculture, science and technology, and national defense) (Scharping 2003; Greenhalgh 2008). In 1982, a birth-control norm for all citizens was embraced in the revised constitution. Since then, all province-level regions expedite the task of legitimizing their birth-control rules. Accordingly, couple-specific fertility limitations are introduced nationwide. Family-planning bureaux and regular personnel posts in all localities down to the township level are established. Legal, economic and administrative measures are introduced in favor of one-child couples and against those violating birth-control regulations. Currently, birth rules are to a considerable extent constituted locally to accommodate heterogeneous demographic conditions across the country (Gu et al. 2007).

Though the birth-control policy is well intentioned, it is difficult to enforce at the local level, given that such policy creates a conflict between state and family interest in fertility preference. Particularly, the enforcement of tight birth control over non-*hukou* migrants represents a great challenge for local family planning authorities taking into account the mobile nature of this population. Under the current practice, family planning policy is accomplished locally. This means that one's eligibility or obligation for births must be well in line with the birth planning regulations promul-

gated by the authorities in one's place of regular *hukou* registration, rather than those enacted in one's current abode. Nonetheless, the implementation of regulations and the necessary control of birth-planning formalities are entrusted to the place of residence. Since 1985, regional birth-restrictive regulations, which are targeted at migrant population at any given locality, are enforced in a number of provinces in order to avoid out-of-plan or "illicit" births (births outside the allowable quotas). At the national level, the Administrative Procedures of Birth Planning for the Floating Population was issued by the central government in December 1991. Subsequent amendments to the birth control over the migrant population since then have further buttressed the responsibilities of host areas, charging them with the validation of birth-planning documents, the compilation of files and undertaking of regular surveillance activities.[5] In the case that non-*hukou* migrants have unauthorized births away from home, the office concerned at the present place of residence is required to notify the birth-planning office at the home residence. As a starting point to enforce those regulations, it requires specification for identifying non-*hukou* migrants.

The term of "floating population" (*liudong renkou*) is employed in the NPFPC policy documents to refer to non-*hukou* migrants who circulate between different places with an uncertain settling-down arrangement. Because of the primary concern with the enforcement of family planning policy, the definition of floating population reflects the NPFPC effort in fertility control. The floating population is defined as migrants at their reproductive ages (18–49), both employed and unemployed, who live temporarily for as short as 15 days in a locale other than their place of permanent *hukou* registration, regardless of reasons of the stay. The NPFPC enumeration of floating population is therefore more on a *de facto* basis and includes adult persons who come to stay with their family members, persons who visit relatives and friends, or seek medical treatment, but excludes child and elderly migrants. The data are recorded by family planning staff in the lowest tier of the administration such as villages and urban neighbourhoods, and are aggregated and reported by the relevant bureaucracies of townships, towns or urban street committees to upper-level governments on a monthly basis. The nationwide total is the sum of direct reporting figures submitted by the authorities of all lower-level tiers.

The area of the county-level administration is taken as the standard geographic unit by the NPFPC for determining floating population. The area of the county-level administration includes counties, city districts, and cities where no city districts are designated. Within a province, this is the smallest administrative unit governed by the same set of birth regulations. This choice of the geographic threshold is to mini-

[5] These include, among others, *liudong renkou jihua shengyu gongzuo tiaoli* (*Working regulations for family planning of floating population*), issued by the State Council on 11 May 2009; *guanyu jiaqiang quanyuan liudong renkou tongji kaizhan liudong renkou dongtai jiance de zhidao yijian* (*Instructional guidelines for enhancing the statistics work and dynamic surveillance of entire floating population*), issued by the General Office of the NPFPC on 15 March 2010; *quanyuan liudong renkou jiben qingkuang tongjibiao zhibiao jieshi* (*Explanations on regulations for family planning of floating population*), issued by the Department of Floating Population Services and Management, the NPFPC on 17 May 2010.

mize the problems of jurisdiction that arise in the division of labour between birth planning authorities at the places of *hukou* registration and places of current residence. The tabulations published by the NPFPC hitherto offer information on non-*hukou* migration which is defined by a different spatial threshold from that of the MPS.

There is a lack of agreement as to the temporal standard to define floating population among provincial family planning authorities. The choice of the standard varies from 15 to 30 days. Again, the choice of the temporal standard is often connected to the tight control of birth planning. Though the NPFPC stipulates the period of 30 days as the standard, the family planning apparatus of locales with more stringer sanctions on the people's fertility and contraception tend to adopt a standard duration shorter than that of the national stipulation.

3.5 The NBS Definition of Alien Population

As the most authoritative bureaucracy to provide the leadership with the necessary information for decision-making and to release social and economic statistics for the general public, the NBS compiles, in accordance with the Statistics Law, the population data through multiple mechanisms: regular censuses (in years with last digit 0) as the basis, routine 1 % sample population surveys or called micro-census (in years with last digit 5) as mainstay, regularly or occasionally necessary reporting, investigations, and comprehensive analysis as supplement.[6] In this regard, data users must be cautious with the indirectly reporting nature of non-*hukou* migrant data from the NBS and possible data adjustment (upward or downward revision) in certain years (e.g. intercensal years), though the NBS always emphasizes the importance of objectivity and reliability in data compilation.

The provision of national non-*hukou* migration data by census indicates changes in the official stance towards "spontaneous" migration. During the centrally planned period, temporary migration without official arrangements or without going through required official procedures was not regarded as lawful moves. No "spontaneous" migration of this sort was permitted. With an introduction of a new set of regulations governing temporary residence for those without local *hukou* registration since the early 1980s, self-arranged migration has been tacitly allowed (Chan and Zhang 1999). Correspondingly, there was no systematic counting of non-*hukou* migrants in the PRC's first two censuses apart from a question on registration residence. The third census in 1982 began to provide information about non-*hukou* migrants against the background of rapid urbanization. Since then, subsequent censuses purposely recorded such information but offered much more detail to count different geographical scales of non-*hukou* migration. Table 3.1 provides statistical criteria used in censuses to denote non-*hukou* migrants. As shown in the table, different censuses

[6] The Statistics Law was first endorsed by the National People's Congress in 1983 and revised in 1996.

Table 3.1 Comparison of the census criteria for non-*hukou* migrants

	1st census (1953)	2nd census (1964)	3rd census (1982)	4th census (1990)	5th census (2000)	6th census (2010)
Status of hukou residence	Not living in the place of usual residence	Staying elsewhere without authorized travel documents	Staying outside the place of hukou registration; or no hukou registration in the current place of residence	Staying outside the place of hukou registration; or no hukou registration in the current place of residence	Staying outside the place of hukou registration; or no hukou registration in the current place of residence; or hukou status to be determined	Staying outside the place of hukou registration; or no hukou registration in the current place of residence; or hukou status to be determined
Method of enumeration	Registration in census offices in the place of residence	Registration in census offices in the place of residence	Registration in census offices in the place of residence, in combination with household visits and direct interviews	Household visits and direct interviews	Household visits and direct interviews	Household visits and direct interviews
Migration-defining area	The limit of census zone	The limit of hukou jurisdiction zone	The limit of county-level geographic unit	The limit of county-level geographic unit	The limit of an urban district in cities; the limit of a township in rural areas	The limit of an urban district in cities; the limit of a township in rural areas
Migration-defining period	6 months or over	Not specified	12 months or over	12 months or over	6 months or over	6 months or less; over 6 months
Official census time	At 24:00 on 30th June	At 24:00 on 30th June	00:00 on 1st July	00:00 on 1st July	00:00 on 1st November	00:00 on 1st November
Scope of statistics	Those staying outside for 6 months or over	Migrants without hukou transfer	Those whose current residences differ from the places of hukou registration, excluding intra-county migrants	Those whose current residences differ from the places of hukou registration or usual residence 5 years ago, excluding intra-county migrants	Those whose current residences differ from the places of hukou registration, including intra-county migrants	Those whose current residences differ from the places of hukou registration, including intra-county migrants

Source: Compiled from Sun (2009)

use different spatial and temporal criteria, both of them are tied to the *hukou* registration status, to define non-*hukou* migrants in a given locale and in a given period.

Chinese censuses at first sight seem to use an approach of quasi *de jure* enumeration to count migrants, as they make a special reference to individuals' personal legal residence identified by the *hukou* registration. More specifically, both the 1982 and 1990 censuses defined non-*hukou* migrants simply as: (a) those who physically stayed in the enumeration tract without *hukou* registration for more than 1 year or (b) registered persons who were absent at the *hukou* location for more than 1 year. In order to qualify as migrants, they should move across the boundary of a county-level unit. The 1990 census recorded information of the place of current abode and the place of residence 5 years earlier to identify migrants, in addition to the *hukou* registration status of informants. Such information allowed detecting migration in the 5 years prior to the census. From the 2000 census, the spatial criterion changed to the sub-county level and the temporal criterion changed to 6 months to include shorter-term non-*hukou* migrants and to allow researchers to differentiate various types of non-*hukou* migrants with considerable spatial and temporal precision (such as mobility across township and street committee boundaries). The 2000 census recorded place of birth as well as location of last residence, and it recorded the year of last move too. Therefore, the changes in volume reflect not only changes in actual mobility but also the changes in the census definition. Although censuses serve as the main instrument for the validation of data deriving from other sources or from intercensal years, definitional changes of census present a challenge to compare the total volumes of non-*hukou* migrants across census intervals.

In other NBS publications that supply the annual data, non-*hukou* migrants are usually termed as "alien population" (*wailai renkou*). The term itself is indicative of proactive differentiation of the *hukou* status (local or non-local) among population. In general, alien population refers to persons who are from elsewhere and currently live in the place other than their place of permanent residence. These include persons who come to stay for a wide range of purposes, social or economic. The NBS in the Statistical Yearbook series offers the stock numbers of alien population each year since the mid-1990s. Each edition of the Yearbook contains the numbers for the most recent years. In the time-series data, the spatial and temporal criteria to identify alien population are essentially the same as those in the corresponding censuses that provide the numerical base to estimate annual figures. Unlike the MPS or the NPFPC data which are derived from actual registration or household-visiting enumeration, the numbers published by the NBS are not based on direct counts but are just extrapolations made from censuses and sample surveys. The sample surveys are conducted routinely at a fair number of sites such as railway or coach stations, hotels and guesthouses, work sites, free markets, and other sites that migrants may agglomerate. The percentage of total sampled population is about 0.1 %. However, the methods of extrapolation are never publicized. One knows little how the NBS moves the estimates closer to actuality. Because they come from indirect estimates, the numbers of alien population are themselves frequently the results of revisions, including retrospective revisions to statistics published before.

One more point should be noted in this juncture. In its time-series statistics, the NBS uses three temporal categories (staying for less than 6 months, staying for 6 months or more, staying for over 1 year) to differentiate the temporality of alien residents in cities. People in the latter two categories are treated as part of the regular residents (*changzhu renkou*) and are used as denominators of various per capita indicators in the NBS various tabulations. For example, while migrants staying 6 months or over are included in the total number of the city's regular residents in official compendiums, only those staying for over a year are included in the denominator in the city's per capita GDP calculation.

3.6 Political Economy of Migration and Definitional Complexities

Table 3.2 provides comparison of statistical attributes among various official definitions of non-*hukou* migrants. The table shows that different definitions share certain statistical commonalty and distinctness. In Chinese statistics, the synonymous terms of "temporary population" (*zanzhu renkou*), "floating population" (*liudong renkou*) and "alien population" (*wailai renkou*) are actually used, sometimes interchangeably, to denote non-*hukou* migrants. The linkage between the *hukou* registration status and the classification of migrants is direct and implicit. Generally speaking, non-*hukou* migrants are classified as exoduses who reside outside the area of their *hukou* registration jurisdiction for a certain period without seeking an official permission for moving. Statistically, the measurement of the size of such exoduses is mainly affected by three key variables: (a) the discordance between the place of current residence and the place of regular *hukou* registration; (b) the designation of the *hukou* migration-defining area; and (c) the minimum duration of stay in the destination. All of them constitute the specifics that are evolving, depending upon a host of empirical considerations for particular situations. Owing to the different purposes of data compilation and the differences in specifics, the numerical aggregates of the non-*hukou* migrants from different official sources may be expectedly quite different even for the same year.

Moving from beyond the technical level, inconsistent/incompatible criteria pertaining to non-*hukou* migrant definition are not merely statistical matters, of concern just with accurate migrant counts. The definitional complexities should not be seen in a narrow "population classification" framework only, but should be conceptualized as inexorably bound up with one paradoxical reality created by economic and institutional reforms underway in China: the promotion of urbanization but, simultaneously, the control of migrant's urban citizenship. To facilitate urbanization, rural migrants are now allowed to work in cities and the central government pledges to expedite the integration of rural migrants into cities. However, many conventional aspects of citizenship (namely, access to schooling and health care, government-funded welfare benefits, and other prerogatives) remain unavailable to

Table 3.2 Specifics of statistical variables pertaining to the definition of non-*hukou* migrants

Variables[a]	Administrative registration data		Statistics produced from survey and census	
	MPS	NPFPC	NBS (annual statistics)	NBS (census)
A primary purpose of statistics compilation	Enforcement of migration management	Enforcement of birth planning regulations	Collection of population information	Collection of population information
Specific vocabulary	Temporary population	Floating population	Alien population	Floating population
Method of enumeration	Self reporting	Household interview	Compilation based on data from various sources, with necessary statistical extrapolation	Household interview
Status of hukou registration	Staying outside the place of permanent hukou registration	Staying outside the place of permanent hukou registration	Staying outside the place of permanent hukou registration	Staying outside the place of permanent hukou registration
Migration-defining place	Township-level units (countryside), hukou jurisdiction zone (cities)	The limit of county-level unit	The limit of township-level unit in rural areas, the limit of district-level unit in cities	The limit of township-level unit in rural areas, the limit of district-level unit in cities
Time-period of arrival in the place	3 days or more	15–30 days	1 day or more	6 months or more
Time-period of departure from the place	None	15–30 days	None	Less than 6 moths, or over 6 months
Types of migrant included in the data	In-migrants	In-migrants and out-migrants	In-migrants	In-migrants and out-migrants
Coverage of age groups	Age 16 and over	Age at 18–49[b]	All	All
Migrants who cannot be discovered from the data	Those under aged 16	Those not at the reproductive ages	Those with uncertain hukou status	Those with uncertain hukou status
Periodicity of statistics compilation	Instantaneously	Monthly/quarterly	Yearly	Decennially
Published statistics pertaining at a specific time	End of the year	End of the year	End of the year	Official census time

Sources: The author's compilation based on the following documents: Ministry of Public Security (1995), State Council (2009), General Office of the National Population and Family Planning Commission (2010), Department of Floating Population Services and Management, the National Population and Family Planning Commission (2010), and Office of the Leading Group of the State Council for the Sixth Census (2010)

Notes: [a]Specifics of variables are evolving over time to accommodate socioeconomic changes. The table synthesizes the latest criteria

[b]Children migrants are included in the statistics of some provinces (such as Fujian province)

those without a local urban *hukou.* Specifically, two prominent but juxtaposed official perceptions are associated with such paradox and make implications on the definition/measurement of non-*hukou* migrants: official metaphors on the role of migrants and socioeconomic justification of migrant administration. The subsequent discussion elaborates this observation.

3.6.1 Interpretation on Official Metaphors on the Role of Migrants

Apparently, non-*hukou* migrants in all definitions refer to those whose *hukou* registration status does not necessarily represent their actual residence. This means that comprehending the definition of non-*hukou* migrants must first be placed in the paradoxical context of China's current economic reforms that allow rural migrants to participate in urban employment but not allow them to transfer their socioeconomic rights from one of rurality to one of urbanity.

In the centrally planned economy, free migration in China has been suppressed by various restricting institutions such as the *hukou* system for a variety of political and economic purposes. By nature, the Chinese *hukou* registration is an official identity of socioeconomic rights in a given geographic unit. The connection between citizenship and residence requirement is very strong, thereby excluding those without local permanent *hukou* (Wang 2005; Zhang and Wang 2010). Market-oriented reforms have reduced the role of governments at all levels in dictating patterns of migration. Individual migration decisions are now made through the market and rural-to-urban migration has become one of the most visible features of China's development. However, migrants are treated as necessary contributors of the urban economy but not as qualified beneficiaries in host cities. They are seen by city governments as a drain on local resources from the city's government budget, since the provision of public goods/services is perceived as a function of recipient numbers. The large number of non-*hukou* migrants is a product of economic reforms but reflects an uneasy blending of government control and market forces with regard to the process of rural-to-urban migration. Non-*hukou* migrants, who suffer from the denial of many entitlements supposedly to be associated with their relocation within the same country, are assumed to be returning to their original places eventually. On this account, the existence of non-*hukou* migrants is a reflection of another form of migration control. Retaining a control role in the materialization of urban citizenship necessitates city governments to continuously use the *hukou* system to define/classify the beneficiaries qualified for local public goods in accordance with government's perceived socioeconomic impacts of migration. As a consequence, a substantial part of the urban residents who have no local *hukou* falls under the category of "temporary population", a special subgroup of the city's population, in the municipality's administrative systems (Zhang and Wang 2010; Zhang 2012).

3.6.2 Socioeconomic Justification of Migrant Administration and Definitional Complexities

The necessity of the administration of non-*hukou* migrants connotes also the definitional complexities. First, for the sake of social order and the implementation of regulatory policies such as birth planning and migration control, the government's purview on many aspects of migrant's life seems necessary. At the level of implementation, the responsibility for the administration of non-*hukou* migrants has placed on local governments and different aspects of non-*hukou* migrants are administered by relevant functional departments. Migrants therefore should be defined in accordance with different status-based administrations.

Second, with massive rural-to-urban migration and because of the dual role of migrants on the economy and society, migrant services and administration become a necessary routine task of local governments. The Chinese Communist Party has proclaimed, in the 12th Five-Year Plan for China's economic and social development (2011–15), that accelerating urbanization is indispensable to sustain economic growth and to reduce rural–urban inequality. There are many central calls for the improvement of non-*hukou* migrants' citizenship status by gradually lifting some restrictions that prevent them from accessing public services. Nonetheless, the achievement of the centre's rhetoric requires commitment on the part of local governments, which now have come to shoulder much of the burden of social goods under the country's existing tax-sharing fiscal system.[7] At the local level, immigrants are perceived as both a reward that promotes local growth and a problem that places a burden on local public finance. The huge influx of migrant workers makes cities enjoy demographic dividends and talents/capitals brought by migrants. However, city governments also need to concern a tension between the cost of services consumed by migrants and the shortage of necessary funds. Considering both administrative and financial needs, local governments have codified the administration of non-*hukou* migrants. This means that the measurement of non-*hukou* migrants and related definitional specifics must necessarily be in the form of policy papers and manipulated variously from one department to another and from one locale to another.

The points systems newly introduced in Chinese cities exemplify how the political economy of migration shapes the complexity of non-*hukou* migrant definition. On 7 June 2011, the authority of Guangdong province in southern China, a home of 30 million non-*hukou* migrants (about a quarter of the province's total population) from various parts of the country, promulgated a policy guideline of the points sys-

[7] The tax-sharing system, legislated as the budgetary law in 1994, regularized the central-local fiscal relationship in a rules-based manner. Under the system, all taxes were designated into three parts: central revenue, local revenue, and a pool of shared revenue. Nonetheless, the right to legislate taxes and their rates remained with the central government. Under the system, the burden of the increase in expenditures falls most heavily on local governments, which provide over 80 % of total public spending. For elaboration, see Luo and Wang 2008; Wong 2010.

tem that institutionalized the conversion process through which a non-local *hukou* holder could acquire a local permanent *hukou* in any cities of the province (Table 3.3).[8]

Table 3.3 A guideline for the rating scheme for qualifying for urban *hukou*, Guangdong province

Category/indicator		Point	Note for the category/indicator
Part I Province-wide common assessment			
A. Personal quality			
Educational attainment	Junior secondary school	+5	The applicant can score in only one of the indicators in the category of educational attainment
	Senior secondary school or vocational school	+20	
	College	+60	
	An undergraduate degree or above	+80	
Professional qualification	Junior-level technician title	+10	The applicant can score in only one of the indicators in the category of professional qualification
	Middle-level technician title	+30	
	Senior-level technician title	+50	
	Professional title equivalent to the associate professor level	+60	
B. Contribution to social security program			
Participation in social security program	Number of years to contribute to social security plans	+1 for 1-year contribution to one plan	(1) Plans in this indicator include urban basic pension insurance, urban basic medical insurance, unemployment insurance, work injury insurance, and maternity insurance. (2) The maximum score in this indicator is 50 points
C. Contribution to the local community			
Participation in community services in the past 5 years	Donation of blood	+2 per donation	The maximum score in this indicator is 10 points
	Participation in voluntary services	+2 per reference unit	(1) 50 h of service is taken as one reference unit. (2) The maximum score is 10 points in this indicator
	Philanthropic donation	+2 per 1,000 *yuan*	(1) The beneficiary must be a philanthropic organization authorized by government. (2) The maximum score is 10 points in this indicator

(continued)

[8] Following the provincial guideline, several migrant-receiving cities of the province, including Shenzhen, Guangzhou, and Dongguan, unveiled their points systems. Beijing and Shanghai are going to introduce their points systems soon.

Table 3.3 (continued)

Category/indicator		Point	Note for the category/indicator
Award and honor	An award or honor granted by governmental authorities at the county-level	+30 per award/honor	The maximum score is 60 points in this indicator
	An award or honor granted by governmental authorities at the prefecture-level or above	+60 per award/honor	The maximum score is 120 points in this indicator
D. Punishment			
Violation of family planning regulation	Any case of unpermitted birth	−100 min.	(1) A 5-year ineligibility period for application is applied if the applicant receives any family-planning related punishment. (2) Upon the expiration of the ineligibility period, 100 points are deducted for the first case of violation and double points are deducted for the subsequent cases
Crimes in the past 5 years	A record of reeducation through labor camp	−50	
	A record of imprisonment sentence	−100	
Part II Locality-specific assessment			
Subject to stipulations by individual cities			

Source: The General Office of Guangdong Provincial Government (2010)

The points system is a kind of assessment scheme for an applicant's qualifications for the local urban *hukou*. The qualifications are assessed by a number of variables with specified points. In order to qualify for the local urban *hukou*, the applicant has to accumulate sufficient points beyond the qualification mark, which is the sum of the total points that the applicant can score for all variables listed in the point-test sheet.

The points system, in effect, is an exclusionary mechanism for inclusion of selected few but exclusion of many to local citizenship. It is intertwined with two functions of the urban *hukou*: as an aggressive means of competition for talent and investment which are regarded as crucial development resources, and as a "planning" instrument for controlling the number of beneficiaries who may share the outcome of development. Although the points system seems rather hollow at the current stage and provides no immediate solution to urban citizenship associated with non-*hukou* migration, various bureaucracies have to bother with the compilation of detailed information by population characteristics as part of the larger administration system in order to make the points system manageable. Based on such information, government departments concerned can perform the relevant administrative functions and define entitlements and obligations for different parts of the population by the distinction of permanent or provisional registration status.

For example, migrant's applications for a temporary, renewable residence permit (RP), an official proof of documented conditional stay, are now connected to a point-based management scheme that can access limited public services and lead to the path to the local urban *hukou*. RP holders are offered the possibility of conversion to the host city's *hukou* after serving in the temporary category for some years – provided that they have accumulated sufficient points. Contributions, merits and obligations of RP holders are linked to point accumulation, and are manipulated and administered by respective functional bureaucracies. While the convertibility feature accruing from the possession of the RP makes non-*hukou* migrants more like "preparatory" or "probationary" citizens in cities, changes in migration administration require many government departments to manipulate variable specifics of the non-*hukou* migrant definition in accordance with the peculiarities of their administrative chores. Consequently, definitions of migrant statistics are complicated by overlapping jurisdictions and data from one bureaucracy often do not conform to similar data from the other bureaucracies. The MPS runs the household registers which contain the number of temporary residents in all age groups. The NPFPC is responsible and keeps its record for the evaluation of birth control performance by migrants who are at reproductive ages. Data for migrant employment and the migrant's participation in social security schemes are collected by the Ministry of Human Resources and Social Security, which tabulates the number of migrant workers who have gone through employment formality. Though there are many official attempts at a migrant count, the category of non-*hukou* migrants in the published data of various administrations may in fact refer to different sub-groups of the migrant population.

3.7 Concluding Remarks

In recent years, large-scale rural-to-urban migration has had a significant impact on the economic and social landscape of urban China. However, Chinese migration data suffer from various complications, making the measurement of non-*hukou* migrants one of the more challenging areas of China Studies in population-based quantitative analysis and qualitative arguments. The sizes of non-*hukou* migrants are enumerated variably across authoritative sources, since sources vary in their choice of migration criteria and catch different parts of this population group. The definitional complexities are still poorly understood in the literature, as available sources usually offer no detailed explanation on their definitional specifics. Also, few studies explore the implication of the political economy of migration on definitional complexities of non-*hukou* migrants. Confusion on the definition of non-*hukou* migrants has hampered our ability to understand clearly not only China's migration dynamics but also many other socioeconomic transformations brought by internal migration. Our understanding of China's socioeconomic per capita indicators is also plagued by the definitional complexity of non-*hukou* migrants.

This chapter represents an attempt towards improving our understanding of official diverse claims on the measurement of non-*hukou* migrants by documentation of detailed criteria of all variables on which different bureaucracies use to define non-*hukou* migration. Our analysis suggests two levels of understanding. On the surface, the different purposes, coverage and criteria used in defining the geographic boundary and the minimum duration of stay, and different numeration methods help to technically explain part of the large discrepancies. In essence, the definitional complexities are a product of the political economy of migration that fosters an unequal treatment of the socioeconomic rights of migrants. When studying China's post-reform development in general and migration in particular, one should exercise necessary caution when using the official statistics of non-*hukou* migrants to avoid making obvious mistakes. The definitional complexities also draw attention to the application of a political economy approach for understanding Chinese migration data.

Acknowledgement This research is supported by the Ministry of Education of PRC (12YJA840033) and the National Social Science Foundation of PRC (12BRK018).

References

Banister J (1984) An analysis of recent data on the population of China. Popul Dev Rev 10(2):241–271

Chan KW, Zhang L (1999) The hukou system and rural–urban migration in China: processes and changes. China Q 160:818–855

Cheng T, Selden M (1994) The origins and social consequences of China's hukou system. China Q 139:644–668

China Development and Research Foundation (2010) Cujin ren de fazhan de zhongguo xinxing chengshihua zhanlue (China Development Report 2010: Promoting People's Development as China New Urbanization Strategy). People Publishing House, Beijing

Decree of the President of the People's Republic of China (1989) Zhonghua renmin gongheguo chengshi jumin weiyuanhui zuzhifa (The law of organization of city resident committee of the PRC), issued on 26 December

Department of Floating Population Services and Management, the National Population and Family Planning Commission (2010) Liudong renkou jihuashengyu gongzuo tiaoli shiyi (Explanations on regulations for family planning of floating population), issued on 17 May

General Office of the National Population and Family Planning Commission (2010) Guanyu jiaqiang quanyuan liudong renkou tongji kaizhan liudong renkou dongtai jiance de zhidao yijian (Instructional guidelines for enhancing the statistics work and dynamic surveillance of entire floating population), issued on 15 March

Greenhalgh S (2008) Just one child: science and policy in Deng's China. University of California Press, Berkeley

Gu B, Wang F, Guo ZG, Zhang EL (2007) China's local and national fertility policies at the end of the twentieth century. Popul Dev Rev 33(1):129–147

Holz CA (2003) Fast, clear and accurate: how reliable are Chinese output and economic growth statistics? China Q 173:122–163

Liu T, Chan KW (2001) National statistics on internal migration in China. China Inf 15(2):75–113

Lu L, Duan CR (2012) Dui woguo liudong renkou tongji diaocha de zongjie yu sikao (Summary and views on the investigation of China's floating population statistics) South China Population No. 3, pp 73–80

Luo J, Wang S (eds) (2008) Public finance in China: reform and growth for a harmonious society. The World Bank, Washington, DC

Ministry of Public Security (1954) Gongan paichusuo zuzhi tiaoli (Regulations for the organization of public security substations)

Ministry of Public Security (1978) Gongan paichusuo gongzuo xize (shixing caoan) (Provisional detailed guidelines for the works of public security substations)

Ministry of Public Security (1995) Zanzhuzheng shenling banfa (Regulations on applications for temporary residence permits)

Ministry of Public Security (various years) Zhongguo zanzhu renkou tongji ziliao huibian (Compilation of Statistical Materials on Temporary Population in China). Mass Publishing House, Beijing

National People's Congress (1954) Chengshi jiedao banshichu zuzhi tiaoli (The regulations for the organization of city street government offices), issued on 31 December

National Population and Family Planning Commission (2010) Quanyuan liudong renkou jiben qingkuan tongjitiao zhibiao jieshi (Explanations on the indicators in the tabulation of basic items of entire floating population), issued on 15 March

Office of the Leading Group of the State Council for the Sixth Census (2010) Diliuci quanguo renkou pucha gongzuo shouce (Working manuals of the sixth national census)

Rawski T (2001) What is happening to China's GDP statistics? China Econ Rev 12(4):347–354

Scharping T (2001) Hide-and-seek: China's elusive population data. China Econ Rev 12(4):323–332

Scharping T (2003) Birth control in China, 1949–2000: population policy and demographic development. Routledge, London/New York

State Council (2006) Gongan jiguan zuzhi guanli taoli (Regulations for the organization and management of public security organs), issued on 1st Nov

State Council (2009) Liudong renkou jihuashengyu gongzuo tiaoli (Working regulations for family planning of floating population), issued on 11 May

Sun JX (2009) Renkou pucha yu chouyang diaocha (Censuses and surveys). In: Lu Y, Zhai ZW (eds), Xinzhongguo renkou liushinian (Sixty years of new China population). China Population Publishing House, Beijing, pp 851–910

The General Office of Guangdong Provincial Government (2010) Guanyu kaizhan nongmingong jifenzhi ruhu chengzhen gongzuo de zhidao yijian (Suggestive guidelines for the implementation of point-based urban hukou granting), document no. [2010]32, issued on 23 June

The National Bureau of Statistics (various years) China Statistical Yearbook. China Statistics Press, Beijing

Wang F (2005) Organizing through division and exclusion: China's hukou system. Stanford University Press, Stanford

Wong C (2010) Paying for the harmonious society. China Econ Q June: 20–25

Zhang L (2012) Economic migration and urban citizenship in China: the role of points systems. Popul Dev Rev 38(3):503–533

Zhang L, Tao L (2012) Barriers to the acquisition of urban hukou in Chinese cities. Environ Plan A 44(12):2883–2900

Zhang L, Wang GX (2010) Urban citizenship of rural migrants in reform-era China. Citizensh Stud 14(2):145–166

Chapter 4
How China's "Floating Population" Floats: Recent Patterns in Migrant Workers' Spatial Mobility and Destination Choice

Mark Y.L. Wang and James Maino

Abstract This chapter estimates the effect of individual and regional attributes on income and job prestige using an original data set containing detailed working histories of approximately 2,300 temporary rural-to-urban migrants. Migrant worker job transitions are examined through time, as well as associated changes in prestige scores. An augmented Mincer model is utilized to explore the extent to which personal characteristics and job history determine earnings. Returns to education and work experience are estimated and compared with data sets on urban resident. The results highlight gender segregation in occupational structure and patterns of change, but show no overall difference in the average perceived job prestige between men and women. While the notion of local-migrant wage disparities is supported by this study, returns to work experience and education of migrants and locals were comparable. It is found that rural work experience contributes very little to migrant worker earnings. Such findings contribute to a richer understanding of an important and diverse labour force too often mischaracterized as static and homogenous.

4.1 Introduction

China's "floating population" or migrant workers (*liu dong ren kou* or *mingong* in Chinese *pinyin*) are a transformative economic force. The 140-million strong working force (NBS 2009) provides China a variety of services at low cost – they construct skyscrapers, assemble ubiquitous 'Made-in-China' products, and are a driving force behind China's spectacular growth and maintain the global competitiveness of manufactured goods. Beyond city walls, remittances earned by migrant workers are an important source of income for rural areas, contributing an estimated one-third to

M.Y.L. Wang (✉)
School of Geography, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: myw@unimelb.edu.au

J. Maino
Department of Zoology, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: j.maino@student.unimelb.edu.au

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_4

40 % of the rural net income (Wang 2010). However, due to their official migrant status, migrant workers face widespread occupational and wage discrimination (Knight and Yueh 2003; Liu 2005). According to a survey conducted by the All-China Federation of Trade Unions in 2006, about 65 % of migrant workers took so-called "Three-D jobs" i.e. jobs that are dirty, dangerous and demeaning (Tao 2006). They work longer hours and receive lower wages than their urban counterparts, with over 80 % of migrant workers working 7 days a week (Shi 2008). Despite a recent increase in local minimum wages in many Chinese cities resulting from new labour laws, migrant workers' minimum wages are set at just 40–60 % of the average local wage (Pai 2010).

In spite of these issues, there is a shortage of quality data on this important subset of China's working population, especially a complete set of data about how their migration outcome is associated with their employment history, social network, family background at both the place of origin and destination. In both the academic literature and the media, the majority of studies are based on individual and small group accounts of occupational mobility, socio-economic progression, and employment experiences (see Zhou et al. 2007; Chen 2010; Han et al. 2011). Other reports reveal motivations for migration and the causes of poor treatment at destinations (Hare 1999; Solinger 1999; Zhu 2002). The quantitative studies that do exist rely on cross-sectional data in which rural-to-urban migrants are not disaggregated from urban-to-urban, urban-to-rural, or rural-to-rural migrants (Démurger et al. 2008; Shi 2008; Knight and Yueh 2003; Hare 2002; Powers and Seltzer 1998; Cao and Hu 2007).

There are key practical difficulties in the study of migrant workers that explain why this gap in the literature has persisted. As many researchers in the field acknowledge, the high mobility and employment instability of migrant workers have meant that formal statistics and global surveys covering this population are non-existent (Zhu et al. 2009). Moreover, migrant workers' economic activities often go unrecorded as they are frequently employed in the informal sector, often change jobs and employment location, or otherwise do not properly register with their host city (Roberts 1997). In addition, many studies on migrant workers are location-specific and therefore underplay the importance of spatial disparities and the differential effects of sending and receiving regions. Lastly, despite acknowledging the role of human capital and other individualistic traits of workers in determining their occupational opportunities (Hu 2008; Zhao 2003), studies still place most emphasis on the importance of institutional factors. This leads to broad characterisations of migrants as poorly paid, engaged in highly labour intensive, and unstable jobs, with little room for upwards mobility (Zhao 2005). Therefore, factors such as high mobility, job instability and tendency of migrant workers to find employment in informal sectors make quality data on this population difficult to obtain. This has caused large gaps to persist in the literature surrounding the spatial and social mobility of migrant workers based on large scale survey data.

This study hopes to develop understandings of migration in China through the support of a recent, original data set constructed from samples across a wide spatial range. The survey, taken in early 2009, spans 143 rural villages from 24 provinces,

and includes 2,543 participants. By taking Bertaux-Wiame's (1979) life course approach which examines an individual's life history and sees how early events influence future decisions and events, the original data is used to offer a unique perspective on recent patterns concerning the spatial mobility of migrant workers. A key attribute of the dataset facilitating this analysis is its inclusion of participants' individual characteristics, working history, and home village attributes. Such insight is comparatively difficult to achieve with the data sets commonly used in the literature, which frequently do not distinguish rural-to-urban migrants from other forms of migration. This study will investigate factors influencing destination choice of workers, including the effects of accumulated experience, attributes of sending and receiving regions, distance, and individual specific factors (education, social networks, gender, means of job acquisition, age). The aims of this study are: (a) to explore recent patterns in the internal migration of China's migrant workers; and (b) to test the hypothesis of whether a life course perspective is relevant to the understanding China's internal migration patterns.

4.2 Research Methods

4.2.1 Survey Design and Data Collection

Data collection was organized and funded through an Australian Research Council Discovery Project in January–February 2009 when the global financial crisis hit China. The survey consisted primarily of three parts, comprising answers from 2,543 migrant workers. The three sections of the questionnaire consisted of a village description, the individuals' personal attributes, and their working history. To overcome some of the difficulties of data collection previously mentioned, a creative sampling method was used whereby university students studying at two universities in Kaili City (Kaili College and Kaili Technology College) in Guizhou Province. Students were employed as interviewers and they came from a diverse range of villages across China. This approach provided convenient access to a great many rural locations that would have otherwise been difficult to include in the sample. The use of local students as interviewers, who were familiar with their home village and dialect, was also seen as crucial to enhance the reliability of responses.

The migrant workers were surveyed at their home villages during the Chinese New Year in 2009. This is China's longest public holiday and, for the majority of migrant workers, the only chance to return home in the year. It is precisely for this reason that the surveys were conducted during this period. In total, 143 rural villages in 24 of China's provinces were included in the sample (we take provinces to include regular provinces such as Guangdong, autonomous regions such as Xinjiang, and centrally administered municipalities such as Beijing) (see Fig. 4.1). The sample's spatial coverage is one of the key strengths of this data set though it may not be perfectly representative. Due to restrictions of finance, available time and

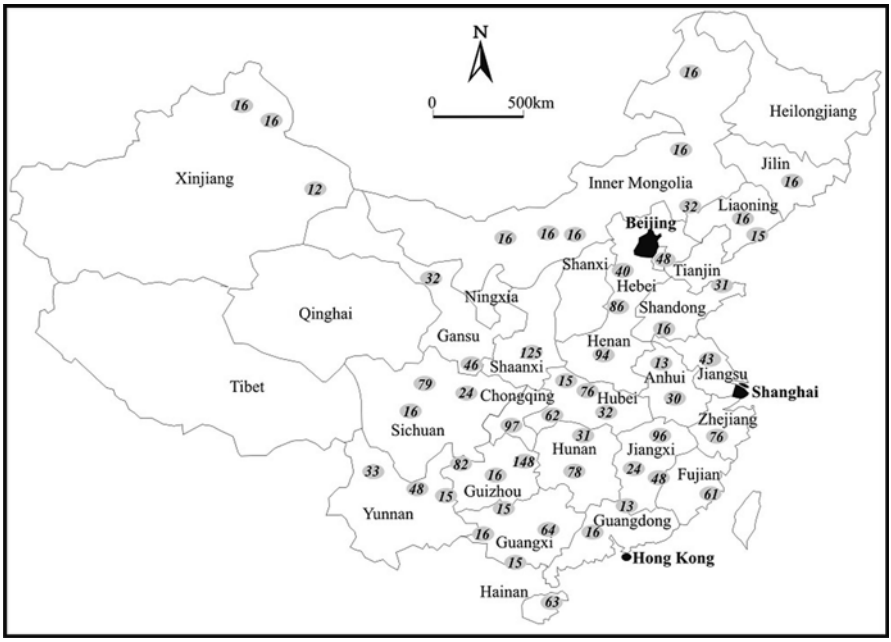


Fig. 4.1 An approximate spatial distribution of the sampled migrant worker's home villages across China

interviewees, there were no strict sampling quotas set. The proportions of migrant workers surveyed at each location, and the number of student interviewers deployed at each location followed loosely the distribution of migrant workers across provinces and villages.

To enhance sampling fidelity, all interviewers attended a day course on the procedure of selection and interviewing of migrant workers at each village. Steps were also taken to remove biases from the selection procedure of study participants by instructing interviewers to survey households randomly in one of every three houses in sequence. However, if the house was empty, or there were no migrant workers in the household or in cases where migrant workers did not wish to take part, which was very uncommon, interviewers would move on to the next household in the sequence until a response was recorded. Though far from being perfect, this method was able to avoid over-representation from groups of friends, family members or neighbours of the interviewers. Consequently, a relatively even spread of respondents was obtained.

4.2.2 Quantitative Approach

In any migration process, the stages of mobility are likely affected by a variety of life cycles, economic and other factors (Rephann and Vencatasawmy 1999). Among these are marriage, divorce, birth and aging of children, completion of schooling, and

retirement. Other potentially important personal characteristics include employment status, earnings, education, accumulated skills and training, job tenure, age, sex, and health (Greenwood 1997). This paper identifies many of these factors and incorporates them into models that estimate their impact on destination choice.

The complexity of the dynamic processes affecting migration requires a methodologically rigorous, computationally tractable and theoretically sound modelling framework (Pellegrini and Fotheringham 2002). Also, as individuals are assumed to migrate with the perceived situation improvement and benefits or utility which depend on a number of factors, it is necessary to relate their spatial behaviour to both regional and individual characteristics. This spatial behaviour can influence migrants' spatial choice models.

To understand the choice made by an individual faced with a set of alternative destinations a decision rule that describes how a unique choice is achieved is required (Pellegrini and Fotheringham 2002). The concept of utility helps to build assumptions whereby individuals are perceived to apply an assessment framework when evaluating alternatives. The assessment is expressed through a scalar value of utility representing the attractiveness of an alternative as a function of relevant variables associated with the choice (Ben-Akiva and Lerman 1985). Variables included in this function may be those already discussed in previous sections, for example distance, job availability, expected earnings, or available social network. The assumption is that migrants make their decisions based on the associated utility of each alternative. Therefore, modelling utility can help build an understanding of destination choice.

This paper presents results from two statistical analyses combining the ideas of life course attributes and utility of destination choice. The first model consists of a simple multiple regression on the distance of migration (a numerical variable), while the second model is a multinomial logit regression on the choice of destination (a categorical variable). Independent variables consist of individual-specific and regional-specific demographic and socio-economic characteristics that are likely to influence a person's desire to migrate.

Multiple regression models are well suited for modelling numerical data such as travel distance. The presented multiple regression model is based on a robust regression method of iterated re-weighted least squares. Such methods are appropriate for data sets, such as that used by this study, which exhibit heteroscedasdicity in residual deviations. Multinomial logit regression (MNL) has been widely used throughout the literature in modelling discrete choice. MNL techniques are computationally efficient and can be used to explore both individual specific variables – variables that do not depend on the choice made – such as gender, or age; as well choice specific variables – variables that do depend on the choice – such as the distance of a destination choice from the migrant's place of origin or the level of economic development at the destination.

Choice specific variables were included based on their relevance to past models applied to spatial data in China (e.g. Fan 2005), as well as their inclusion in migration studies external to China (Rephann and Vencatasawmy 1999; Greenwood 1997). Choice-specific and individual-specific variables included in the model are listed in Table 4.4 in the next section.

One frequently cited limitation of MNL models is its Independence of Irrelevant Alternatives (IIA) property that, when invalid, can lead to erroneous predictions of spatial choice (Pellegrini and Fotheringham 2002). To overcome this limitation a Hausman-McFadden test was applied to the fitted model to assess the validity of the IIA assumption. Tests concluded that there was no evidence (at the 0.05 significance level) to suggest that the IIA assumption had been breached.

Locations of home villages and receiving locations are coded at the town (city, village) level accurately. The resolution of co-ordinates allows for distance models to be fitted. For the spatial choice models, China's receiving regions are divided by province (with the exclusion of Tibet, Ningxia, Qinghai and Anhui which possessed too few responses to estimate model parameters).

4.3 Results and Discussion

Table 4.1 describes some characteristics of migrant workers in the sample by gender. The mean time since entering urban employment was less for women. On average, men in the sample were older than women, reflecting the higher proportion of

Table 4.1 Summary statistics of sample population

Characteristics	Female (n = 901)	Male (n = 1,642)
Mean:		
Years since entry into urban labour force	4.36	6.14
Age at survey	28.6	32.7
Education level[a]	3.19	3.07
Jobs reported	2.35	2.53
No. of provinces at which employed	1.51	1.62
No. of cities at which employed	1.86	1.96
Job length (years)	2.62	3.17
Median:		
First job (currency in CNY):		
Monthly income	1,000[b]	1,000[b]
Monthly income (inflation adjusted)	1,029	1,043
Hourly wage	3.61	4.00
Hourly wage (inflation adjusted)	3.74	4.06
Job at survey (currency in CNY):		
Monthly income	1,200	1,500
Monthly income (inflation adjusted)	1,252	1,529
Hourly wage	5.00	6.00
Hourly wage (inflation adjusted)	5.00	6.11

Notes: [a]Education level was scored from 1–5: less than primary = 1; primary = 2; junior high = 3; high = 4; college or above = 5

[b]Both male and female use 1,000 Yuan as a base figure for comparison purpose

young women in the work force due, in part, to the domestic role expected of married women (Fan 2003). Both men and women had usually attained a junior high school level of education. Men reported slightly more jobs on average and had worked at more provinces and cities than women. This may have been a consequence of the men's longer time spent in the urban labour market or greater prospects for job change, as well as the tendency for women to exit the labour market early due to domestic responsibilities (Fan 2003). Both women and men had attained a similar level of education.

From Table 4.2, it can be seen that the coastal regions absorb over half of the migrant workers in our sample. This share of migrant workers is noticeably less than that reported by other studies. A survey collected in 2007 conducted by XinNongMen (2008) found that the Yangzi River Delta, the Pearl River Delta, and Bohai Rim Region (Beijing, Tianjin, Shandong, Hebei, and Liaoning), together absorbed an estimated 82.6 % of the migrant labour force compared to only 59.5 % as estimated by our sample. This may be related to the sample representativeness of two different surveys, and in some degree reflect a growing shift towards greater inland city employment since 2007. Indeed, some inland provinces, such as Sichuan, Shaanxi, and Guizhou, show signs of an increasing share of migrant workers. This finding is supported by Wang (2010) who argued three key factors have likely increased inland migration. These include: (a) recent job creation policies of inland provinces; (b) the Chinese government's US$586 billion economic stimulus package (of which a considerable portion went to inland and rural infrastructure); and (c) the lower travel costs associated with working closer to home.

Not surprisingly, distance is an important cost that must be considered against the expected employment prospects associated with a destination. This is clearly illustrated in Table 4.2 and Fig. 4.2. Although distance we used is not an ideal variable as convenience of travel and travel time, it can be calculated simply. It is unrealistic to collect large sample population's information about each of their travel's time and convenience. Migrants from coastal regions travel the shortest distance and generally work in their origin province, while migrants from inland regions, on average, need to travel greater distances. Such patterns broadly reflect the uneven distribution of employment opportunities due to the concentration of industries along China's eastern coast. Importantly, a considerable proportion of migrants from inland destinations opt for closer employment. For example, 22 % of migrants from Central China remain in this region, compared with only 7 % of the total sample.

The following explains results obtained after regressing distance travelled by individual migrants on a number of variables capturing aspects of their life course and demographic backgrounds. Table 4.3 lists the variables included in the model, their associated unit or level of measurement, and an estimation of the respective effect size they produce in the response variable (relative to a reference level for categorical variables). Many of the variables included produce large, statistically significant effect sizes, while others do not.

The *origin province* variable was a categorical variable expected to capture varying economic and spatial conditions of sending provinces. The estimates of effect

Table 4.2 A spatial transition matrix summarizing choice of employment destination by origin

			Destination (%)											
			Coast					Inland						
			GD	SC	LYD	B-T	NC	C	S-W	N-W	XJ	N-E	Total	No.
Origin	Coast	GD	100	0	0	0	0	0	0	0	0	0	100	27
		S C	48.5	40.0	6.5	0.3	0.3	2.1	1.8	0.6	0	0	100	340
		LYD	2.7	0.7	82.3	3.4	2.7	4.1	2.0	0.7	0	1.4	100	147
		B-T	0	2.2	0	86.7	11.1	0	0	0	0	0	100	45
		N C	5.5	0	4.5	13.5	66.5	1.5	1.0	2.5	0	5.0	100	200
	Inland	C	32.8	4.5	23.8	5.4	3.9	22.4	4.2	2.3	0.5	0.2	100	597
		S-W	30.8	6.6	21.0	2.0	2.5	2.5	31.7	2.1	0.5	0.2	100	561
		N-W	14.5	3.8	11.9	7.2	8.2	0.9	1.3	49.4	2.2	0.6	100	318
		XJ	4.8	0	4.8	0	2.4	0	9.5	9.5	69.0	0	100	42
		N-E	1.5	1.0	2.0	3.6	19.3	1.5	1.5	1.0	0	68.5	100	197
		Total	25.3	8.7	18.4	5.9	9.9	6.9	9.1	8.0	1.7	6.1	100	2,474

Notes: In order to simplify the table, while maintaining areas of significant interest, provincial regions are grouped as five coastal regions – *GD* Guangdong, *LYD* lower Yangzi delta (Shanghai, Zhejiang and Jiangsu), *B-T* Beijing-Tianjin, *SC* other Southern Coastal, *NC* Northern Coastal, *C* Central China, *N-W* Northwest China (including the north China provinces of Shanxi and Inner Mongolia), *S-W* Southwest China, *N-E* Northeast China, *XJ* Xinjiang

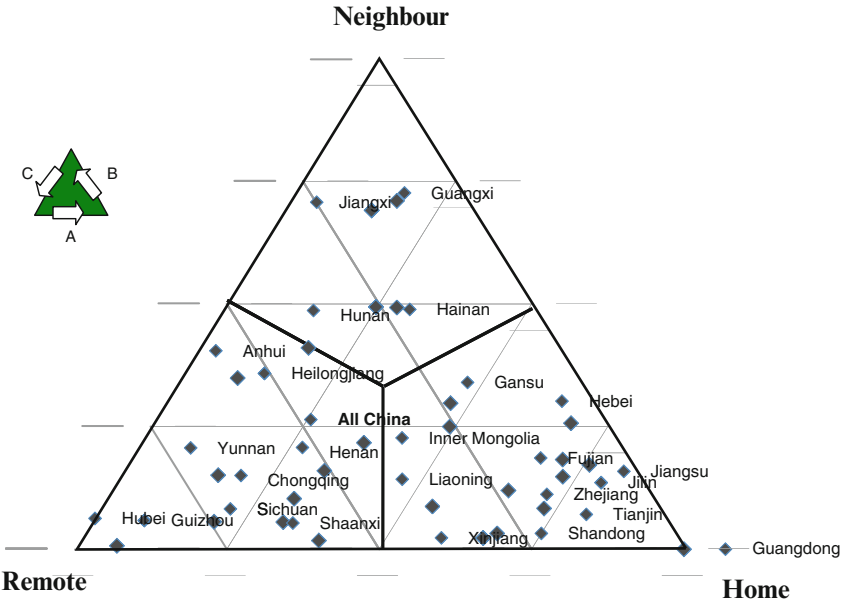


Fig. 4.2 The migration decision in three destination choices (Note: Three choices are: (*a*) remaining in origin province (*Home*); (*b*) migrating to neighbouring province (*Neighbour*); and (*c*) migrating to non-neighbouring province (*Remote*))

sizes do not strongly deviate from expectations. In general, migrant workers belonging to provinces with greater economic productivity have greater access to labour markets, which is represented by the lower average distance travelled by migrants from regions such as Fujian, Jilin, Shandong, Tianjin, Hebei, or Jiangsu. Other effects amplifying this pattern are likely to include the density of development, which affect the local proximity of rural areas to urban zones, as well as regional differences in public services like transport, education, and health care, which, depending of their quality, can encourage or restrict mobility.

Out of the variables associated with labour productivity, *education*, *work experience*, *job number* and *age*, significant effects were only detected for *work experience* and *age,* which were both negatively related to distance travelled. Both *work experience* and *age* produce a negative effect on the dependent variable – they are both associated with reduced distance travelled. The figures suggest that as migrant workers grow older and gain more urban experience, there is an associated preference to work in cities closer to home, reflecting an increase in job opportunities in smaller cities. Three key factors help to explain this pattern.

Firstly, skill and experience accumulation in coastal regions increase a migrant worker's chance of finding a reasonably paid job closer to home, where family or other important social connections remain. This notion is supported by the decreased distance travelled by those who find employment themselves (see parameter estimates for *job acquisition*) the number of which increase with each year of work experience.

Table 4.3 Determinants of the distance of migration

	Level/(unit)	Estimate	Std. error	t-value	p-value	Sig
(Intercept)		481.3161	95.2194	5.0548	0.0000	***
Job number	(no.)	0.2685	6.0625	0.0443	0.9647	
Job acquisition (ref: relative or friend)	Agent	95.3921	33.3243	2.8625	0.0043	**
	Job ad.	−39.2292	25.1022	−1.5628	0.1188	
	Gov.	−58.8862	55.2282	−1.0662	0.2847	
	Employer	−31.2552	35.9855	−0.8685	0.3849	
	Themselves	−105.6164	26.7637	−3.9463	0.0001	***
	Other	−18.5574	14.7325	−1.2596	0.2079	
Education	(1: primary−>5 college)	0.2837	8.4045	0.0338	0.9730	
Children	(no.)	0.7233	8.5205	0.0849	0.9323	
Work exp.	(Years)	−4.3352	1.5566	−2.7850	0.0054	**
Household income	(Yuan)	−0.0002	0.0003	−0.9479	0.3432	
Job category[a]						
Wage adjusted	(Yuan)	11.3092	1.1627	9.7268	0.0000	***
Gender	Male	−20.3271	14.6917	−1.3836	0.1665	
Age at job	(Years)	−3.4981	0.9313	−3.7563	0.0002	***
Marriage status (ref: single)	Married	11.1465	20.0587	0.5557	0.5784	
	Divorced	51.0622	48.3579	1.0559	0.2911	
Origin province (ref: Guangdong)	Anhui	462.1416	91.7447	5.0373	0.0000	***
	Chongqing	557.0813	82.9454	6.7162	0.0000	***
	Fujian	30.5519	83.4910	0.3659	0.7145	
	Gansu	308.1227	86.8423	3.5481	0.0004	***
	Guangxi	316.0512	80.8883	3.9073	0.0001	***
	Guizhou	506.5527	79.4749	6.3737	0.0000	***
	Hainan	405.1774	81.5782	4.9667	0.0000	***
	Hebei	63.8594	83.4926	0.7649	0.4444	
	Heilongjiang	482.2873	88.2146	5.4672	0.0000	***
	Henan	415.1897	79.8071	5.2024	0.0000	***
	Hubei	588.1784	80.7445	7.2844	0.0000	***
	Hunan	341.4904	82.1119	4.1588	0.0000	***
	Inner Mongolia	319.1442	82.1507	3.8849	0.0001	***
	Jiangsu	110.0535	91.9654	1.1967	0.2315	
	Jiangxi	189.2179	81.0184	2.3355	0.0196	*
	Jilin	−12.1845	87.7555	−0.1388	0.8896	
	Liaoning	65.5901	85.2672	0.7692	0.4418	
	Shaanxi	845.7576	80.4977	10.5066	0.0000	***
	Shandong	58.3832	97.0022	0.6019	0.5473	
	Sichuan	654.9425	80.3965	8.1464	0.0000	***
	Tianjin	−37.5483	89.7996	−0.4181	0.6759	
	Xinjiang	273.1836	100.9729	2.7055	0.0068	**
	Yunnan	936.7740	82.1771	11.3995	0.0000	***
	Zhejiang	179.9692	86.0268	2.0920	0.0365	*

Notes: Significance levels: *0.05, **0.01, ***0.001

[a]Coefficients for job categories are not presented

Secondly, recent economic growth in China's non-coastal regions has seen the creation of new economic opportunities. In the last decade, the state has implemented development initiatives such as the Grand Western Development Strategy and the Strategy for the Revitalization of Northeast China (further propelled by recent economic fiscal stimulus invested in rural infrastructure). In directing resources towards inland regions, an increase in economic opportunity has inevitably followed.

Thirdly, this result is likely to reflect the changing work preferences of a new generation of migrant workers. There have been reports that younger migrants desire to permanently settle in cities more than their predecessors (Na 2010). Much of this younger generation have never experienced agricultural work and are less strongly bonded to their rural homes. Our sample contains a mix of both older generation migrant workers and new generation workers and so differences in preferences between the groups. In reality, both the changing preferences of a new generation of workers, as well as the enhanced employment options available to older and more experienced migrant workers are likely to play a role in destination choice. Indeed, of the 3,471 job changes reported by individuals in the sample, only a third of the changes occurred in destinations further away from their home villages, with the overwhelming majority tending to move work closer to home.

With respect to earnings, *household inc.* did not produce a significant response in the distance variable. However, the variable for urban earnings, *wage adjusted*, did exert a large effect. This suggests that while household income does not significantly influence the distance of the employment destination, higher wages are associated with greater travelling distances.

Interestingly, other life course variable, including *gender*, *children* and *marriage status*, produced no significant results. It has been widely documented that family structure of migrant workers typically consist of either one or both parents working away from home with either the remaining spouse or grandparents staying to look after the household and children (e.g. Fan and Wang 2008). The overall lack of explanatory power of these variable in the model may suggest that family structures are increasingly flexible and diverse, with families adapting to working situations rather than employment changing to suit the household situation. At least two studies have documented the increasing trend of family migration in past decades (Hong 2007; Zhang and Li 2010).

The choice of destination is predicted by the MNL model summarized in Table 4.4. As our data does not contain information of the volume of flows, it is best suited to analysis of the direction of flows, which can be provided by choice models. Such analysis complements the previous outputs from the linear model fitted to the distance of migrant destinations, which said little of the direction of migration. As to the previous model, the choice model will be built around the concept of utility.

Table 4.4 presents the parameter estimates for the effect of choice-specific variables (distance of destination, relative trade volume, and relative urban income) and individual-specific variables (education, age, work experience and whether the job was found through their social network). All three of the choice specific variables are found to be significant to the 99.9 % confidence level. As expected, distance of

Table 4.4 Individual and choice specific determinants on destination decision

Distance (kms): −0.0029 (0.0001)***		Trade volume: −0.0059 (0.0008)***		Av. Urban Inc.: 3.9254 (0.7204)***	
	Intercept	Education	Age (years)	Work experience (years)	Non-network
Beijing	−5.0686	0.0198	0.0166	0.0478	−0.3523
	(0.8912)***	(0.1823)	(0.0163)	(0.0314)	(0.2815)
Chongqing	−5.3632	0.0833	0.0506	0.0805	−0.0441
	(1.0319)***	(0.2053)	(0.0201)*	(0.0334)*	(0.3414)
Fujian	−0.1666	−0.3881	−0.0165	0.0638	0.0828
	(0.5844)	(0.1261)**	(0.0128)	(0.0194)**	(0.2074)
Gansu	−1.3924	−0.951	0.0273	0.0893	0.5187
	(1.3359)	(0.2548)***	(0.0283)	(0.0416)*	(0.4634)
Guangxi	−5.607	0.5356	0.0508	0.0454	−0.4215
	(1.0718)***	(0.2244)*	(0.0226)*	(0.0384)	(0.3658)
Guizhou	−4.1648	0.0086	0.0514	0.119	−0.0674
	(0.8859)***	(0.1647)	(0.0167)**	(0.0259)***	(0.2747)
Hainan	−2.8052	−0.2309	−0.0039	0.1097	0.1169
	(1.2327)*	(0.2287)	(0.0311)	(0.0455)*	(0.3656)
Hebei	−2.1215	−0.3427	0.042	0.0929	−0.3982
	(0.8306)*	(0.168)*	(0.0145)**	(0.023)***	(0.2686)
Heilongjiang	−4.3454	0.2009	0.0366	0.1493	0.1448
	(1.5994)**	(0.3446)	(0.0253)	(0.0488)**	(0.4657)
Henan	−1.9837	−0.1643	0.0064	0.106	−0.1217
	(0.8195)*	(0.1611)	(0.0151)	(0.0228)***	(0.2578)
Hubei	−6.1264	0.3219	0.0579	0.0743	0.4657
	(1.277)***	(0.2443)	(0.0219)**	(0.0361)*	(0.4378)
Hunan	−6.017	0.7479	0.0337	0.039	−0.4707
	(1.1707)***	(0.2252)***	(0.0226)	(0.0412)	(0.3721)
Inner Mongolia	−4.5113	0.0066	0.0613	0.0882	−0.1417
	(0.9648)***	(0.1966)	(0.0173)***	(0.0298)**	(0.3228)
Jiangsu	−1.1549	−0.3246	−0.0114	0.0511	0.0486
	(0.648).	(0.1381)*	(0.0136)	(0.0222)*	(0.2192)
Jiangxi	−2.3655	−0.3365	−0.0003	0.1129	0.097
	(1.3401).	(0.2724)	(0.0281)	(0.0343)***	(0.4654)
Jilin	−1.0411	−0.4661	0.0503	−0.1709	0.2529
	(1.1709)	(0.2514).	(0.0179)**	(0.0834)*	(0.3328)
Liaoning	−0.7783	−0.398	0.0079	0.0356	0.2552
	(1.038)	(0.2265).	(0.0172)	(0.0361)	(0.3087)
Shaanxi	−4.6865	0.1123	0.0474	0.1401	−0.052
	(0.8495)***	(0.1639)	(0.0162)**	(0.0228)***	(0.2655)
Shandong	−4.9291	0.3941	0.0459	0.0075	−0.473
	(0.9259)***	(0.1893)*	(0.016)**	(0.036)	(0.298)
Shanghai	−3.6989	−0.3411	−0.004	0.0337	0.144
	(0.9863)***	(0.1925).	(0.0184)	(0.0315)	(0.3088)

(continued)

Table 4.4 (continued)

Distance (kms): –0.0029 (0.0001)***		Trade volume: –0.0059 (0.0008)***		Av. Urban Inc.: 3.9254 (0.7204)***	
	Intercept	Education	Age (years)	Work experience (years)	Non-network
Shanxi	–5.5803	0.0472	0.0899	0.0784	–0.9411
	(1.3481)***	(0.2719)	(0.0219)***	(0.0371)*	(0.4595)*
Sichuan	–3.2713	0.0939	0.0102	0.1183	–0.2561
	(0.8774)***	(0.1614)	(0.018)	(0.0278)***	(0.2638)
Tianjin	–4.8607	0.0751	0.0187	0.1567	–0.1241
	(0.8484)***	(0.1809)	(0.0166)	(0.0229)***	(0.2923)
Xinjiang	–0.3841	–1.3207	0.0855	0.0103	1.6734
	(2.1555)	(0.3602)***	(0.0448).	(0.0805)	(0.7242)*
Yunnan	–4.844	0.0973	0.0444	0.1165	–0.0128
	(1.0788)***	(0.2242)	(0.0233).	(0.0365)**	(0.3564)
Zhejiang	–1.4536	–0.2479	–0.0057	0.0481	0.0286
	(0.5102)**	(0.0995)*	(0.01)	(0.017)**	(0.1626)

Notes: Brackets contain standard error of parameter estimate. Only results statistically significant at the a = 0.10 are recognised. Significance levels: *0.05, **0.01, ***0.001

destination had a negative effect on the net utility of the choice, and in combination with the previous model, can be confirmed as a significant cost in the migration decision. Also unsurprising was the large positive effect of the difference in average earnings at the destination as compared with the origin province. In contrast to these results, the estimated effect of regional differences in trade volume (import and export volume) is more difficult to interpret. Contrary to expectations, the parameter was estimated to be negative. However, the effect size produced by relative trade volume is three magnitudes smaller than the effect produced by relative urban income. This suggests that in considering migration choices, income gaps are still the critical factor.

Individual specific parameters estimate the effect of each variable on the likelihood of selecting a specific destination (relative to the reference choice, Guangdong). From the MNL output we can see the estimated effect of *education* on destination choice, with some key receiving provinces such as Fujian, Zhejiang, Shanghai, Jilin, and Xinjiang appearing to decrease in attractiveness as education increases, and migrants tending to favour cities in Guangdong, Beijing, as well as inland areas. This may reflect the tendency of highly educated migrants to pursue business or self-employment in some form. Indeed, at least 9 % of migrants in the category for the highest educated are small business owners, compared with only 3–4 % in all other categories of education attainment. Results may also suggest that highly educated migrants have more freedom in the destination choice when compared with other migrants whose lack of skills restricts their choices.

The effect of social networks versus other job acquisition method is less noteworthy. Statistically significant effects were only measureable for two provinces,

Xinjiang and Shandong. For the larger provinces, whether or not migrants depended on their social network for job seeking or used some other means to find work did not increase the chance of migration.

In the distance model it was concluded that greater age and work experience are associated with shorter migration distances. In the MNL model, the parameter estimates for work experience are almost all positive, suggesting that the likelihood of choosing provinces other than Guangdong increases with work experience. Work experience increases the likelihood of selection most for the destinations Tianjin, Heilongjiang, Shaanxi, Guizhou, Sichuan, and Yunnan – a pattern reflecting the increased tendency for migrants to work away from the largest, most industrialized cities as they gain experience.

The estimates for age are similarly telling of the choices migrant workers make as they progress though their careers. As with work experience, greater age is associated with the increased likelihood of selecting non-coastal destinations for employment. The five destinations whose chance of selection increased least with age were Fujian, Jiangsu, Zhejiang, Shanghai, and Hainan – all of which are highly developed coastal provinces. In other words, older migrants are less likely to select these coastal provinces than younger migrants. This result can be interpreted in a way similar to findings of the distance model. That is, the effect of two factors: the different preferences of new generations of migrant workers; and the shift towards inland employment as migrants progress through their working lives.

4.4 Conclusion

This study appreciates the complexity inherent in migration decisions, which span different timescales and spaces, and involve much information on the potential alternatives. To make analysis feasible, a focus on the distance of migration and the choice of working province was deemed appropriate and a simple conceptual model of the migration choice was employed. While many approaches to quantifying migration have been taken in the literature, our methodological approach focused on implementing distance models and discrete choice models to process the data and observe patterns in spatial mobility. Variables considered in the process of spatial choice consisted of individual-specific and regional-specific demographic and socio-economic characteristics that are likely to influence a person's desire to migrate.

The broad aims of this study were to contribute to a more useful description of recent patterns in the spatial mobility of migrant workers, and test the relevance of a life course perspective. From these aims, several key findings have emerged from this study. Firstly, while the major cities of eastern coast still absorb the majority of migrant workers, there are signs that their share of the population is decreasing. As a result of trends in government spending and development policy, entrepreneurialism opportunities in inland China have increased; somewhat lessening the effect of

provincial disparities on the migration decision. The net effect is that distance becomes a relatively important consideration in the choice of destination. Also contributing to this trend was the potential of China's increasing education standards to enhance the number of employment options available to migrants.

In support of a life course perspective, age and accumulated work experience were found to be important in understanding spatial choice. It was argued that the costs of distance increases with age due to life course factors as well as the changing life style preferences of a new generation workers (however, no effects were detected for gender, marriage status, and number of children). Moreover, regional differences in the potential to realize earnings can be lessened by increased work experience and human capital accumulation, which create a pathway to entrepreneurialism and other employment opportunities not previously available. The net-effect is that as migrant workers move through their working lives and accumulate experience there is an increased preference towards inland employment, closer to the majority of migrant workers' home villages.

The richness of the data-set, and the research's interest in the personal attributes and life course of migrant workers have helped to characterize this population beyond the commonly assumed notion of being a generally static, passive and homogenous workforce. These findings describe recent trends in the flow of migrant workers and, as such, will be immediately useful to policy makers and urban planners. With regards to the present literature on migration in China, the findings of this study support the notion that life course considerations are important in the explanation of migration patterns, and that such a view will be important in future studies on migration.

References

Ben-Akiva M, Lerman SR (1985) Discrete choice analysis: theory and applications to travel demand. MIT Press, Cambridge, MA

Bertaux-Wiame I (1979) The life history approach to the study of internal migration. Oral Hist 7(1):26–32

Cao Y, Hu CY (2007) Gender and job mobility in postsocialist China: a longitudinal study of job changes in sex coastal cities. Soc Forces 85(4):1536–1560

Chen L (2010) An exploration of migrant workers' feelings of social expulsion: a social network perspective. Chin J Sociol 30(4):163–178

Démurger S, Gurgand M, Shi L, Yue XM (2008) Migrants as second-class workers in urban China? A decomposition analysis. Working paper, Centre National de la Recherche Scientifique, Universite Lumiere

Fan CC (2003) Rural-urban migration and gender division of labor in transitional China. Int J Urban Reg Res 27(1):24–47

Fan CC (2005) Modeling interprovincial migration in China. Eurasian Geogr Econ 46(3):165–184

Fan CC, Wang WW (2008) The household as security: strategies of rural-urban migrants in China. In: Smyth R, Nielson I (eds) Migration and social protection in China. World Scientific, New York, pp 205–243

Greenwood MJ (1997) Internal migration in developed countries. In: Rosenzweig MR, Stark O (eds) Handbook of population and family economics. Elsevier, North-Holland, pp 647–720
Han K, Huang C, Han W (2011) Social mobility of peasant workers in China. Soc Mind 1(4):206–211
Hare D (1999) 'Push' versus 'Pull' factors in migration outflows and returns: determinants of migration status and spell duration among China's rural population. J Dev Stud 35(3):45–72
Hare D (2002) The determinants of job location and its effect on migrants' wages: evidence from rural China. Econ Dev Change 50(3):558–579
Hong XL (2007) Chengshi nongmingong de jiating qianyi xingwei he yingxiang yinshu-yi beijing weili (Family migration from rural to urban China and its causal factors: the case of Beijing). Chin J Popul Sci 6:42–52
Hu B (2008) People's mobility and *guanxi* networks: a case study. China World Econ 16(5):103–117
Knight J, Yueh L (2003) Job mobility of residents and migrants in urban China. Discussion paper series, Department of Economics, University of Oxford
Liu Z (2005) Institution and inequality: the *hukou* system in China. J Comp Econ 33:133–157
Na H (2010) Unlike parents, young migrants won't take their fate lying down, *China*. http://www.china.org.cn/china/2010-03/23/content_19667142_2.htm. Accessed 1 Jan 2010
National Bureau of Statistics of China (2009) Statistical communiqué on labor and social security development in 2008. In National Bureau of Statistics. http://www.stats.gov.cn/was40/gjtjj_en_detail.jsp?searchword=migrant+workers&channelid=9528&record=3. Accessed 13 May 2010
Pai HH (2010) China's migrant workers want rights, not handshakes. The Guardian. http://www.guardian.co.uk/commentisfree/2010/jul/08/china-migrant-worker-strike-action. Accessed 27 May 2011
Pellegrini PA, Fotheringham AS (2002) Modelling spatial choice: a review and synthesis in a migration context. Prog Hum Geogr 26(4):487–510
Powers MG, Seltzer W (1998) Occupational status among undocumented immigrants by gender. Int Migr Rev 32(1):21–55
Rephann TJ, Vencatasawmy C (1999) Determinants of the spatial mobility of immigrants in Sweden. Paper presented at the 38th annual southern regional science association meeting, Richmond
Roberts KD (1997) China's "tidal wave" of migrant labor: what can we learn from Mexican undocumented migration to the United States? Int Migr Rev 31(2):249–293
Shi L (2008) Rural migrant workers in China: scenario, challenges and public policy. Working paper No. 89, Policy Integration and Statistics Department International Labour Office, Geneva
Solinger D (1999) Contesting citizenship in urban China: peasant migrants, the state, and the logic of the market. University of California Press, Berkeley
Tao Z (2006) Address to national social insurance administration workshop. Department of Social Security, Beijing
Wang MY (2010) Impact of the global economic crisis on China's migrant workers: a survey of 2,700 in 2009. Eurasian Geogr Econ 51(2):218–235
XinNongMen (2008) 2007 zhongguo nong ming gong (lan ling) baogao (2007 China peasant worker (blue-collar) report). XinNongMen Research Institute, Hanzhou
Zhang HK, Li SQ (2010) Liudong renkou jiatinghua zhuangkuang fenxi (An analysis of the family migration of floating population). South China Popul 25(6):40–45, 53
Zhao Y (2003) The role of migrant networks in labor migration: the case of China. Int Migr Rev 21(4):500–511
Zhao Z (2005) Migration, labour market flexibility, and wage determination in China: a review. Dev Econ 43(2):285–312

Zhou D, Zhou J, Liu Z (2007) Ziyou de dushi bianyuanren: zhongguo dong nanhai san gong yanjiu' ("Free" marginalised labour in urban China: research on migrant workers the south-eastern coastal region). Zhongshan University Press, Guangzhou

Zhu N (2002) Impact of income gaps on migration decisions in China. China Econ Rev 13(2):213–230

Zhu N, Batisse C, Li Q (2009) The flow of "peasant workers" in China since the economic reform: a longitudinal and spatial analysis. CERDI. www.cerdi.org/uploads/sfCmsContent/html/317/Zhu_Batisse.pdf. Accessed 13 May 2010

Chapter 5
Spatial Characteristics and New Changes of the "Ant Tribe" Urban Village in Beijing: Cases Studies of *Tangjialing* and *Shigezhuang*

Chaolin Gu, Mingjie Sheng, and Lingqian Hu

Abstract In recent years, many new college graduates in Chinese mega-cities have opted for affordable yet substandard housing in urban villages as a survival strategy in the increasingly commercialized and polarized cities, forming living quarters described in media as 'ant tribes'. This chapter analyzes the spatial characteristics and effects of the 'ant tribes' using *Tangjialing* and *Shigezhuang*, Beijing, as case studies. The findings show that concentration of the low-income college graduates in a substandard built environment is a unique phenomenon associated with the particular stages of urbanization in China. The ant tribes are deeply rooted in China's transitional process characterized by the interweaving pro-growth strategy via higher education expansion with the persisting socialist legacy of an urban-rural divide.

5.1 Introduction

Urban villages are common places where immigrants settle in large cities. Research on urban villages can be traced to Herbert Gans (1962: 4) who used the term to portray the places of the first or second generation migrants who "try to adapt their non-urban institutions and cultures to the urban milieu". He identified four aspects in the study of urban villages: (a) place and patterns of residence; (b) class and class divisions; (c) culture and ethnicity (including food, language, household structure, assimilation and religion); and (d) social structure (Gans 1962: 17–41). As most Western countries have moved away from the period of fast urbanization, by reaching an urbanization level of about 70 % in the 1970s and slowing down

C. Gu (✉) • M. Sheng
School of Architecture, Tsinghua University, Qinghua Yuan, Beijing 100084, China
e-mail: gucl@tsinghua.edu.cn; roseroseroseming@hotmail.com

L. Hu
School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53211, USA
e-mail: hul@uwm.edu

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_5

subsequently in the process, Gans' conventional notion of urban villages seems to apply to fewer and fewer places in the West. More recent use of the term 'urban village' in the Western literature is different from Gans' notion by adopting a nostalgic viewpoint of more human scale, mixed-use and well-designed places (Franklin and Tait 2002).

In China, however, Gans' urban village concept and research framework still apply, although the context and nature of urban villages differ (Chung 2010). China's urban villages are settlements on lands that were originally rural but were later incorporated into urban jurisdictions in the urban expansion process. These urban villages are segregated from the urban physical and institutional fabric, but have an impact on the city through its unauthorized buildings, unsanitary environment, high crime rates, and insufficient infrastructure. Original villagers and some migrants reside in these urban villages. These migrants usually do not have adequate income to live in a more decent place in the city and most of them are peasant workers from rural areas all over China. Peasant workers were particularly needed after China entered the World Trade Organization in 2001, as the booming "World Factory" required an increasing labour force in the manufacturing sector. In the first decade of the twenty-first century, over 230 million villagers have left their farms and moved to cities as migrant workers (National Bureau of Statistics 2012). Many of them remained poor and their presence had enlarged polarization in cities (Sit 2000; Gu and Liu 2001; Logan 2001; Gu and Kesteloot 2002; Chen et al. 2004). Migrant workers usually had low education attainment (Liang et al. 2002) and worked in manufacturing, construction, and service sectors (Chen and Coulson 2002). They were disadvantaged in cities and experienced difficulties to adapt to urban life and continued to be marginalized in cities (Wong et al. 2007).

In recent years, migrants who live in urban villages have become increasingly diversified. Among them, two social groups have attracted research attention from policy makers and scholars since the year 2000. One group is the children of migrant workers; the other group is the low-income college graduates. This chapter will focus on the second group, especially on the residential quarters where this group has concentrated. The chapter also attempts to understand the formation, spatial distribution, and social characteristics of the ant tribes. Recently, the "ant tribe" phenomenon has attracted much attention from the general public, policy makers and scholars (Lian 2009, 2010a, b). There is even a popular TV show named "Ant Tribe's Struggle", which is dedicated to reflect the lives of low-income college graduates. Although the concentration of low-income college graduates in urban villages is a new phenomenon in China's urban villages, little academic research has studied this social group or suggested policy solutions (He et al. 2011; Gu and Sheng, 2012; Gu et al. 2013).

Although there have been many reports on the ant tribe phenomenon, the mechanisms behind its formation and operation, as well as its socio-spatial implications remain unknown. This chapter aims to understand the socio-spatial characteristics of the ant tribe in Beijing based on field research using non-participant observation, interview and questionnaires survey undertaken in *Tangjialing* and *Shigezhuang* in March 2009, October 2011, November 2012 and August 2013. The chapter also tries to understand the place and the culture of the case study area.

5.2 The *Tangjialing* Case Study Area

Tangjialing consists of *Tangjialing* village and *Dengzhuang* village which are located outside the northern Fifth Ring Road of Beijing, bordering *Haidian* district (Fig. 5.1). *Tangjialing* is about 7 km to the *Zhongguancun* Science and Technology Park and has a total area of 394 ha. There were only 1,760 local residents, of whom 250 were rural villagers. However, there were about 50,000 migrants, most of whom were low income college graduates. In 2009, the area had about 3,000 housing units for rent.

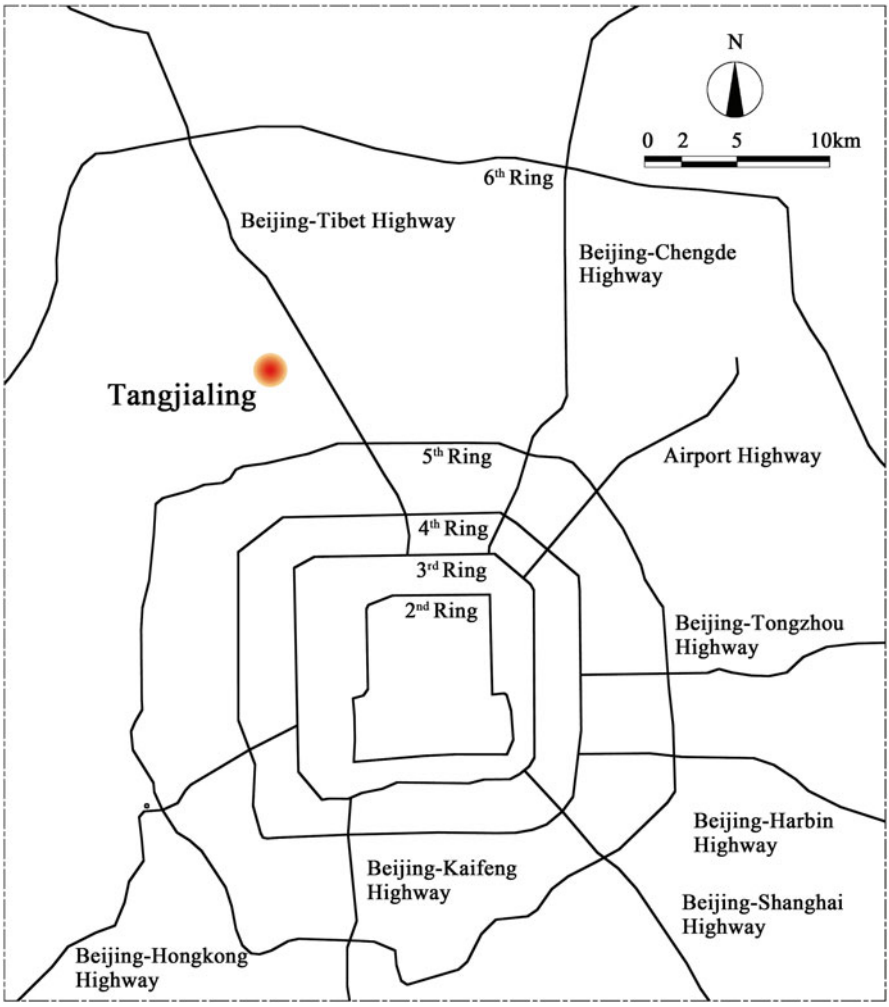


Fig. 5.1 Location of *Tangjialing* village in Beijing

Fig. 5.2 Surroundings of Tangjialing

Before 2000, *Tangjialing* was a typical rural settlement in Beijing Municipality. It transformed rapidly when the policy of developing the information technology industry was launched, especially with the establishment of the *Zhongguancun* Science and Technology Park, the *Shangdi* Software Industry Center, and the Beijing Aerospace City (Fig. 5.2). The booming information technology industry laid the foundation for a private training college – China Management Software Institute – whose students became the first group of tenants of *Tangjialing*. As the nearby *Xiaoyuehe* village and *Malianwa* village were torn down, *Tangjialing* became the only village in proximity to both *Zhongguancun* and *Shangdi* (Fig. 5.3). As more college graduates came to rent, the villagers began to rebuild their one-storey houses into three or four-storey buildings in order to earn more rent income. Although there was no official plan and/or building approval for the rebuilding activities, the construction did not stop until 2010 when the urban village was redeveloped (Fig. 5.4).

5.3 Spatial Characteristics of the Ant Tribe Settlement

5.3.1 Living Space

Streets There were three main streets in *Tangjialing*, which were all aligned in a north-south direction. Streets in *Tangjialing* were congested, though they were full of activities. The main road of *Tangjialing* was *Tangjialing* Middle Street, which served as both the main vehicular road and the main commercial street. Grocery stores, sidewalk snack booths, music stores, fruit stalls and all kinds of restaurants such as *Dongbei* dish, *Sichuan* dish, *Hunan* dish and *Malatang* hotpots scattered on both sides of the street. Additional alleys and small roads in the village did not provide vehicle access. When walking in these alleys and roads, one could see various advertisements such as house for rent and furniture for sale, and hear loud music from the restaurants, barbershops and internet bars (Fig. 5.5).

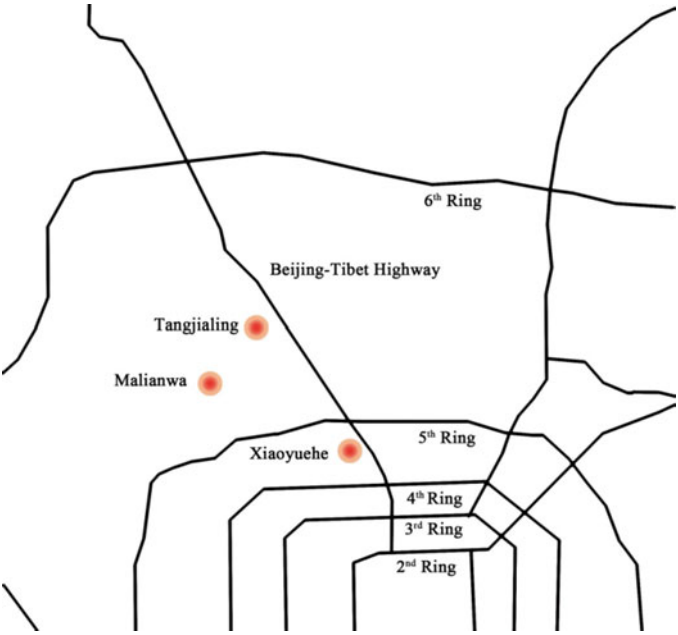


Fig. 5.3 Main urban villages of the low-income college graduates in Beijing (Source: Gu et al. 2013)

Living Environment The thriving demand in the rental market had led to excessive expansion of illegal housing in *Tangjialing*. In the past, there were rows of single-storey houses on both sides of the street in an orderly manner, but later many unauthorized houses altered the original layout. Many houses were added with extra spaces to 3–4 floors and even 6–7 floors. The distance between houses was sometimes less than 1 m, which created a serious fire hazard. Unauthorized addition of building spaces led to a high proportion of illegal buildings in *Tangjialing,* registering a ratio of 1:5 between legal houses and unauthorized houses in the study period. Expansion of illegal houses had reduced open spaces while booming population had overburdened the existing infrastructure. *Tangjialing* was always under construction as evidenced by piles of bricks everywhere. The roads were narrow. The main street was less than 10-m wide, but it was usually occupied by illegally parked cars which caused serious congestion. Some alleys were too narrow to allow two persons to pass each other. The drainage facilities were often clogged during rain. In *Tangjialing,* with high land costs, every inch of land was used for housing or commercial activities. Even the wasteland in the northern part of the village was used for informal market or flea market (Fig. 5.6).

Housing Facilities Almost all houses were for rent and each floor was usually partitioned into several units. The smallest room was only about 10 m^2, with little turnaround space after being filled with a bed, a desk and a chest. It cost about 300 *Yuan* per month for renting a room without a bathroom or a kitchen. More expensive

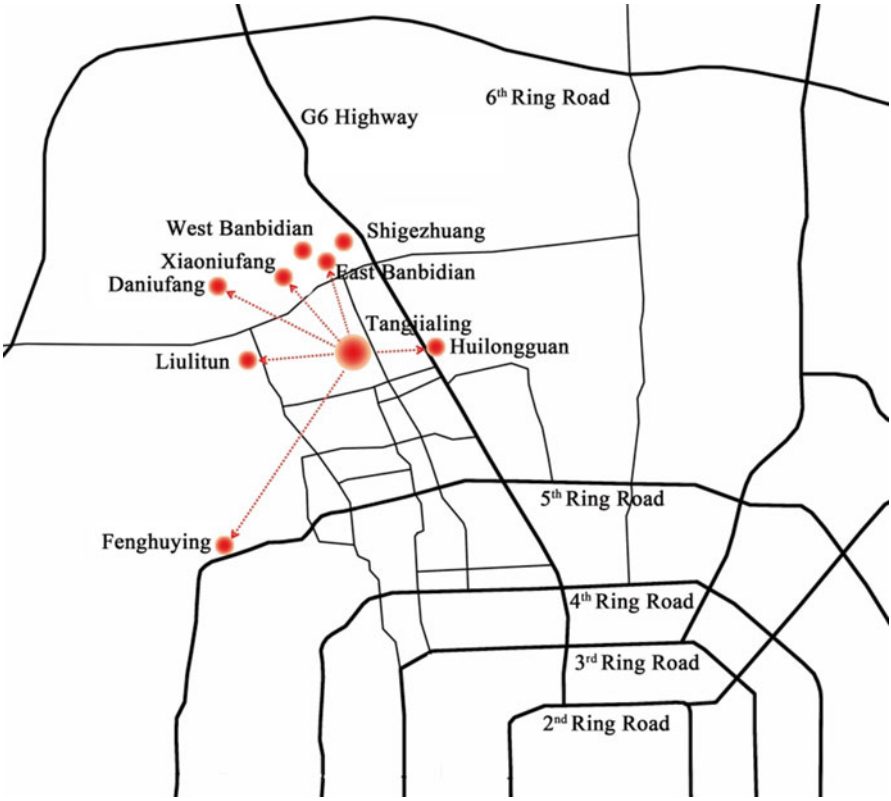


Fig. 5.4 Spatial diffusion of the *Tangjialing* gregarious settlement

Fig. 5.5 Main street of the *Tangjialing* village

Fig. 5.6 Living environment of the *Tangjialing* village

Fig. 5.7 Housing facilities of the *Tangjialing* village. Source: http://www.51yougo.com/Html/News/5935.html (*the left one*). http://tupian.baike.com/5713/6.html?prd=zutu_thumbs (*the right one*)

rooms had private bathrooms and kitchens, but they were charged higher rent at about 500 *Yuan* or more per month. Nevertheless, it cost about 3,000 *Yuan* to rent a similar apartment located in *Zhongguancun.* Among all these rental units in *Tangjialing*, "*Dong'*s Grand Courtyard", with the land area of 1,300m^2, was the largest housing complex and had seven storeys with a total of 338 rooms for rent. Utilities included solar water heaters, central air conditioning, 24-h security guards, and free daily shuttle buses for tenants to *Xi'erqi* subway station. With the rent of about 900 *Yuan* a month, *Dong's* Grand Courtyard was the most advanced and grandest rental housing complex in *Tangjialing* village (Fig. 5.7).

5.3.2 *The Ant Tribe Space*

Attractive and Affordable Place There were many bus lines between *Tangjialing* and *Zhongguancun* and further to Beijing's Central Business District. The fare for a bus ride using a pre-paid transit card was 0.4 *Yuan*. The *Xi'erqi* subway station of Beijing Metro Line 13 is close by and the fare for a ride on the metro system, including transfers, was only 2.0 *Yuan*. Additionally, rent was cheap; the monthly rent of a room with floor area of 15–20 m^2 was about 250–900 *Yuan* before 2010, which was much lower than that of a similar apartment in most parts of Beijing. Furthermore, tenants could buy almost anything they needed within a reasonable price range. For example, the price of vegetables planted by local villagers was about half that of the city proper. Ten Yuan was in general enough for a whole day's food supply. Tenants could find all kinds of necessities in all-around 2-*Yuan* stores and 3-*Yuan* stores (Fig. 5.8).

Vibrant and Mobile Place Although the physical environment was harsh or even hostile in *Tangjialing*, there were vibrant street life and rich community culture. Every morning, young college graduates left their small rooms to begin another busy day. During rush hours, buses were extremely crowded. People were packed into the buses like sardines in a can. When dusk was falling, those graduates returned from work to their houses. Night life was also colourful and uproarious. The new graduates could enjoy beef noodle for 3 *Yuan*, or celebrated nightlife with friends in food stalls, drinking, chatting, and laughing to wash off the weariness of the day. The laughter at food stalls, music in video shops, yelling for selling groceries and others sounds mingled on the streets (Fig. 5.9).

Fig. 5.8 The *Tangjialing* village as an attractive and affordable place. Source: http://www.51yougo.com/Html/News/5935.html (*the left one*). http://news.ycwb.com/2010-04/19/content_2494034.htm (*the right one*)

Fig. 5.9 The *Tangjialing* village as a vibrant and mobile place

Sense of Place Having stayed in *Tangjialing* for a long time, low-income graduates began to enjoy their life there. Similar background, similar experience, loneliness and hardship, and similar dreams towards metropolitan life helped them form social networks and a strong group identity. It was *Tangjialing* that provided the geographic setting for this very special kind of new community which was transformed from an original rural village (Fig. 5.10).

5.4 Socio-spatial Effects of Redevelopment in the Ant Tribe Settlement

In December 2010, Beijing municipal government launched an urban village renewal plan to redevelop urban villages in the urban fringe with high population density, poor hygienic conditions, and low public security. The gregarious villages catering to the need of the low-income new graduates in Beijing disappeared, which included *Tangjialing*. Although the regulatory policies destroyed the communities of those low-income college graduates, the *Tangjialing* phenomenon did not disappear and many new "*Tangjialings*" are emerging in the outer suburbs of Beijing (Fig. 5.4).

Fig. 5.10 Sense of the *Tangjialing* village as a low-income place

5.4.1 Raising Rent After the Demolition

Since the beginning of the redevelopment project, thousands of the low-income college graduates had to leave *Tangjialing* to search for a new dwelling place. However, rent in the north-western suburbs of Beijing had become unaffordable. For example, in *Xiaoniufang* village, which is adjacent to *Tangjialing*, the monthly rent increased from 450 *Yuan* to 700–800 *Yuan* from 2010 to 2011. Similarly, in *Xidian* village of *Huilongguan* town, which is also near *Tangjialing*, the monthly rent increased from 250–450 to 350–600 *Yuan* between 2009 and 2010. Increasing housing demand from those tenants in *Tangjialing* raised further the rental price in nearby neighborhoods.

5.4.2 Denied Access to the White-Collar Apartment

According to the Execution Solution of Overall Reconstruction in *Tangjialing* Area announced by Beijing Municipal Government, *Tangjialing* would build 100,000 m^2 of low-rent public housing, named white-collar apartments as resettlement housing for relocated villagers and multi-function industrial land for high-tech workers in the *Zhongguancun* Science and Technology Park. However, based on the market price of similar apartments in the area, it was expected that the average monthly rent would be more than 1,000 *Yuan* for a one-bedroom apartment. Even worse, in July 2010, the Beijing Housing Security Office declared that applicants who did not have Beijing's household registration would not be qualified for the low-rent public housing. The low-income college graduates, who once lived in *Tangjialing*, would

Fig. 5.11 Removing the low-income graduates from the *Tangjialing* village

encounter not only a rising rent but also an institutional barrier against their access to the white-collar apartments because they were not registered Beijing residents.

5.4.3 A New Tangjialing Phenomenon

Tangjialing village, the place where low-income college graduates used to live, has now been removed. The rent of nearby villages has increased beyond the affordable level of most low-income college graduates. Particularly, in large residential districts such as *Huilongguan* and *Tiantongyuan*, the rent has risen by 30 %. Therefore, the low-income college graduates have to swarm into the remaining urban villages near *Tangjialing*. A new *Tangjialing* phenomenon is emerging (Fig. 5.11).

Some urban villages that are adjacent to *Tangjialing*, such as *Xiaoniufang*, *Shigezhuang* and *Liulitun*, and other urban villages that are much further away such as *Xiyuan*, *Fenghuying*, East *Banbidian* Village, West *Banbidian* Village and *Huoying,* have become the new villages for gregarious low-income college graduates. East *Banbidian* Village is about 4 km north of *Tangjialing*. It used to be a typical rural village in suburban Beijing, but most of the original houses there have been transformed into low-rent apartments now. A 12 m^2 room, facing south, with some basic furniture (one bed, one wardrobe, one desk and an air-conditioner) and free internet access, would cost the tenant more than 480 *Yuan* per month. The rent in East *Banbidian* Village is much higher than that in original *Tangjialing*.

Specifically, *Shigezhuang*, East *Banbidian* Village and West *Banbidian* Village, which are next to the Beijing-Tibet Highway, have become connected to each other because of convenient transportation and cheap rent. In the beginning of the *Tangjialing* demolition, some of the neighbouring villages advertised to attract the relocating tenants. About 41,000 migrants had moved out from *Tangjialing* since July 2010. About 15,000 of them moved to *Shigezhuang* and the West *Banbidian* Village, *Changping* district. About 12,000 people relocated to other villages in the surrounding areas, such as *Xibeiwang*, and 14,000 people migrated to the urban

fringe of *Haidian* district. The area now has almost 150,000 people and its physical size has gone far beyond that of original *Tangjialing*.

5.5 *Shigezhuang:* A New Ant Tribe

Shigezhuang has become the biggest new migrant area of the relocating tenant "ants". The *shigezhuang* township is located in the *Changping* district bounded by the Beijing-Zhangjiakou Railway and the Beijing-Tibet highway. It includes four administrative villages, the *Shigezhuang* village, the East *Banbidian* village, the west *Banbidian* village, and the *Dingfuhuangzhuang* village, with a total area of 119 ha. At the end of 2011, the township had a total resident population of 54,417 people, of whom 6,525 were native residents (Fig. 5.12).

We conducted a survey on November 16–18, 2012, using questionnaire distributed to a sample of 544 respondents. The sample size was about 1 % of the total population in *Shigezhuang*. The housing locations of the respondents were relatively evenly distributed as shown in Fig. 5.13. A total of 498 out of the 544 questionnaires were returned, 461 of which were valid, representing a success rate at 92.6 %. Figures 5.14 shows the educational attainment of the respondents, 69.3% of whom are college graduates.

Fig. 5.12 A new ant tribe: Shigezhuang village in Beijing

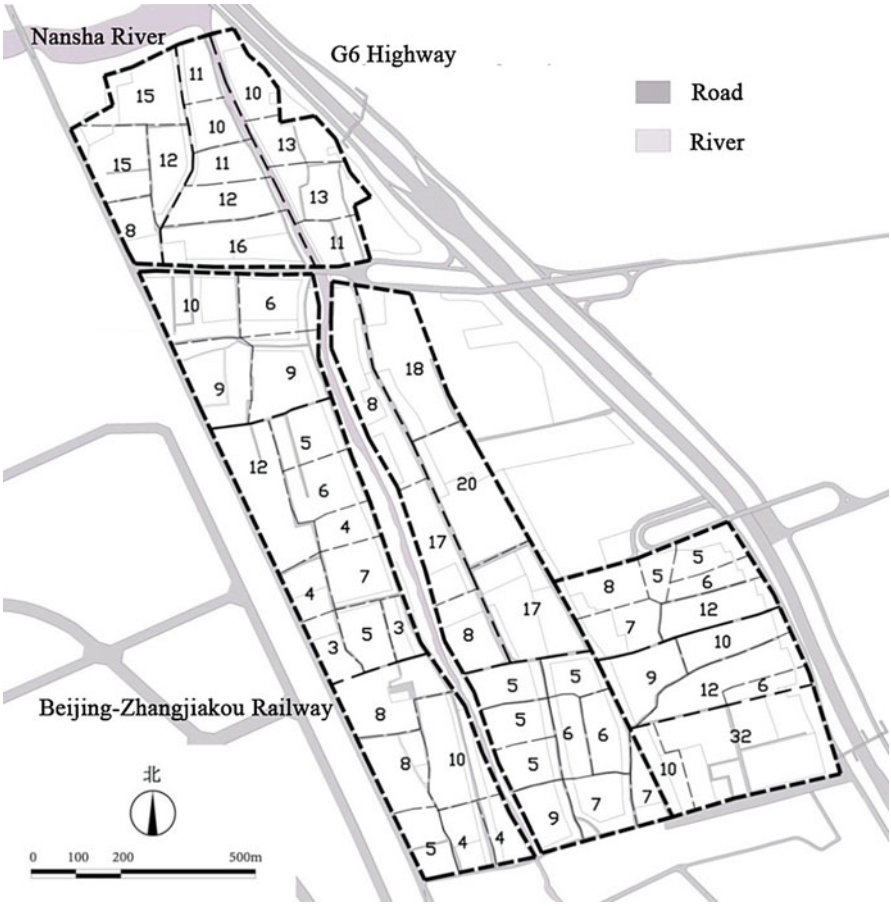


Fig. 5.13 Distribution of 544 questionnaire respondents of the Shigezhuang survey on November 16–18, 2012

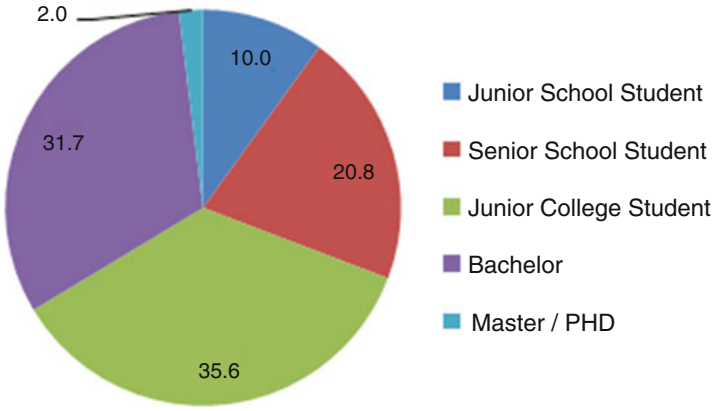


Fig. 5.14 Educational background of the floating population in *Shigezhuang* 2012 (Unit:%)

Shigezhuang represented little difference from the original *Tangjialing* in social and physical environments. The population density of *Shigezhuang* reached 46,000 persons per square kilometre. The area had no open space and was filled with 4–6 storey rental units. 47.3 % of respondents in the survey had lived in the *Shigezhuang* area for less than a year (Fig. 5.15).

Fig. 5.15 Higher population density of the new ant tribe *Shigezhuang*

The survey also showed that the college graduates worked mainly in information transmission, computer services and software industry (35.9 %), manufacturing (8.9 %), construction (6.0 %), wholesale and retail trade (5.8 %) (Fig. 5.16). These jobs were concentrated in the area near *Shigezhuang*, such as *Haidian* district (48.3 %), *Changping* district (29.0 %), and the *Chaoyang* district (16.3 %) (Fig. 5.17).

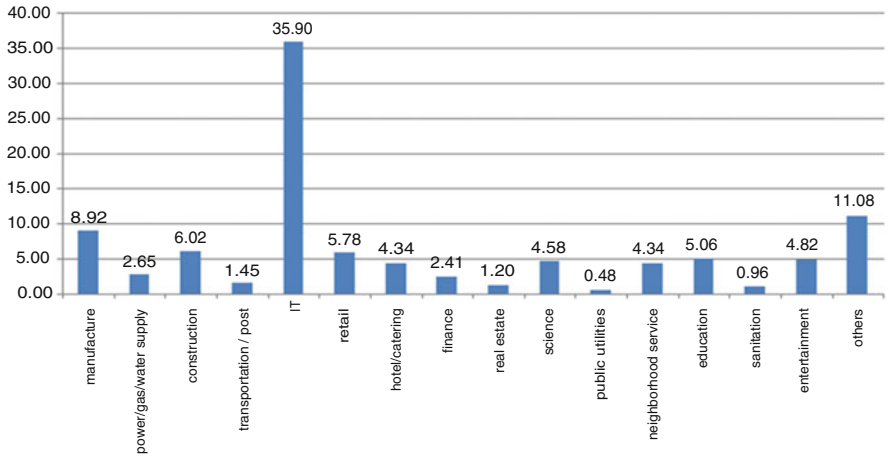


Fig. 5.16 Main occupations of the college graduates in Shigezhuang (Unit:%)

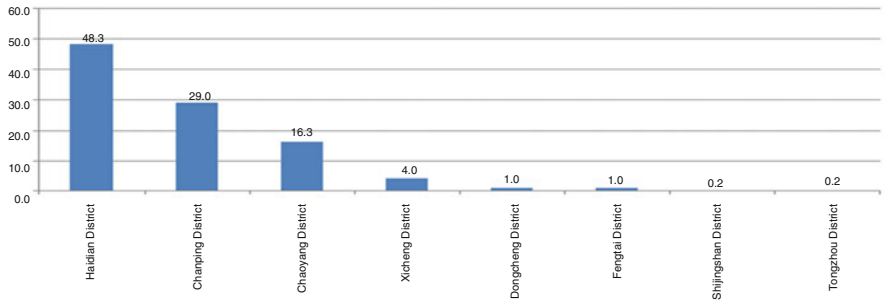


Fig. 5.17 Jobs distribution of the *Shigezhuang* ant tribe (Unit:%)

5.6 *Tangjialing*: The Old Ant Tribe Was Gone

A survey of the reconstructed *Tangjialing* was conducted on July 15, 2013. It was clear that *Tangjialing* had turned into a new town without maintaining any of the ant tribe characters of the original *Tangjialing* (Figs. 5.18 and 5.19).

Villagers Moving Back The *Tangjialing* reconstruction project included removing the original village and constructing a new residential town. The main purpose was to provide living spaces for farmers and low-income white collar workers in *Tangjialing* village and *Tujin* village. The total construction land was of 130,000 m^2, with green space of 10,000 m^2. Resettlement housing and supporting educational buildings had a total gross size of 260,000 m^2 (excluding underground areas). Housing design was compact; typical floor area of each unit was 75 m^2 to 100 m^2. Most of the original local villagers had moved back to *Tangjialing* new town by December 10, 2012. These original local villagers, who previously owned houses typically of 150–200 m^2, were paid demolition compensation in an equivalent of four apartments with an average floor area of 80 m^2 each. For other villagers, the standard demolition compensation package was a new apartment of 65 m^2.

The newly built houses all came with property certificates, but the new owners were not allowed to sell their units in the open market. If a house had to be sold, it would have to be sold to the *Tangjialing* housing office at a preset price of 15,000 *Yuan* per square metre. These houses would be used as social housing. The

Fig. 5.18 The original site of the *Tangjialing* village has been transformed into a forest park in Haidian district

Fig. 5.19 *Tangjialing* new residential town in Beijing

Tangjialing new town built about 3,000 housing units. Except for the original 1,600 villagers who took 800 new housing units for their own residence, there were about 2,200 housing units available for rent to low-income white-collar workers. *Tangjialing* new town would accommodate up to 10,000 people. However, compared with the original population of 60,000 people, the total population and population density had decreased remarkably (Fig. 5.20).

But Bus Lines Did Not Come Back Before the *Tangjialing* village reconstruction project, five bus routes went through the village. Now, a large area of the original *Tangjialing* village has been transformed into a forest park, and all bus lines have been rerouted. There are three main bus stops within 2 km of the *Tangjialing* new town, and two original bus lines bypass the southern area of the Aerospace City which is 1 km from *Tangjialing* new town. After the completion of the *Tangjialing* new town, the original local residents moved back but they found it inconvenient to travel by bus. The residents had to rely on private cars or walk for half an hour to bus stops in order to use public transport.

Unaffordable Rental Housing There are more than 3,000 units of apartments, of which 2,200 units can be rented out by the housing office with a rent of 2,100–3,600 *Yuan* per month. Tenants have to pay 12-month rent upfront and to agree to a 10 % rent rise in 3 years. In fact, most college graduates can only afford 1,000 *Yuan* monthly rent as their average income is about 3,500 *Yuan* per month (Fig. 5.21).

Fig. 5.20 *Tangjialing* villagers moving back to a new residential town

Fig. 5.21 *Tangjialing's u*naffordable housing for low-income tenants

Income of Villagers Decreases Sharply The main income source for the former village collective and the villagers were rents from the ant tribe, but now they have lost these sources because the ant tribe cannot move back. Because the villagers invested on the new houses, they used up all their family savings even though they bought at a very low price. Each household spent about 600,000 *Yuan* on average. Now the average household income is 7,500 *Yuan* per month. This represents a large drop compared with their previous income. The villagers have two main income resources: (a) Salary. The village collective can only provide low paying jobs, such as janitors, cleaners, forest park workers, and the monthly wage is only 1,270 *Yuan*. Some people drive unlicensed cabs between *Tangjialing* new town and the subway station, earning about 1,500–2,000 *Yuan* per month. Most villagers are jobless and the unemployment rate is over 70 %. (b) Rents. Two rental units can generate about 5,400 *Yuan* per month. On the other hand, family expenses increase quickly to more than 3,000 *Yuan* a month due to living in an urban-type community. These include: (a) Village association fee. The total is about 1,100 *Yuan* for each unit based on the rate of 2.75 *Yuan* per square metre and additional car parking fee; (b) Basic living cost. It is about 1,900 *Yuan* per month per family (Fig. 5.22).

Fig. 5.22 Unlicensed cabs as taxis between the *Tangjialing* new town and the subway station

5.7 Discussion and Conclusion

The emergence of the ant tribe is connected to some recent changes in China's urbanization process and development policies. Reducing the number of farmers and promoting the level of economic and social development in rural areas are key points in China's social transition. At the same time urbanization requires an urban labour force and consumers of urban products, and education is expected to be the cheapest and the most effective way to train urban workers and consumers. However, labour demand has not grown fast enough to absorb the fast increasing quantum of a highly educated labour force. Subsequently, many new college graduates have difficulties to find high-paid jobs in big cities. In the meantime, rapidly increasing social service and living costs, especially the housing cost, have imposed much pressure on them. A large number of these new college graduates receive a small income and can only afford to live in urban villages.

The ant tribe settlement of the low-income college graduates in Beijing, somewhat like a second-generation of the urban floating population, is one of two "newspring" disadvantaged social groups in the process of China's urbanization since 2000. Low-income college graduates come mainly from rural areas and are familiar with the lifestyle of urban villages. They have received higher education and embraced bright expectation towards urban life. However, although higher education is expected to be the cheapest and most efficient way to speed up formal urbanization, its rapid expansion has produced an adverse side effect, namely the emergence of a new marginal social group of low-income college graduates who are isolated and excluded from the mainstream urban society in terms of employment and settlements.

In short, the concentration of the low-income college graduates in a substandard built environment is a phenomenon in a certain period in the urbanization process in China. The urban village serves as a temporary shelter for this marginal group and a springboard for them to integrate into the urban society. To cater to the need of low-income groups like the graduates, it would be better to improve the quality of the built environment in urban villages instead of demolishing them. The *Tangjialing* phenomenon is deeply rooted in China's unique urbanization process, which is characterized by the interweaving pro-growth strategy via higher education expansion with the persisting socialist legacy of an urban-rural divide.

Acknowledgments We would like to acknowledge the funding of this study by the Beijing Philosophy and Social Science Planning Project (11CSA003). The authors wish also to thank Professor Ian Cook for his valuable comments.

References

Chen A, Coulson NE (2002) Determinants of urban migration: evidence from Chinese cities. Urban Stud 39(12):2189–2197

Chen G, Gu C, Wu F (2004) Spatial analysis of urban poverty in Nanjing. Sci Geogr Sin 24(5):542–549 (in Chinese)

Chung H (2010) Building an image of villages-in-the-city: a clarification of China’s distinct urban spaces. Int J Urban Reg Res 34(2):421–437

Franklin B, Tait M (2002) Constructing an image: the urban village concept in the UK. Plan Theory 1(3):250–272

Gans H (1962) The urban villagers. Free Press, New York

Gu C, Kesteloot C (2002) Beijing’s socio-spatial structure in transition. In: Schnell I, Ostendorf W (eds) Studies in segregation and desegregation. Ashgate, Aldershot, pp 285–311

Gu C, Liu HY (2001) Social polarization and segregation in Beijing. In: Logan JR (ed) The new Chinese city: globalization and market reform. Blackwell, Oxford, pp 198–211

Gu C, Sheng M (2012) Beijing’s ant tribe: a case study of Tangjialing. Hum Geogr 5:20–24 (in Chinese)

Gu C, Sheng M, Hu L (2013) Study on gregarious low-income college graduates in Beijing: Tangjialing phenomenon and its aftereffect. China City Plan Rev 22(2):15–23

He S, Qian J, Wu M (2011) Studentification in urban village: a case study of Xiadu village, Guangzhou. Geogr Res 30(8):1508–1519 (in Chinese)

Lian S (2009) Ant tribe – record about the village inhabited by graduates. Guangxi Normal University Press, Guilin (in Chinese)

Lian S (2010a) Ant Tribe: problems, drawing and countermeasures. Chinese Academy of Social Code “Talent Blue Book (2010)”. Social Sciences Academic Press, Beijing (in Chinese)

Lian S (2010b) Ant tribe II: who’s time. CITIC Publishing House, Beijing (in Chinese)

Liang Z, Chen YP, Gu Y (2002) Rural industrialization and internal migration in China. Urban Stud 39(12):2175–2187 (in Chinese)

Logan JR (ed) (2001) The New Chinese city: globalization and market reform. Blackwell, Oxford

National Bureau of Statistics (2012) The floating population 230 million in 2011. http://ifb.cass.cn/show_news.asp?id=44455. Accessed Apr 2014

Sit VFS (2000) A window on Beijing: the social geography of urban housing in a period of transition, 1985–1990. Third World Plan Rev 22(3):237–259

Wong DFK, Li CY, Song HX (2007) Rural migrant workers in urban China: living a marginalised life. Int J Soc Welfare 16(1):32–40

Chapter 6
Urban Peripheries as Growth and Conflict Spaces: The Development of New Towns in China

Xin Yang, Jennifer Day, and Sun Sheng Han

Abstract This chapter demonstrates that China's urban peripheries are experiencing simultaneous forces of urban and rural expansion that are driving urbanization. We argue that the urban forms emerging in the peripheries are neither monolithic, nor directed into existence only from within formal policy. Rather, they are formed through multiple interrelated processes that are representative of these simultaneous forces of urbanization and encompass both formal and informal development approaches. We substantiate our arguments through the lens of two particular types of peri-urban development: (1) urban new towns developed from a "top-down," city-centric urban expansion process; and (2) rural new towns developed from a "bottom-up," rural-centric urbanization process. We define the term "top-town" and "bottom-up" based on China's urban hierarchy and cultural context, wherein cities (the "top") are often endorsed with higher values over the rural (the "bottom") counterparts. The downward trend features the process that cities are expanding towards the urban outskirt next to which rural areas are located. The upward trend reflects the process that some rural areas located in the urban periphery are creating functional urban fabric and converging into urban lifestyles. This characterization used throughout this chapter is different from the government-led versus community-led distinction that is used elsewhere. We further pose that both forms of urbanization should be acknowledged in China's formal planning system, rather than policy makers continuing to view the "top-down" process as the only legitimate modes for peri-urban development.

X. Yang (✉) • J. Day • S.S. Han
Faculty of Architecture, Building and Planning, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: x.yang@student.unimelb.edu.au; jday@unimelb.edu.au; sshan@unimelb.edu.au

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_6

6.1 Introduction

The urban periphery, a huge geographical space immediately next to the main urban built-up areas, is probably the most dynamic place in contemporary urbanization. Despite the urban economics notion that the bid rent curve drops to zero in the urban periphery (Alonso 1964; Muth 1969), urban activities do not cease in this vast region. Garreau's (1991) *edge cities* and Lang and Lefurgy's (2003) *edgeless cities* are examples that show remarkable urban expansion in the urban periphery in the USA. Ford (1999) demonstrates four interrelated processes (i.e., urbanization, counter-urbanization, suburbanization and population retention) in the peri-urban areas in selected Australian cities. A continuum of high density urban fabric of varying natures was observed by McGee (1969) in his thesis about urbanization in Asia. McGee's *desakota* regions are densely-populated, with a spectrum of urban functions from urbanized towns to low-density peri-urban areas. From a development perspective, it may no longer be a useful activity to differentiate urban from rural in *desakota* regions.

In China, as urban and rural lifestyles converge, some urban villages have begun to resemble urban places, for example, by containing multi-level apartments, wider and paved roads, squares and meeting spaces, in addition to the more traditional indicators of urbanization such as shifts in livelihoods away from agricultural production, and conversion of lifestyle from rural towards urban. Recent research on Chinese urbanization shows that the urban peripheries are key locations for setting up new economic development projects (e.g., industrial parks and development zones), competing to capture land revenue (e.g., the construction of *xiao chan quan*, or, 'sub-ownership right' housing'), and displaying a range of forces (e.g., state and market) that shape urban expansion in China (Cartier 2001; Liu et al. 2012; Han 2010).

It is apparent that cities exert pressure on their rural hinterlands, but rarely is the converse relationship expressed, wherein rural areas create urbanization pressures of their own. Rural hinterlands did not push back in Western conceptions of urbanization, but this is not the situation in China. Chinese urbanization in the 1980s was driven remarkably by town and village enterprises. Studies of that experience led to the argument of a new model of urbanization (e.g., see Kwok et al. 1990). Rural urbanization has continued its importance in the literature, as shown in other chapters of this book (e.g., Zhang and Zhao; Han and Wei). However, how the urban peripheries are shaped by the various processes of urbanization has not been systematically understood.

Given the strength of the Chinese state and the consistency of urban policy across cities, it is tempting to think of Chinese urban peripheral expansion as a monolithic process, resulting in a relatively uniform process of urban expansion. We contend in this chapter that China's urban peripheries are expanding under differentiated and simultaneous forces, some of which are not yet widely recognized in either formal urban planning processes or in the literature. Our intention for this chapter is to call

attention to these forces as drivers of urbanization, so that they can be considered in future planning processes.

Specifically, this chapter focuses on two particular modes of development emerging in China's urban peripheries: (1) urban new towns developed from a "top-down," city-centric urban expansion process; and (2) rural new towns developed from a "bottom-up," rural-centric urbanization process. The "top-down" and "bottom-up" distinction used throughout this chapter is defined based on China's urban hierarchy and cultural context, wherein cities (the "top") are often endorsed with higher values over the rural (the "bottom") counterparts. The "top-down" urbanization process is featured by the expansion of cities towards the urban outskirt next to which the rural hinterlands are located. The "bottom-up" urbanization process is characterized by the creation of functional urban fabric in some rural areas that are located with close proximity to urban built-up areas. We further argue that the "bottom up" mode of urbanization, in particular the subset driven by informal and community-led initiatives, is largely unacknowledged by, and should be incorporated into, Chinese urban policy and planning practice as an important element of metropolitan development.

This chapter is organized in seven sections. Section 6.2 provides a brief history of new town development in China and a conceptual framework for this research. Section 6.3 outlines the method. Sections 6.4 and 6.5 discuss the "top-down" and "bottom-up" processes of new town development. Section 6.6 presents the urban periphery as a conflict space. Section 6.7 summarizes and concludes.

6.2 Conceptualizing China's Urban Periphery and New Town Development

China's urban periphery includes a range of land-use types such as farms, town and village enterprises, industrial parks, and settlements of various forms and sizes. New towns are one of the main forms of the peri-urban settlements. As shown in Fig. 6.1, new towns could be an outcome of city expansion (NT-1), wherein a village is subsumed by the expanding urban region. Alternatively, they can be a result of rural urbanization (NT-2 and NT-3), wherein villages or government planners anticipate the advance of the urban front and adapt their land uses to the urban context. We discuss these adaptations and their drivers in more detail below. For now, we note that what we refer to as the "urban periphery" is, in China, the interface between the built-up urban region and the rural hinterlands. This is a dynamic boundary, most often not associated with administrative city or district boundaries. Urban peripheries are generally larger and contain both urban land and rural land into which the urban fabric is expanding. These constant shifts lead to a changing geography of the urban periphery: a new town within a peri-urban region may no longer be a periphery town in 5 years.

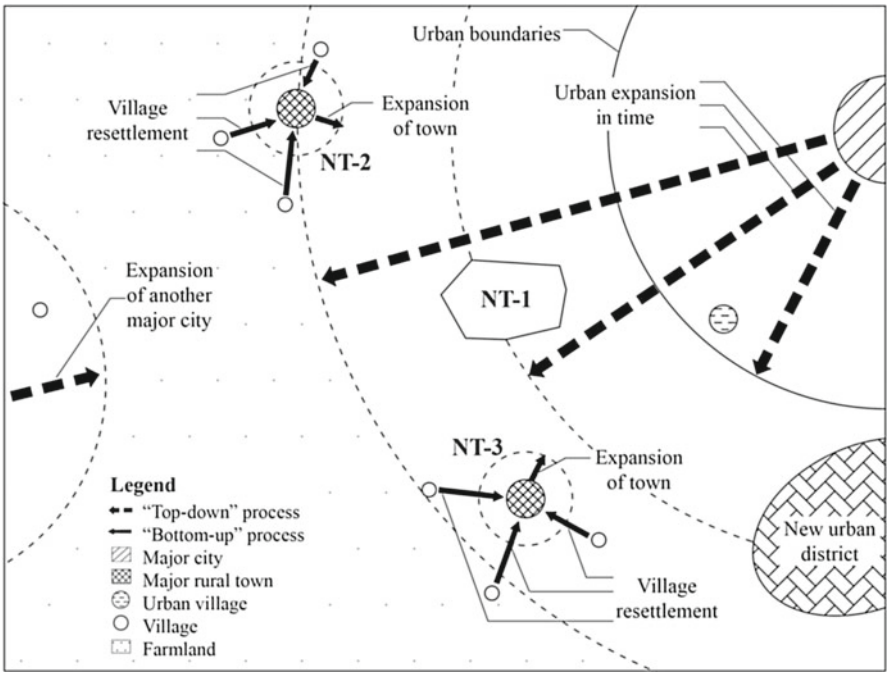


Fig. 6.1 A conceptual diagram of new towns as an outcome of the "*top-down*" and "*bottom-up*" urbanization processes in China

The development of new towns in China can be dated back to the 1950s in a handful of large cities, e.g. Beijing, Shanghai and Shenyang (Wang et al. 2010; Zhao and Wang 2011). At that time, new towns were generally developed as satellite towns, driven by the pressing need for industrial development for the newly established country. The backdrop of socialist planned economy of that time differentiated the Chinese new town from its cousins in Western capitalist economies. A half-century before China attempted an industry-driven mode of satellite town development, Sir Ebenezer Howard (1902) envisaged "Garden Cities" as several self-contained communities planned outside the central city, surrounded by greenbelts and incorporating proportional areas for residential, industrial and agricultural uses. For Howard, Garden Cities were envisioned to relieve many ills associated with the overcrowding and deterioration of cities.

In contrast, new towns in the 1950s China were not developed around ideas such as de-concentrating population, reducing commute times, or providing places for eligible households to escape congested city life – that is, in relieving the externalities of urban agglomerations that have plagued cities since the Industrial Revolution. The commute, the idea of residential location choice, the bid rent curve that distinguishes the value of urban and rural land: these are decidedly market concepts (Alonso 1964; Muth 1969), and were largely absent from the Chinese urban and

rural landscapes in the 1950s. Rather, the urban landscapes of 1950s China were cellular, comprised of state *danwei* (work units) provided with housing and employment to virtually all urban workers.

Until the late 1990s, after decades of economic reforms that opened up land markets and introduced urban form that required the mitigation of commuting pressures and high urban property prices, among other urban problems, some Chinese cities begun to undertake new town development on the urban edge that reflects most of the Western urban theories and language. Most urban scholarship on China's new towns recognises this type of planning primarily as a way to relieve the pressure in central cities and to expand spaces for urban growth (Wang et al. 2010; Xue et al. 2013; Zhao and Wang 2011). Urban new towns have been described as the large-scale clustered development in the urban fringe, which were envisioned as extensions of the urban fabric, to house the growing population and alleviate the negative externalities of urbanization such as crowding, traffic congestion, high housing costs, and declining environmental quality.

At present, urban new towns have been becoming as a common element of urban form all over the country. There has been, since around the year 2000, a significant movement for new town planning and development in cities around the country. A 2013 study of 12 of China's 23 provincial capitals concludes that all 12 have announced plans for new town development (China Centre for Urban Development 2013). Among the 144 prefecture-level cities in those 12 provinces, 92 % of them have made plans to develop new towns, contributing a total of 200 new towns to be constructed in those prefecture-level cities.

6.3 Method

This chapter made use of relevant policy documents at both the local and national level, empirical results from previous studies and media accounts. To understand the "top-down" urban expansion perspective, we reviewed 22 urban spatial plans from six Chinese cities, including three megacities (Beijing, Shanghai and Chongqing) and three provincial capitals in western and southern China (Xi'an, Chengdu and Kunming).[1] All of these urban spatial plans specify new town development was to begin in around the year 2000 and with almost the same timeframe, around 2020,

[1] These spatial plans include:

- Beijing: Beijing Master Plan (2004–2020), and 11 individual New Town Plans (2005–2020) in Beijing;
- Shanghai: Shanghai Master Plan (1999–2020), and Songjiang New Town Plan (2001–2020);
- Chongqing: Chongqing Urban–rural Development Planning (2007–2020), Chongqing Liangjiang New Area Development Plan (2010–2020), and Development Planning for the Second Ring Road Area of Chongqing Main Urban Districts (2011–2020);
- Chengdu: Chengdu Master Plan (2011–2020): An Updated Version of 2004 Master Plan, and Chengdu Tianfu New Area Planning (2010–2030);
- Xi'an: Xi'an Master Plan (2008–2020); and
- Kunming: Kunming Master Plan (2008–2020), and Kunming Master Plan (2011–2020).

for the implementation period. In addition, we also reviewed a number of national policies occurring as the common guidelines amongst those urban spatial plans. The purpose of reviewing these policies is twofold: (1) to understand the common themes in the policy language reflecting the driving forces of urban new towns; and (2) to identify whether policy considerations have been given to the presence of rural new towns, from which to seek parts of the possible interactions and/or conflicts between the development of urban and rural new towns.

In relation to policies on the development of rural new towns, we reviewed key milestones in China's rural development policy, and focused on analysing the most recent ones – "Building a New Socialist Countryside" (*shehui zhuyi xinnongcun jianshe*) and "New Trajectory of Urbanization" (*xinxing chengzhenhua*). We also reviewed three dimensions of the governance over the community-led development of rural resettlements, i.e. rural land ownership, rural–urban land conversion procedures, and controls over informal rental housing.

6.4 New Towns Emerging from "Top-Down" Urban Expansion Processes

6.4.1 New Towns as Spatial Carriers of Urban Expansion

As suggested in our review of the 22 urban spatial plans, language in all of the new town plans reflects the queries undertaken by the scholarly community, largely focused on urban restructuring projects for catering the expansion of urban activities. Our review of the spatial planning documents shows the issues around overcrowding in the central cities and a push to move significant populations and industries towards the outer suburbs. For example, *Beijing Master Plan: 2004–2020* explicitly states that, "[n]ew towns are designated as large-scale urbanized areas for decentralising population and industries, and initiating regional development". Songjiang New Town, one of the nine new towns in Shanghai, is designated as the agglomeration site to relieve the population and industrial stress in downtown Shanghai. In Chongqing, while the term "new town" is not utilized in the planning document, *Development Planning for the Second Ring Road Area of Chongqing Main Urban Districts (2011–2020)*, planners expect urban restructuring to be facilitated by developing 21 large communities outside downtown Chongqing. Among those 21 communities, 10 of them are expected to emerge as the urban sub-centres in Chongqing by 2020.

In terms of policy guidance, for example, in Tongzhou New Town, Beijing, Tongzhou New Town Plan (2005–2020: 67) states that, "[g]overnment should rationally guide the comprehensive development of Tongzhou new town" (Beijing Municipal Commission of Urban Planning 2007). The guidance from local government is also reflected by the entrepreneurial nature of local governments that have

established local development corporations in charge of new town development. Shanghai Jiading New City Development Co., Ltd. and Shanghai Songjiang New City Development Co., Ltd. have been founded as state-owned companies, empowered to facilitate land development, industrial investment, asset management and management of real estate development in the respective new town.

6.4.2 Local Government as an End-User of New Towns

Our review of new town plans suggests that the local government has actively involved in driving new town development, not only as policy initiators, but also the actual end-user of new towns. The latter regard is featured by the relocation of government functions, i.e. government offices, universities, state-owned research institutes, and state-owned enterprises (SOE), from the central city to new towns. This practice is found typical across the six Chinese cities we have reviewed. Of the 11 new towns in Beijing, government has led the development in three, i.e. Daxing New Town, Mentougou New Town and Huairou New Town, through the resettlement project of government offices, SOE, and universities, respectively.

The relocation of government administrative centre has also been employed in leading the new town development in three provincial capitals, i.e. Kunming, Xi'an and Chengdu. While Tianfu New Town, the only new town in Chengdu, failed to achieve the goal of government office resettlement due to public protest and eventually abandoned the resettlement project, the other two provincial capitals have successfully completed the government-office resettlement projects. In Chenggong New Town, Kunming, the municipal government announced policies for relocating the municipal government and its subordinate government agencies to the new town, after the new town had been developed for 3 years since 2003. The policy statements declare that the relocation of government offices to Chenggong New Town is envisioned as a powerful instrument for boosting the development of the new town as an urban sub-centre (Yunnan Provincial Government 2008). Similar policy language can also be found in the government announcement made for Weiyang New Town, Xi'an: "[a]ssociated with the relocation of Xi'an Municipal Government Administrative Centre to Weiyang, Weiyang is positioned as the core urbanized area, the new administrative centre in Xi'an and the frontier for the new round of urban development in Xi'an" (Weiyang District Government 2014).

Resettlement of universities and stated-owned research institutes has also seeded some new town development. In Songjiang New Town, Shanghai, the University Town in that area has agglomerated seven university campuses. "[U]niversity-related inhabitants make up 1/3 of Songjiang New City's population" (Keeton 2011: 368). In both Chongqing and Kunming, the construction of university towns has been utilized as the cornerstone for developing the new town.

6.4.3 The Growth Mandate and Its Realization in Urban New Towns

Growth, occurring as an outcome of economic reforms in China, has lifted more than 500 million people out of poverty since 1979 (The World Bank 2014). Keeping the bottom line for the annual economic growth around 7 % is considered to be an imperative to maintaining social order and stability (Shirk 2007: 30) in order to keep pace with the 24 million new jobs per year needed between 2006 and 2015 in cities (Shirk 2007: 30). This national priority of strong economic growth depends on spaces for capital to accumulate and become productive. Such sites are prolific on the urban fringes: manufacturing production sites on the fringes of large cities (Yang 2013), high technology development zones in peri-urban office parks in large and small cities across the country (Walcott 2002; Sutherland 2005), housing speculation on the urban peripheries (Wang et al. 2010).

Entrepreneurial local governments that generate the bulk of their operating budgets from land sales have an incentive to engage in furthering growth as a national priority. They are a primary driver of urban development at the edges (Wu 2004a; Zhang and Fang 2004). Property development is responsible for large portions of local government revenues – up to 25–50 % of the city revenue in some places (Zou 1998), and even more for other types of expenditure such as infrastructure (Ding 2005). Housing development on the urban fringes also contributes to the attractiveness of central cities as spaces for capital accumulation, as fringe development is a direct consequence of urban spatial restructuring designed to alleviate externalities of urbanization in central cities, such as crowding, high land prices, and pollution (Day and Cervero 2010).

That economic growth is a priority shared by national and local governments is apparent in urban planning documents. In all of the cities we studied, all of the metropolitan spatial plans included decentralisation of traditionally central-city economic functions to new towns in the urban peripheries. For example, the economic development target for Tongzhou New Town, Beijing is established in Tongzhou New Town Plan (2005–2020: 27) as "[b]ased on receiving the resettlement of central-city economic functions, Tongzhou New Town is designated to become the agglomeration sites for modern service industry, advanced manufacturing industry, and urban-type industry" (BMCUP 2007). The Liangjiang New Area in Chongqing's urban periphery is to accommodate four types of central-city economies, e.g. headquarters-based economy, advanced manufacturing industry, hi-tech research industry and modern service industry (Liangjiang New Area 2014). The Liangjiang New Area is envisioned as a "new growth engine," driving the opening up in China's western regions (Liangjiang New Area 2014).

6.5 New Towns as Outcomes of "Bottom-Up" Rural Urbanization Processes

In contrast to the "top-down" urban expansion processes as discussed above, we characterize rural new towns as the spaces directed into existence by "bottom-up" rural urbanization processes. These processes create functional urban fabric in the peri-urban villages for accommodating rural population, modernizing the rural landscape, shifting livelihoods away from agricultural production and merging of urban and rural lifestyles. We argue that the 'bottom-up' urbanization takes two different processes: one is a formal, administratively-driven process marked by hierarchical policies designated by different levels of the government; the other is an informal, community-led process that villages employ to capture the value of their land as the built-up urban region expands toward them.

6.5.1 The Formal, Administratively-Driven Mode of Developing of Rural New Towns

Rural towns played an important role in Chinese socialist ideology for an integrated pathway of rural–urban development (Han and Wong 1998). In the 1980s, the rhetoric importance of rural towns was reinforced by its pragmatic value. Village and town enterprises, many of which locate in rural towns, were used as a reservoir to keep rural surplus labor that was created in agricultural reforms (Han 2004). Under a policy known as *litu bu lixiang* (literally, leaving the farm but not the hometown), a Chinese model of urbanization was articulated (Kwok et al. 1990). That model is largely an outcome of strict administrative control over rural–urban migration using household registration system, which was in effect until the late 1990s (Wong and Han 1999).

In 1998, the Chinese Communist Party (CCP) announced the national policy intention to build a "new socialist countryside with Chinese characteristics" (Su 2009: 31). In 2005, the "Building a New Socialist Countryside" (here and after called "new countryside" in short) strategy was officially established in China's 11th Five-Year Plan (2006–2010), aiming at solving issues around farmers, agriculture and rural areas (*sannong wenti*) and serving as a cornerstone in building a "harmonious society" (Su 2009: 2). The "new countryside" strategy compasses five major dimensions: "advanced production, improved livelihood, clean and tidy villages, a civilized social atmosphere, and democratic management" (Long et al. 2010; Su 2009: 121–129).

In March 2014, the "National Plan for a New Trajectory of Urbanization (2014–2020)" was announced and with a continuing effort in "new countryside" (CCUD 2014a). The new urbanization trajectory is featured by a significant policy shift from the previous land-based physical urbanization towards the people-centred urbanization mode. People-centred urbanization refers to on one hand, enabling

qualified farmers to be reclassified into the urban household registration system and to enjoy the associated urban amenities; and on the other hand improving farmers' livelihoods through modernizing agriculture and providing skill training of non-agricultural jobs. Such remarkable shift in China's urbanization path is estimated to transform a population of 100 million rural residents into urban status by 2020 (CCUD 2014b). Of particular relevance to peri-urban development and new towns, this 2014 national plan calls for a need for promoting "community development" (*shequhua fazhan*) in the periphery, i.e. can be conceptualised as a type of clustered development like "new towns" discussed in this chapter, so as to enhance the capacity of the periphery in accommodating urban growth, driving rural development, and housing farmers in transition to urban residents (CCUD 2014a).

Regarding the actual realization of these two recent national policies in rural new towns, it is yet to identify the evidence of the "new trajectory of urbanization" since it was just released early this year. Whereas, it is not difficult to trace the integration of the "new countryside" strategy in rural new town development. In a coastal city Zhongshan, the redevelopment of peri-urban villages was designated as a significant segment in implementing the "new countryside" policy (Yu and Guan 2013). Drawing on fieldwork data collected by Zhongshan local state, the local planning department generated village redevelopment plans that were designated to integrate into the city's master plan. In addition, four urban-kind services were required to provide in villages, including community service centre, community medical centre, community recreational centre and community senior (for the elderly) centre.

Apart from this empirical evidence, the "new countryside" strategy appears to be a typical tone in other cities' urban policy for rural new town development. For instance, as documented in a local government statement, Hangzhou Municipal Government envisioned the redevelopment of peri-urban villages as the frontier for implementing the "new countryside" policy in Hangzhou (Hangzhou Daily 2006). The similar implementation strategy is also argued for Shatou Village in Guangzhou's urban periphery (Yuan 2009).

6.5.2 Rural New Towns as Outcomes of Informal, Community-Led Model of Urbanization

Not all new development areas in the peripheries of Chinese cities follow the formal, state-centred planning policies described above. Urban villages, eager to capitalize on their proximity to expanding urban regions and able to take advantage of the particular format of rural land ownership in China, have made significant contributions to urbanization outside of the state-driven processes described above. In this section and the next, we discuss how these contributions at best are generally unrecognized in China's formal urban planning processes, and at worst are vilified as inhibiting modernisation of the cities. In the conclusion of this chapter,

we discuss some reasons why acknowledgement of this kind of urbanization would be a better approach for Chinese urban planning.

The informal development of peri-urban villages – those villages located in the dynamic space between the expanding urban built-up areas and the rural hinterlands – is documented in a number of studies. In the case study of Xiaocun, a village located in the periphery of Kunming City in south-western China, Zhu (2014) presents the formation of the "New Village" in Xiaocun from the community-led urbanization approach. Unlike the common image of many of China's rural villages that is dirty, disorderly and run-down (Long et al. 2010; Su 2009: 127), the outlook of this "New Village" encompasses several features of urbanized settlements, such as "[housing construction with] reinforced concrete structure, which is fire proof and resistant to earthquakes" and "wide roads, drainage connected to the sewerage system, well serviced with water [and] electricity and trees are planted" (Zhu 2014: 35). In terms of the development process, while the local government was involved in granting planning and construction permit, it is largely community-led and entrepreneurial in nature. This is indicated by the dominant and autonomous role of villagers in several aspects, such as initiating the development plan, selecting construction builders through a bidding process, and most importantly, the financing from "land sales and transfer, as well as savings from every household along with loans from the bank and from relatives and friends" (Zhu 2014: 35).

Another case of the community-led peri-urban development is Liede, a village located in Guangzhou's previous urban outskirt but now subsumed by the city's new Central Business District. Wu et al. (2013) indicate some of the residential buildings in Liede village were "extended and in some cases comprehensively replanned and reconstructed" by villagers, and in some extreme cases buildings were built "as high as 15 floors, creating the most dense *chengzhongcun* [urban villages] in China" (Wu et al. 2013: 1929). Contrasting to the entrepreneurship of Xiaocun villagers, the presence of informal development in Liede was largely driven by villagers' desires for gaining more compensation from the government-led redevelopment in that area as well as increasing rental income from their extended/reconstructed residential buildings (Wu et al. 2013).

Explaining the Enablers of Informality in Rural New Town Development

In a strong state like China, the presence of the aforementioned types of informality is somewhat counterintuitive, particularly because the urban planning system appears to see them as places in need of redevelopment or else willfully ignore them (discussed below). Given this, an explanation of the governance structures that enable informal rural new town development is warranted here. The informality in rural new town development in the last 15 years or so was enabled by three aspects of China's governance structure that have been acknowledged in previous studies (see Wu et al. 2013; Ho 2010; Li and Wu 2013) and national media accounts (see CCTV News Probe 2008). They are: (a) China's dualistic land ownership system;

(b) institutional ambiguity in urban–rural land conversion procedures; and (c) the demand for migrant housing in peri-urban villages.

Land ownership system in China is of a dualistic nature. China's Constitution states that urban land is owned by the state, while rural land is under collective ownership of rural communities. This overarching institutional distinction leads to several jurisdictional differences between China's urban and rural areas, such as infrastructure provisions, housing provisions, property rights, to name a few. In relation to the informal development of rural new towns, rural communities are responsible for providing housing and basic infrastructure in their villages, since the local government is only responsible to serve urban areas under its jurisdiction. In the previously mentioned example in Zhu's (2014) work, the "New Village" developed by Xiaocun villagers, the village community constructed over 500 residential dwellings and basic infrastructure in the new village, with the financing mainly sourced from villagers. During the development of the new village, the local government was involved in a limited way, i.e. granting planning and construction permits. In light of these features, the informal new town development in Xiaocun appears to be encouraged by the local government, even though it was initiated and financed by entrepreneurial residents.

This relationship between the local government and the village, however, did not remain static. In 2010, 5 years after construction, the local government announced an urban development plan that aggressively aimed at acquiring land and at demolishing the "New Village". The conflict that ensued from this aggressive shift in local governance arrangements points to an ambiguity in urban–rural land conversion procedures in China's laws – a status largely reflects a "deliberate institutional ambiguity" as argued by Ho (2010: 103). Landless and displaced farmers facing a loss of livelihood under land conversion sometimes seek to capture the value of having land located in the urban periphery. One means at farmers' disposal is to increase village residential floor areas in anticipation of formal village redevelopment projects. If formal redevelopments do not occur, then the villagers can rent the units to migrant workers and earn incomes. If these redevelopments do occur, compensation deals often reflect the increased residential floor areas. The above-mentioned village, Liede in Guangzhou (Wu et al. 2013), is reflective of this phenomenon.

In relation to the third source – the demand for migrant housing – many studies on urban village have revealed it as a key force driving the community-led development of informal rental settlements (see Wu et al. 2013; Li and Wu 2013). The informal rental housing in urban villages has for long accommodated China's rural migrants who work in the labour-intensive and low-paid urban economic sectors. Wu et al. (2013) observed that the size of rural migrants in Liede, a *then* peri-urban village in Guangzhou, has accounted for around half of the usual residents in Liede village. In Liede, the significant benefits from the informal rental economy were found as attributable to the informal extension/reconstruction of residential dwellings (Wu et al. 2013). The similar situation is also evident in some peri-urban villages in another coastal city, Xiamen in Fujian Province (Zhao and Webster 2011). Regarding migrants' preferences for living in peri-urban villages, Li and Wu (2013) indicate that the effect of neighbourhood attachment (measured through a set of

indicators of social interactions and the shared social norms and habits) to those villages is positively related to migrants' residential satisfaction and the duration of stay in those areas.

The relatively-limited scholarship on this informal process of rural new town development is aligned with the paltry policy attention that these places receive. Our analysis of the 22 urban plans concludes this type of urban fabric is often portrayed in the formal spatial planning for China's cities as an undesirable urban form to be eliminated through formal redevelopment. We found this kind of planning objective in the urban spatial plans for half of the six cities reviewed in this study. For instance, Tongzhou New Town Plan (2005–2020) and Shunyi New Town Plan (2005–2020) in Beijing, Songjiang New Town Plan (2001–2020) in Shanghai, and Xi'an Master Plan (2008–2020). While Kunming Master Plan (2008–2020) does not include urban village redevelopment, the local government in Kunming has made continued and aggressive efforts in redeveloping urban villages (see Zhu 2014). The other formal planning outside of these six cities, e.g. Guangzhou and Hangzhou, mentioned in previous sections, also have similar planning objectives for removing informality in urban villages. The remainder of the 22 reviewed plans simply does not mention these informal, community-driven types of village developments. We interpret these significant omissions as willful non-recognition of this type of urban fabric by planning authorities. Although there are other possible explanations, e.g., they appear in some other planning documents that we have not examined here, we think this conclusion is reasonable. It seems unlikely that planning authorities are not aware of the existence of these developments given the visible nature of the construction in these places, their proximity to urbanized areas (often they are within municipal boundaries), their recognition by local government authorities, and their importance in providing affordable housing for migrants. That they do not appear in urban plans suggests that they are being willfully ignored.

6.6 Growing Pains on China's Urban Periphery

Land development achieved by converting rural land to urban uses is a major mode of financing city growth (Wu 2004b), but it also plays a large role in fuelling the unrest that plagues the CCP leadership (Tong and Lei 2014). Locating on the interface between China's urban and rural areas, new towns in China are spaces that facilitate interaction between the urban and rural populations, places where the wealth of the cities is apparent to those in the countryside. As much, they are also the places where a large amount of social unrest takes place: the mass displacement of rural land, mass protests against rural land acquisition.

According to the 2013 Blue Book of China's Society (Chinese Academy of Social Sciences 2013), a government-affiliated publication, issues at the urban fringes have been a major cause of mass incidents. As of 2013, land-related disputes, i.e. disputes over land requisitions and housing demolitions, have given rise to half of the mass incidents national-wide, and have continuously marked as the

greatest trigger to mass incidents over the previous years (China.org.cn 2012). The sources of land-related disputes have been generally attributed to the amount of compensation to villagers (Tong and Lei 2014) and to the involvement of local government in forced housing demolition and/or signing land conversion agreement (CCTV News Probe 2008).

As presented earlier in Sect. 6.4.3, the growth mandate that the CCP sees as essential to its survival, translates from an economic conception at the level of national policy, onto the ground in urban peripheries. As the cities' land coverage literally grows, expanding in both size and population, the problems of rural displacement and discontent become ever more apparent. If China's cities must grow, an appropriate balance must be struck to promote stability. China's leaders' realization that the urban–rural interface is essential in managing the rural unrest brought on by urbanization, is apparent in national policies as discusses previously. Such realization is also evident in media accounts on the public dialogue by China's Central government officials.

According to the interview of Chen Xiwen, Director of Central Government Rural Work Leading Group Office, by China's national TV channel (CCTV News Probe 2008), Mr. Chen warned that the adverse consequence of China's ongoing peri-urban development could go way beyond the mass incidents in the urban fringe that might cause ever-greater social unrest on both sides of the urban–rural interface. Specifically, Mr. Chen indicated that a mass rural migration, consisted of displaced farmers, into cities is foreseeable in the next few years. Inside cities, the disparity, in wealth, job skills and access to social amenities, between the formal and informal urban residents is likely to cause class conflict and crimes. Rural-wise, the erosion into agricultural land and the abundance of agricultural jobs may lead the whole nation towards food crisis in the long term.

For a regime seeking to preserve stability, the co-existence of large informal urban population in cities and social conflict from the countryside may be counterproductive. The national need for addressing this co-existence is found actively integrated in urban planning policies at the local level. In the latest master plan for Chongqing Metropolitan Area, i.e. Chongqing Urban–rural Development Planning (2007–2020), the city was specified as a national test ground for the comprehensive urban–rural reform. Language in this document signifies a policy intention for balancing urban and rural development – an acknowledgement that the city's previous version of spatial planning policy (Chongqing Master Plan: 2007–2020) largely ignored the needs of the displaced rural residents and the potential adverse influence of the city's urbanization on its rural areas. Chongqing's master plan now aims at equalling the role of urban and rural areas in the city's ongoing development, and encourages the concentration of rural population in major towns and other urbanized areas (Chongqing Urban Planning Bureau 2007).

Spatial plans in other localities have followed suit. In Beijing, all 11 new town plans include language encouraging the clustering of rural population in the new town and its surrounding urbanized areas, and highlighting the need for enhancing the job skills of rural residents via the provision of professional training programs. In Shanghai, both Songjiang New Town and Jiading New Town allow displaced

farmers to convert their rural household registration status into urban identity as the compensation for land requisition (Wang et al. 2010). According to Keeton (2011: 361), "[i]n Songjiang, farmers who came to the city as employees were allowed to change their registration status to urban resident if they bought a house." In the provincial capital Kunming, the municipal government announced to provide housing units in Chenggong new town to displaced farmers in that area. According to the local government authorized website, this housing project is planned to construct a total floor area of 10,000,000 square metres, housing about 2,700 households and 100,000 land-lost farmers (InKunming 2013).

6.7 Summary and Conclusion

As the preceding sections argue, China's urban peripheries are neither monolithic in their urban form, nor as an outsider might be tempted to believe, solely directed into existence from within formal policy. Rather, they are formed through at least two simultaneous processes. The "top-down," city-centric processes of urban expansion with which many in the West are familiar: those that seek to create decentralized urban fabric to accommodate expanding cities' needs for affordable housing and preferences for suburban lifestyles, economic nodes and activity centres that relieve traffic and commuting pressures, and building opportunities for housing developers. These processes also include the "bottom-up," rural-centric urbanization processes undertaking in peri-urban villages that many of the outsiders may not be familiar with. Such processes create urbanized settlements in peri-urban villages and encompass two distinctive models: the administratively-driven model of developing peri-urban villages, which illustrates the policy efforts made at different levels of government in narrowing the disparity between urban and rural development; and the community-driven model of village development, which was enabled by aspects of China's governance structure related to the dualistic urban–rural system (the dualistic land ownership system, institutional ambiguity in urban–rural land conversion and housing provision for rural migrants).

The "top-down" and "bottom-up" urbanization processes do not exist independently from each other. Rather, the interplay between them has often led to conflicts in new towns developed in the periphery. Accommodating both urban expansion and rural urbanization, new towns in China are developed in the processes wherein the problems of rural displacement and discontent have become ever more apparent. As another part of the interplay, we also observe initiatives of peri-urban villagers who are often in defiance of state or local policy.

In general, these characteristics portrait China's urban peripheries as both the growth and conflicts spaces wherein different forms of new towns have been developed. This new dimension added in the existing literature also reflects the political-economic context of China's new town development that an overwhelming part of it is distinct from the Western context of new towns. These include local government as both the policy makers and end-users of urban new towns, the realization of

national policy discourses (the growth mandate and balancing urban–rural development) in new town development, and the presence of informality in rural new towns that is facilitated by aspects in China's institutional arrangements.

By concluding this chapter, we call for a need for incorporating both processes of urbanization – the "top-down" urban expansion and the "bottom-up" rural urbanization – into China's urban policy and planning practice, in order to assist in managing China's peri-urban and new town development. The Chengdu Model documented in Ye and LeGates (2013) shows one experiment towards integrated rural–urban development by reforming the institutions and administrative structure in Chengdu city. It will be interesting to observe other experiments and innovations in dealing with the dichotomous rural–urban development in policy practice, and the way that China's future peri-urban areas and new towns evolve.

References

Alonso W (1964) Location and land use: toward a general theory of land rent. Harvard University Press, Cambridge

Beijing Municipal Commission of Urban Planning (BMCUP) (2007) Tongzhou new town planning (2005–2020). http://www.bjghw.gov.cn/web/static/articles/catalog_431/article_7481/7481.html. Accessed 2 April 2014

Cartier C (2001) 'Zone fever', the arable land debate, and real estate speculation: China's evolving land use regime and its geographical contradictions. J Contemp China 10(28):445–469

CCTV News Probe (2008) Zhengdi poju (Unfold land acquisition). http://news.cctv.com/china/20081122/103418.shtml. Accessed 2 Apr 2014

CCUD (2014a) Shouquan fabu: guojia xinxing chengzhenhua guihua (2014–2020) (Authorised release: national plan for a new trajectory of urbanization, 2014–2020). http://www.ccud.org.cn/2014-03-17/114013587.html. Accessed 7 June 2014

CCUD (2014b) Xinxing chengzhenhua guihua: 6 nian nei 1 yi ren jincheng luohu (New trajectory of urbanization: 100 million rural residents to be reclassified into urban status in 6 years). http://www.ccud.org.cn/2014-03-17/114013338.html. Accessed 7 June 2014

China Centre for Urban Development (CCUD) (2013) Xincheng xinqu jianshe xianzhuang diaocha and sikao (Investigation of the current state of China's new town development). http://www.ccud.org.cn/2013-09-26/113349759.html. Accessed 2 Apr 2014

China.org.cn (2012) Experts warn against social conflicts in China. http://china.org.cn/china/2012-12/19/content_27455062.htm. Accessed 2 Apr 2014

Chinese Academy of Social Sciences (CASS) (2013) Blue book of China's society. CASS, Beijing

Chongqing Urban Planning Bureau (2007) Guanzhu Chongqing chengxiang zongti guihua, cong chengshi zonggui dao chengxiang zonggui – yizi zhigai yiyi shenyuan (Focus on Chongqing urban–rural development planning, from urban master plan to urban–rural master plan – the significance of the change of one word). http://www.cqupb.gov.cn/content.aspx?id=10933. Accessed 1 Sept 2014

Day J, Cervero R (2010) Effects of residential relocation on household and commuting expenditures in Shanghai, China. Int J Urban Reg Res 34(4):762–788

Ding C (2005) Property tax development in China. Land Lines 17(3):8–11

Ford T (1999) Understanding population growth in the peri-urban region. Int J Popul Geogr 5(4):297–311

Garreau J (1991) Edge city: life on the new frontier. Doubleday, New York

Han SS (2004) Agricultural surplus labor transfer. In: Hsieh CM, Lu M (eds) Changing China: a geographical appraisal. Westview Press, Boulder, pp 65–81

Han SS (2010) Urban expansion in contemporary China: what can we learn from a small town? Land Use Policy 27(3):780–787
Han SS, Wong ST (1998) Revolution, space and urbanization, the ideological foundation of Chinese urban development. Asian Profile 26(2):91–120
Hangzhou Daily (2006) Hangzhou yi chengzhongcun gaizao wei tupokou jiakuai xinnongcun jianshe bufa (Hangzhou designates urban village redevelopment as the frontier for accelerating the building of a new countryside). http://city.finance.sina.com.cn/city/2006-06-06/70922.html. Accessed 7 June 2014
Ho P (2010) Contested rural spaces: land disputes, customary tenure and the state. In: Perry EJ, Selden M (eds) Chinese society: change, conflict and resistance, 3rd edn. Routledge, Abingdon, pp 101–122
Howard E (1902) Garden cities of tomorrow. S. Sonnenschein & Co., London
InKunming (2013) Kunming CPPCC conducts fieldwork on the city's housing construction project for displaced farmers. http://news.kunming.cn/km-news/content/2013-06/19/content_3334127.htm. Accessed 7 June 2014
Keeton R (2011) Songjiang New City, PRC. In: Keeton R (ed) Rising in the East: contemporary new towns in Asia. SUN Architecture, Amsterdam, pp 354–383
Kwok R, Parish WL, Yeh A et al (1990) Chinese urban reform: what model now? M.E. Sharpe, New York
Lang RE, LeFurgy J (2003) Edgeless cities: examining the non-centered metropolis. Hous Policy Debate 14(3):427–460
Li Z, Wu F (2013) Residential satisfaction in China's informal settlements: a case study of Beijing, Shanghai, and Guangzhou. Urban Geogr 34(7):923–949
Liangjiang New Area (2014). Brief introduction to Liangjiang New Area. http://english.liangjiang.gov.cn/2014-01/08/content_17248551.htm. Accessed 2 Apr 2014
Liu R, Wong T-C, Liu S (2012) Peasants' counterplots against the state monopoly of the rural urbanization process: urban villages and 'small property housing' in Beijing, China. Environ Plan A 44(5):1219–1240
Long H, Liu Y, Li X, Chen Y (2010) Building new countryside in China: a geographical perspective. Land Use Policy 27:457–470
McGee T (1969) Urbanization or kotadesasi? evolving patterns of urbanization in Asia. In: Costa FJ, Dutt AK, Ma LJC, Noble AG (eds) Urbanization in Asia: spatial dimensions and policy issues. University of Hawaii Press, Honolulu, pp 93–108
Muth R (1969) Cities and housing. University of Chicago Press, Chicago
Shirk SL (2007) China: fragile superpower. Oxford University Press, New York
Su M (2009) China's rural development policy: exploring the "New Socialist Countryside". FirstForum Press, Boulder
Sutherland D (2005) China's science parks: production bases or a tool for institutional reform? Asia Pac Bus Rev 11(1):83–104
The World Bank (2014) China overview. http://www.worldbank.org/en/country/china/overview. Accessed 2 Apr 2014
Tong Y, Lei S (2014) Social protest in contemporary China, 2003–2010: transitional pains and regime legitimacy. Routledge, New York
Walcott SM (2002) Chinese industrial and science parks: bridging the gap. Prof Geogr 54(3):349–364
Wang L, Kundu R, Chen X (2010) Building for what and whom? New town development as planned suburbanization in China and India. Res Urban Sociol 10(1):319–345
Weiyang District Government (2014) Weiyangqu fazhan chengguo (Development Outcomes in Weiyang District). http://www.weiyang.gov.cn/wygl/fzcg/. Accessed 2 Apr 2014
Wong ST, Han SS (1999) Chinese urbanization policies. In: Chapman GP, Dutt AK, Bradnock RW (eds) Urban growth and development in Asia, vol 1, Making the cities. Ashgate, Brookfield, pp 34–61
Wu F (2004a) Urban poverty and marginalization under market transition: the case of Chinese cities. Int J Urban Reg Res 28(2):401–423

Wu F (2004b) Residential relocation under market-oriented redevelopment: the process and outcomes in urban China. Geoforum 35:453–470
Wu F, Zhang F, Webster C (2013) Informality and the development and demolition of urban villages in the Chinese peri-urban area. Urban Stud 50(10):1919–1934
Xue CQL, Wang Y, Tsai L (2013) Building new towns in China – a case study of Zhengdong New District. Cities 30:223–232
Yang DY (2013) A tale of Foxconn city. In: Wu F, Zhang F, Webster C (eds) Rural migrants in urban China: enclaves and transient urbanism. Routledge, Oxfordshire, pp 147–163
Ye Y, LeGates RT (2013) Coordinating urban and rural development in China: learning from Chengdu. Edward Elgar, Cheltenham
Yu Y, Guan L (2013) Village planning and sustainable development in the process of rapid urbanization: taking new countryside planning in Zhongshan city as an example. Chengshi jianzhu (Urban Archit) 6:7–8
Yuan C (2009) Fanyu qu shehui zhuyi xinnongcun jianshe zhong chengzhongcun wenti yu duice tantao (Urban village issues in the implementation of the "New Socialist Countryside" strategy in Fanyu). Guihuashi (Planners) 25:106–108
Yunnan Provincial Government (2008) Kunming Municipal Government Work Report 2008. http://www.stats.yn.gov.cn/canton_model11/newsview.aspx?id=1337670. Accessed 2 Apr 2014
Zhang Y, Fang K (2004) Is history repeating itself? from urban renewal in the United States to inner-city redevelopment in China. J Plan Educ Res 23(3):286–298
Zhao M, Wang L (2011) Xincheng guihua yu jianshe shijian de guoji jingyan ji qishi. (New town planning and development: international experience). Chengshi yu quyu guihua yanjiu (Urban and Regional Planning Research) 2:65–77
Zhao Y, Webster C (2011) Land dispossession and enrichment in China's suburban villages. Urban Stud 48(3):529–551
Zhu X (2014) The urbanisation of matter and the war of the gods. In: Wang MY, Kee P, Gao J (eds) Transforming Chinese cities. Routledge, Abingdon/New York, pp 31–47
Zou D (1998) Chinese cities towards the 21st century. City Plan Rev 22(1):7–9

Chapter 7
The Form of Urbanization and Carbon Emissions in China: A Panel Data Analysis Across the Provinces 2000–2008

Bo Qin and Jianfeng Wu

Abstract This paper examines how urban concentration affects CO_2 emissions using data across 24 provinces in China over the period 2000–2008. Moving beyond current literature on the relationship between urbanization and CO_2 emissions, this study has two novel findings. The first is that the degree of urban concentration has a significant impact on the provinces' CO_2 emissions, which suggests that not only urbanization per se but also the form urbanization takes matters for reducing CO_2 emissions. The second is that urban concentration initially contributes to CO_2 emissions but this impact tends to be weaker for further urbanization. It implies that the environmental impacts of urban concentration vary across different stages of urbanization. Our research suggests that how cities grow and are organized spatially is important in decoupling CO_2 emissions from urbanization and economic development.

7.1 Introduction

The relationship between urbanization and CO_2 emissions has attracted considerable attention in recent years. Some researchers argued that the acceleration of the urbanization process generates more demand for industrial products, mobility, and energy services such as lighting, heating, cooling, electronic devices, and so on. When more and more people are moving from rural to urban areas, cities become the major contributors to energy use and carbon dioxide emissions (Kamal-Chaoui and Robert 2009; Karathodorou et al. 2010). Other scholars provided conflicting evidence that urbanization improves the efficient use of public structures, lowering

B. Qin
Department of Urban Planning and Management, Renmin University of China, Beijing 100872, China
e-mail: qinbo@vip.sina.com

J. Wu (✉)
School of Economics, Fudan University, Shanghai 200433, China
e-mail: wujianfeng@fudan.edu.cn

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_7

energy use and thus carbon emissions because of the rise in density (Burton 2001). These studies suggest that urbanization does matter for CO_2 emissions despite different viewpoints on the link between urban development and CO_2 emissions. Moving beyond the extant literature, which focuses on the effect of urbanization per se, we examine how the form urbanization takes affects CO_2 emissions.

In this chapter, the form urbanization takes is defined as the spatial concentration of population and production activities within a region. At any point in time, given an economy's urbanization, urban concentration is related to energy demand for industrial and transportation activities in urban areas. Thus increasing urban concentration may increase environmental problems, such as carbon emissions, during low and intermediate stages of development. However, as further urbanization proceeds, increased urban concentration may minimize such problems since regions realize scale economies or benefit from technological progress. For example, Poumanyvong and Kaneko (2010) found that urbanization has a more profoundly positive effect on CO_2 emissions in middle-income than in low-income group countries. The implication is that the efficiency of urban concentration is closely associated with stages of urbanization.

To implement this study, a key issue is the measures of urban concentration. We consider three types of index to proxy for spatial concentration of urban development within a region. The first is the spatial Gini coefficient, which gives an overall measure of spatial inequality for the entire distribution of urban population. The second is a Hirschman-Herfindahl index (denoted by HH) based on the sum of squared shares of every city in a region's urban population. The third is urban primacy, measured as the share of the largest city in a region's urban population. Since the HH index contains squared shares, they may be dominated by the largest share, and thus highly correlated with urban primacy.

Using data across Chinese provinces (in this paper 'provinces' means both regular provinces, such as Guangdong and Shandong, and autonomous regions such as Xinjiang and Tibet) between 1998 and 2008, we calculate the emissions from the conversion of fossil fuels consumed for both primary and secondary energy sources. We document the trends in emissions of CO_2 across regions, finding a large spatial heterogeneity in both stock and growth rate of emissions of CO_2. Then, we look at the link between urbanization and CO_2 emissions. We find a nonlinear relationship between urbanization and carbon emissions, supporting the Environmental Kuznets Curve (EKC) argument. The focus of this study is on exploring how the form urbanization takes affects CO_2 emissions. By employing an expanded EKC framework, we find that the impacts of spatial concentration of urban development on regional CO_2 emissions are related to stages of urbanization: urban concentration initially increases CO_2 emissions per capita, and is followed by reduced intensity per capita with further urbanization.

Our study is associated with the discussions on urban concentration and its impacts on economic growth. The literature in urban economics argues that close spatial proximity, or high density, is essential to efficiency. Spatial concentration of economic activities facilitates information spillovers among producers, improving match in labour markets, and saving transport costs of parts and components exchange among producers and consumers (Henderson 1988, 2000; Duranton and

Puga 2004). The transport saving component of high density is also central to economic geography literature (Krugman 1991; Fujita et al. 1999). Inspired by these studies, we consider the environmental implication for regional urban concentration. Zheng et al. (2010) were concerned with this topic. They followed the analytical framework proposed by Glaeser and Kahn (2001) and investigated the effects of local economic development on household carbon emissions across Chinese cities. Rather than focus on the household, our paper consists of analysis of the pattern of inter-city economic developments and its impacts on CO_2 emissions across regions.

The analysis of the impact of regional urban concentration on carbon emissions in China has policy implications. China's fast urbanization has global environmental impacts. Holding one-fifth of the world's population and undergoing rapid urbanization, China has been increasing its demand for steel, cement and a wide range of carbon-based resource commodities. This has not only changed the global structure of flows of resources and factors but has also contributed to the world's climate change (Zhang 2000). As a result, the form that China's urbanization takes across regions plays a significant role in improving the quality of the global environment.

The rest of this chapter is organized as follows: Section 7.2 provides the calculations of CO_2 emissions in China between 2000 and 2008 and documents the cross-region trend in CO_2 emissions. Section 7.3 provides the empirical framework on how urban concentration in terms of urban density measures affects CO_2 emissions across regions. Section 7.4 presents the results and additional pieces of evidence. Section 7.5 concludes.

7.2 CO_2 Emissions Across Provinces in China 2000–2008

The fourth Assessment Report (2007) compiled by the Intergovernmental Panel on Climate Change (IPCC) indicates that global warming is largely due to CO_2 emissions caused by human activities, especially the use of fossil fuels. It is estimated that in 2004, 95.3 % of the total volume of CO_2 emissions were generated from the use of fossil fuels. However, the official data on CO_2 emissions at provincial level in China is not available over time. Zhang (2000) considered coal equivalent as proxy for CO_2 emissions. Auffhammer and Carson (2008) used waste gas emissions to proxy for CO_2 emissions at the provincial level in China. Following these studies we also construct a dataset of provincial CO_2 emissions based on fossil fuel consumption data. In this study, the formula used to calculate CO_2 emissions is given as follows:

$$CO_i^t = \sum_j CO_{ij}^t = \sum_j E_{ij}^t EF_j K_j M * A, \tag{7.1}$$

where CO_i^t (*ton*) is the total volume of CO_2 emissions of province i in year t, CO_{ij}^t (*ton*) is the volume of CO_2 emissions caused by the use of fossil fuel j in province i in year t, E_{ij}^t (*ton*) is the volume of fossil fuel j consumption in province i in year t,

EF_j (*kilotonne/terajoule*) is the emissions factor of fossil fuel *j*, and K_j (*KgCal/ton*) is the net calorific value of fossil fuel *j*. M is the ratio between weight of one CO_2 molecule and that of C (44/12). *A* is the conversion rate between *KgCal/ton* and *kilotonne/terajoule*. In this study, A equals $4{,}186.8 * 10^{-9}$.

One of the advantages of our formula is that it includes not only fossil fuels consumed as primary energy sources, e.g. gasoline, natural gas, but also fossil fuels used for secondary energy sources, i.e. heat and electricity. In terms of CO_2 emissions from heat consumption, our calculation is done in two steps: first, we calculate fossil fuels for heat consumption using the data from provincial level energy input–output sheet in the annual China Energy Statistical Yearbooks; second, we use formula (7.1) to calculate CO_2 emissions arising from consuming heat.

Calculations of fossil fuels consumed for electricity are more complex, as electricity could be "imported from" and "exported to" other provinces. For instance, 30 % of electricity in Beijing in 2008 was "imported" from the nearby provinces. Therefore it would be problematic if we used only the energy input–output sheet of Beijing to calculate fossil fuels used for electricity. In China, the national electricity network is organized into six regional branches: North China, Northeast, East China, Middle China, South China and Northwest. Electricity is allowed to flow freely within one branch-controlled region. Thus, the emissions factor of electricity for each province is obtained by dividing the total CO_2 emissions by the total volume of electricity in the corresponding province. The results show that the CO_2 emissions associated with electricity account for a large share in the total volume of CO_2 emissions. In Beijing, for instance, 45 % of total CO_2 emissions are contributed by electricity-related fossil fuel consumption. The neglect of electricity-related CO_2 emissions and its import–export pattern would lead to biased results.

The data on fossil fuel and net calorific value are collected from the China Energy Statistical Yearbooks 2001–2009. These yearbooks report the consumption volumes of all fossil fuels including raw coal, cleaned coal, washed coal, briquettes, coke, crude oil, gasoline, kerosene, fuel oil, LPG, natural gas, and the consumption volumes of heat and electricity across provinces in China during the period 2000–2008. The emissions factors of the variety of fossil fuels (EF_j) refer to the default value provided by the IPCC Report (2007). We take eight main fossil fuels and the corresponding emissions factors are summarized in Table 7.1 below.

Figure 7.1 presents the general trends in CO_2 emissions across 25 provinces in China between 2000 and 2008. In our sample the four Municipalities of Beijing, Shanghai, Tianjin, and Chongqing are excluded because there are no sub-prefecture level cities within their jurisdictions. Tibet is also excluded due to missing data.

Table 7.1 Emission factors for eight fossil fuels

Fossil fuel	Emission factor (*kilotonne/terajoule*)	Fossil fuel	Emission factor (*kilotonne/terajoule*)
Raw coal	1.8253	Fuel oil	3.1571
Coke	2.7212	Crude oil	2.9731
Gasoline	2.9072	Natural gas	2.1140
Kerosene	3.0494	Diesel oil	3.0965

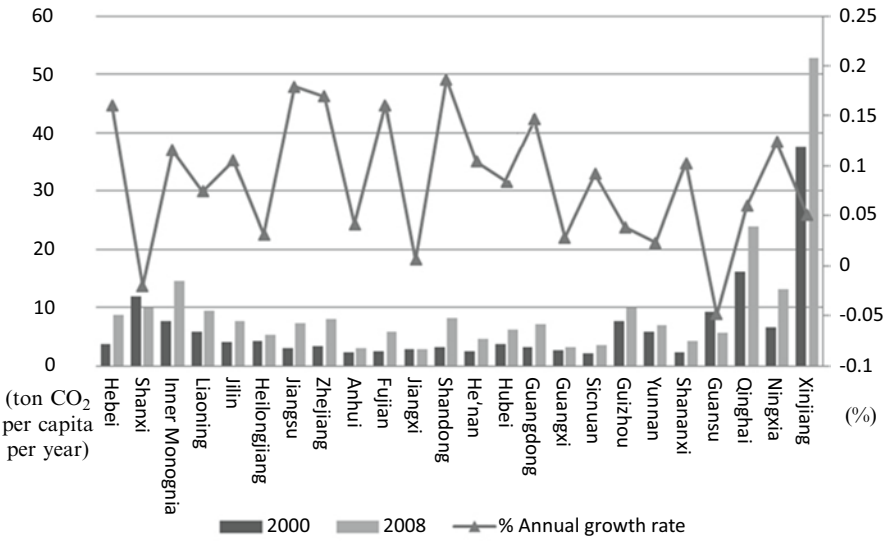


Fig. 7.1 Per capita Co_2 emission across provinces (annual growth rate in the sample period). Source: Calculated by the authors. Data source: Annual China's Energy Statistical Yearbooks

Per capita CO_2 emissions vary across regions. Provinces with high levels of per capita CO_2 emissions include sparsely populated provinces such as Xinjiang and Qinghai. Regarding the growth rate of carbon emissions, there is also great heterogeneity across provinces. On average, provinces with low initial level of CO_2 emissions have experienced faster growth.

7.3 The Empirical Framework

7.3.1 Estimation Methodology

The basic empirical strategy in this paper is to draw on aspects of relevant literature on the sources of pollutants to construct a reduced form investigating the effect of urban concentration on CO_2 emissions. One strand of literature is STIRPAT model originating from Ehrlich and Holdren (1971) and then reformulated by Dietz and Rosa (1994). The STIRPAT (Stochastic Impacts by Regression on Population, Affluence, and Technology) model illustrates the impact of demographic and economic factors on the environment. The specification is given as follows:

$$I = \mu P^{\rho} A^{\gamma} T^{\delta} e, \tag{7.2}$$

where I is environmental impact associated with the emissions level of a pollutant, which is jointly determined by three factors: population size (P), per capita consumption (A) and the technology index (T). μ is the constant term of the

equation, ρ, γ, δ are the parameters of P, A, and T, and e is the disturbance error term. In the empirical studies, multiple variables besides A and P are considered as T. For example, Poumanyvong and Kaneko (2010) used two variables to proxy for T, the share of industry and service sectors in GDP.

Another relevant strand of literature is Environmental Kuznets Curve (EKC) hypotheses, suggesting an inverted U-shaped relationship between environmental degradation and economic growth: Environmental degradation first rises and then falls along the path of economic development. An economy develops by consuming resources from the environment, and at a certain level the economy can help the environment to maintain its sustainability (Grossman and Krueger 1995). The forces that lead to the abatement activity include changes in economic structure, changes in technology, and changes in input mix, as well as environmental regulations, awareness, and education (Stern 2008). For example, MartÍnez-Zarzoso (2008) found that the relationship between urbanization and forest degradation in the developing countries follows EKCs as these economies benefit from urban agglomeration and the dominance of a growing service sector.

To examine the impacts of urban concentration on CO_2 emissions, this study constructs a reduced form by combining aspects of STIRPAT and EKC. First, we follow an EKC framework allowing for a non-linear relationship between income and emissions. Different from extant EKC literature, we consider urbanization level measured by the proportion of population living in cities rather than per capita GDP growth.[1] Second, we employ the dynamic urbanization-emissions model. Emissions in the industrial and power engineering sectors are chiefly determined by the quality and speed of replacement. In the dynamic setting we allow for partial adjustment of capital and lagged emissions to influence current emissions. In particular, we assume the nature of this adjustment process to differ across regions. Based on these considerations, the formulation of CO_2 emissions for region is modeled as follows:

$$\ln\left(\frac{E}{p}\right)_{it} = \alpha_i + \theta_t + \beta_1 \ln\left(\frac{E}{p}\right)_{it-1} + \beta_2 \ln\left(URB\right)_{it-1} + \beta_3 \ln\left(\mathrm{URB}\right)^2_{it-1} + \phi X_{it-1} + \varepsilon_{it}, \tag{7.3}$$

Where E stands for emissions in year t, P is total population, URB is urbanization level, X is a vector of determinants of CO_2 emissions such as manufacturing and service employment share, α_i is regional fixed effect, accounting for regional-varying omitted variables but constant over time, and θ_t is year-specific intercept, which represents the stochastic shocks that are common to all regions.

Finally, we incorporate urban concentration into Eq. (7.3). We assume that the form urbanization takes affects efficiency of energy use and production process, and thus carbon emissions. Regional urban concentration associated with urban density may have lower energy requirements for space conditioning and lighting than those of a more dispersed pattern of urban development. Furthermore, the environmental

[1] Urbanization and economic growth go hand-in-hand, as illustrated in the literature such as Henderson and Wang (2007) and Henderson (2010).

impacts of regional urban concentration depend on the stages of urbanization (Stern 2004). At the initial level of urbanization, increasing urban concentration generates scale effects in terms of expansions of production. Given the structure or the technology of the economy, increasing urban density would result in growth in pollution such as CO_2 emissions. At high levels of urbanization, as structural changes move towards information-oriented industries and services, coupled with environmental awareness, stringent environmental regulations and better technology, the scale effects of urban density will be levelled off, leading to less environmental pollution per capita. As anticipated by Schmalensee et al. (1998), CO_2 emissions per capita in an economy rise over time from the low income phase and peak at some higher income levels, and then start to decline with further income increases.

Thus, we expand the specification Eq. (7.3) and show that the effects of urban concentration vary with urbanization in the following reduced form:

$$\ln\left(\frac{E}{p}\right)_{it} = \alpha_i + \theta_t + \beta_1 \ln\left(\frac{E}{p}\right)_{it-1} + CON_{it-1}\left(\eta_0 + \eta_1 \ln\left(URB\right)_{it-1} + \eta_2 \ln\left(\mathrm{URB}\right)^2_{it-1}\right) + \phi X_{it-1} + \varepsilon_{it}, \tag{7.4}$$

where *CON* stands for the degree of concentration. η_0, η_1 and η_3 are coefficients. In Eq. (7.4), we expect $\eta_0 < 0, \eta_1 > 0$ and $\eta_3 < 0$, so that the positive effects of urban concentration on mitigation of CO_2 emissions initially declines with urbanization and up to a certain urbanization process rises with further urbanization.

7.3.2 Measures of Urban Concentration

A key issue of concern in this study is how to measure the degree of urban concentration. Our choice of measures of urban concentration is guided by two principles: one is that the set of measures should capture the key aspect of urban concentration – urban density; the other is that the measures should vary across regions, thus facilitating interpreting our results. We consider three indices related to urban concentration. First is the concentration of nonagricultural population using spatial Gini coefficients (denoted by SGINI). To calculate SGINI the cities within a region are ranked from smallest to largest on the x-axis while on the y-axis the Lorenz curve is calculated – the cumulative share of the total nonagricultural population. If all cities were of equal size in terms of nonagricultural population, the plotted line would be the 45° line. The SGINI is the share of the area between the 45° line and the plotted curve, relative to the area below the 45° line. The greater the area, the "less equal" is the spatial distribution of nonagricultural population across cities within a province.[2]

The second is urban primacy (PRIMA) index, which is measured here as the regional urban population share of the largest city in the region. This is a crude

[2] See the calculation of Gini coefficient in Henderson and Wang (2007).

Table 7.2 Descriptive statistics and correlation matrix for measures of urban concentration

	Descriptive statistics		Correlation matrix		
	MEAN	STD.	SGINI	HH	PRIMA
SGINI	0.527	0.054	1.000		
HH	0.534	5.528	0.640	1.000	
PRIMA	0.342	0.507	0.603	0.960	1.000

Source: Calculated by the authors

measure but is widely utilized as a measure of urban concentration (Henderson 2010). The difficulty with this measure is that it largely ignores the size distribution of cities below the largest.

A third measure is the Hirschman-Herfindahl (HH) index based on the sum of squared shares of every city in a region. In economics, this index is commonly used to measure industrial concentration. Since HH indices contained squared shares, they are likely to be dominated by the largest share if that is a high number.

Table 7.2 lists the summary statistics and correlations among these three indices. The data on population is from a collection of Urban Statistical Yearbooks complied by National Bureau of Statistics (NBS), which include all the cities in the 24 provinces shown in Fig. 7.1. Following the methods mentioned above, SGINI, HH, and PRIMA of each province is calculated. One of interesting findings is that the average primacy is highly closely related to HH indices.

7.4 Estimation Results

7.4.1 The Relationship Between Urbanization and CO_2 Emissions

We first estimate Eq. (7.3) without considering the effects of urban concentration. We begin by pooling all years 2000–2008 for 24 provinces in an OLS formulation, assuming that there are no fixed effects and that ε_{it} are identically and independently distributed. We then incorporate fixed effect considerations to account for the α_i and θ_t. One potential endogeneity problem arises from the fact that α_i may affect X_{it-1} and that ε_{it} may affect some of the X_{it-1} in the past time period as well as the current time period. To deal with this problem, we finally employ the generalized method of moments (GMM) estimation of differenced level equations (7.3).

The estimation results are presented in Table 7.3. In columns (1)–(3), the coefficients of based year CO_2 emissions per capita are positive and statistically significant, indicating an adjustment of capital and lagged levels of emissions on current levels. The results demonstrate the existence of a statistically significant inverted U-shaped relationship between urbanization and CO_2 emissions per capita, irrespective of what estimation methods are adopted. The service to industry employment

Table 7.3 The effects of urbanization on CO_2 emission per capita

	(1)	(2)	(3)
	OLS	Fixed effect	GMM
Log(E/P(−1))	0.955***	0.650***	0.452***
	(0.018)	(0.062)	(0.082)
URB(−1)	1.342**	1.562**	7.891**
	(0.537)	(2.164)	(3.422)
URB(−1)^2	−1.449**	−1.035	−7.816**
	(0.649)	(0.797)	(3.340)
Service/industry ratio (−1)	−0.147***	−0.473***	−0.112
	(0.056)	(0.092)	(0.386)
Region fixed effect	No	Yes	Yes
Year fixed effect	No	No	Yes
Sample	192	192	168
R2	0.952	0.959	
D-W Stat	1.943	1.828	
Sargantest[d.f.,p-value]			[12,0.365]

Source: Calculated by the authors
Note: Dependent variable is Log(E/P) given in Eq. (7.3). The standard errors are reported in parentheses. *Significant at 10 % level, **idem 5 %, ***idem 1 %

ratio reduces CO_2 emissions per capita as suggested by the OLS and fixed effect estimation results.

It appears that three estimation results are different for key variables. Adjustment of capital and lagged emissions is higher and the inverted U-shaped link between urbanization and CO_2 emissions per capita is stronger under GMM. Given the difference GMM makes and the strong case for using it, we mainly rely on GMM for further estimation.

7.4.2 Effects of Urban Concentration on CO_2 Emissions

In terms of functional representation of the effects of urban concentration, we do three GMM estimations by including alternative measures of urban concentration. The regional spatial GINI is used to measure concentration level of urban development in column (1), and the Hirschman-Herfindahl (HH) index and Primacy index in columns (2) and (3), respectively. The results for these three estimations are robust to precise choice of instrumental variables, other independent variables, measures of urban concentration, lagged dependent variables, and so on. These precise results demonstrate that the form urbanization takes has profound effects on CO_2 emissions per capita.

Results are given in Table 7.4. In the first expression in column (1), the positive coefficient of initial CO_2 emissions per capita captures the adjustment of capital and

Table 7.4 GMM regression results for the effects of urban population concentration

	(1)	(2)	(3)
	Concentration (SGINI)	Concentration (HH)	Concentration (Primacy)
Log(E/P(−1))	0.539***	0.517***	0.509***
	(0.093)	(0.049)	(0.051)
Concentration	−5.550**	−6.150*	−2.608
	(2.632)	(3.728)	(1.654)
Concentration*URB(−1)	16.660**	39.343*	17.298*
	(6.973)	(22.016)	(10.028)
Concentration*URB(−1)^2	−14.487***	−60.133**	−25.867*
	(5.111)	(29.802)	(14.149)
Service/industry ratio (−1)	−0.482	0.042	0.156
	(0.594)	(0.350)	(0.056)
Region fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Sample	165	168	168
Sargan test [d.f.,p-value]	[12,0.595]	[12,0.691]	[12,0.670]

Source: Calculated by the authors
Note: Dependent variable is Log(E/P) given in Eq. (7.3). The standard errors are reported in parentheses. *Significant at 10 % level, **idem 5 %, ***idem 1 %

lagged carbon emissions. The negative coefficient of lagged SGINI indicates the role played by initial urban concentration in mitigating CO_2 emissions. In this expression, the effects of urban concentration with respect to the spatial Gini (SGINI) are assumed to vary with urbanization levels. It is shown that the coefficient of the interaction of SGINI and urbanization is positive at 5 % significant level and that of the interaction of SGINI and urbanization squares is negative at 1 % significant level. These results indicate that the contribution of urban concentration to reducing CO_2 emissions initially decrease with urbanization, but there is a certain level of urbanization beyond which urban concentration becomes increasingly helpful. When HH index and Primacy index are considered as alternative measures of urban concentration, we have similar findings in column (2) and (3) as those using SGINI.

7.4.3 Additional Evidence

As suggested above, urban concentration is also related to the flow of goods, people and services across cities. Basically, the efficiency of the spatial distribution of production activities increases as more industries concentrate spatially and more interregional trade takes place. The mitigation of CO_2 emissions is one of the key consequences of spatial concentration of production activities. Economic activities

Table 7.5 GMM regression results for the effects of urban production concentration

	Convergence index (absolute)	Convergence index (employment)
Log(E/P(−1))	0.555***	0.591***
	(0.115)	(0.128)
Convergenceindex(−1)	−1.353**	−2.480*
	(0.576)	(1.416)
Convergenceindex(−1)*URB(−1)	6.441**	10.711*
	(2.821)	(6.657)
Convergence index(−1)*URB(−1)^2	−8.363**	−12.996*
	(3.468)	(7.771)
Service/industry ratio (−1)	0.297	0.269
	(0.524)	(0.478)
Region fixed effect	Yes	Yes
Year fixed effect	Yes	No
Sample	192	192
Sargantest[d.f.,p-value]	[12,0.177]	[12,0.640]

Source: Calculated by the authors
Note: Dependent variable is Log(E/P) given in Eq. (7.3). The standard errors for GMM estimations are reported in parentheses. *Significant at 10 % level, **idem 5 %, ***idem 1 %

benefit from scale of economies as they concentrate spatially. As proposed by Young (2000), we introduce regional divergence in industrial structure across cities to measure the degree of production concentration. The divergence measure is calculated as the sum of the absolute deviations of the sectoral production shares of different cities from the average within a region.[3] The larger this coefficient is, the higher the deviation is. We calculate this measure for each province using both output and employment data for 159 3-digit level industries at the city level in China over the period 2000–2008. Then we estimate specification Eq. (7.4) which considers the measure of regional divergence in industrial structure. The results are presented in Table 7.5. It is found that industrial concentration contributes to reduction in CO_2 emissions. The mitigation role played by production concentration becomes stronger after the initial weakening as urbanization increases.

7.5 Conclusion

Unlike previous studies, this paper examines empirically the impact of urban concentration on energy use and CO_2 emissions. Using a balanced panel data of 24 provinces over the period 2000–2008 in China, we found that urban concentration

[3] Specifically, the absolute deviation equals $\sum_i \sum_j \left| S_{ij} - \ddot{S}_j \right|$, S_{ij} where is the share of sector j in city I's output and $\ddot{S}_j$ is the average of S_{ij} across i.

does matter for reduction of CO_2 emissions. Regions can benefit from the spatial concentration of population and industrial activates within a region as scale economies arise in public infrastructure and resource allocation.

Another key interesting finding in this study is that the role played by urban concentration depends on the stages of regional urbanization process. Using the expanded EKC framework, our paper shows that urban concentration initially contributes to CO_2 emissions but this impact tends to be weaker for further urbanization. This finding suggests that the benefits of urban density are not homogenous for all regions.

Our analysis not only extends current literature but also provides policy implications especially for China. Economic development involves the transformation of a region from an agricultural based economy towards an industrial-service dominated economy. However, the process of urbanization also poses big threat to the environment. Improving the efficiency of resource allocation across regions such as increasing urban density is a key way in decoupling environmental impact from urbanization.

Acknowledgement The authors would like to acknowledge funding supports from the National Natural Science Foundation of China (41371007 and 71003026).

References

Auffhammer M, Carson RT (2008) Forecasting the path of China's CO_2 emissions using province-level information. J Environ Econ Manag 55(3):229–247

Burton E (2001) The compact city: just or just compact? A preliminary analysis. Urban Stud 37(11):1969–2001

Dietz T, Rosa EA (1994) Rethinking the environmental impacts of population, affluence, and technology. Hum Ecol Rev 1:277–300

Duranton G, Puga D (2004) Micro-foundations of urban agglomeration economies. In: Henderson JV, Thisse J (eds) Handbook of urban and regional economics, vol 4. North-Holland, Amsterdam, pp 2063–2118

Ehrlich PR, Holdren JR (1971) Impacts of population growth. Science 171:1212–1217

Fujita M, Krugman P, Venables AJ (1999) The spatial economy: cities, regions, and international trade. MIT Press, Cambridge, MA

Glaeser EL, Kahn ME (2001) The greenness of cities: carbon dioxide emissions and urban development. J Urban Econ 67:404–418

Grossman GM, Krueger AB (1995) Economic growth and the environment. Quart J Econ 110:353–377

Henderson JV (1988) Urban development: theory, fact and illusion. Oxford University Press, Oxford

Henderson JV (2000) The effect of urban concentration on economic growth. NBER working paper 7503, Cambridge, MA

Henderson JV (2010) Cities and development. J Reg Sci 50:515–540

Henderson JV, Wang HG (2007) Urbanization and city growth: the role of institutions. Reg Sci Urban Econ 37:283–313

IPCC (2007) The fourth assessment report: climate change 2007 (AR4). http://www.ipcc.ch/

Kamal-Chaoui L, Robert A (2009) Competitive cities and climate change. OECD regional development working papers no. 2, OECD publishing

Karathodorou N, Graham DJ, Noland RB (2010) Estimating the effect of urban density on fuel demand. Energy Econ 32:86–92

Krugman P (1991) Increasing returns and economic geography. J Polit Econ 99(3):483–499

MartÍnez-Zarzoso I (2008) The impact of urbanization on CO_2 emissions: evidence from developing countries. SSRN paper 1151928, Rochester, NY

Pounmanyvong P, Kaneko S (2010) Does urbanization lead to less energy use and lower CO_2 emissions? A cross-county analysis. Ecol Econ 70:434–444

Schmalensee R, Stoker TM, Judson RA (1998) World carbon dioxide emissions: 1950–2050. Rev Econ Stat 1:15–27

Stern DI (2004) The rise and fall of the Environmental Kuznets Curve. World Dev 2004(32):1419–1439

Stern N (2008) The economics of climate change. Am Econ Rev Pap Proc 98:1–37

Young A (2000) The razor's edge: distortions and incremental reform in the People's Republic of China. Q J Econ 115:1091–1135

Zhang Z (2000) Decoupling China's carbon emissions increase from economic growth: an economic analysis and policy implications. World Dev 2000(28):739–752

Zheng S, Wang R, Glaeser EL, Kahn ME (2010) The greenness of China: household carbon emissions and urban development. J Econ Geogr 2010:1–32

Chapter 8
The Role of Foreign Firms in China's Urban Transformation: A Case Study of Suzhou

Hyung Min Kim

Abstract To a large extent the Chinese government has relied upon foreign direct investment (FDI) to stimulate economic growth. Inward FDI, which has expanded massively in China after the opening up policy, is significant to Chinese cities at least in the following three aspects. First, inward FDI contributes to economic vitality as it involves production in cities. Second, the establishment of foreign firms has facilitated rural-to-urban migration, and thus stimulated urban growth. As inward FDI is mostly labour-intensive manufacturing, an influx of foreign capital has been accompanied by an increase in the number of rural migrants. Third, foreign firms have brought foreign nationals to Chinese cities, thus creating demand for multicultural services and adding to the vibrancy of the city. This chapter examines these three outcomes at China's national level using Suzhou as a case study.

8.1 Introduction

The "Reform and Open" policy, started in 1978, has brought fundamental restructuring to Chinese cities. Anti-urban policy was changed to a pro-growth regime (Zhang 2002). There was a shift from "a state redistributive economy" under the socialist ideology to "an economy of market coordination" (Ma and Wu 2005: 3). Massive rural-to-urban migration has been observed in China as discussed in several chapters of this book.

Radical transformation in Chinese cities has commonly been explained by endogenous factors (Friedmann 2005), but the role of foreign activities cannot be neglected. To a large extent the Chinese government has relied upon foreign capital via foreign direct investment (FDI) to boost economic growth (Pereira 2004; He 2002), particularly to access foreign capital and technologies from advanced economies. FDI plays a critical role in knowledge transfer (Mardon 1990), new firm births (Lee et al. 2014), regional economic growth (Sun et al. 2002), industrial development

H.M. Kim (✉)
Department of Urban Planning and Design, Xian Jiaotong-Liverpool University, Suzhou 215123, Jiangsu, China
e-mail: hm.kim@xjtlu.edu.cn

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_8

(Markusen and Venables 1999), and capital formation (Garnaut 2009). China has grown rapidly in terms of inflows of FDI since the 'reform and open' policy. China was the second largest recipient of inward FDI in the mid-1990s after the USA. (Sun et al. 2002). The scale of inward FDI into mainland China increased to the extent that it exceeded the flow to the USA in 2003 (UNCTADstat 2013).

China has experienced fast industrialization as a 'world factory' (Ma and Wu 2005). A number of multinational enterprises (MNEs) in manufacturing have established their assembly lines in China in an attempt to benefit from low-cost production areas and to seek out new markets to sell their products.

Regional policy initially selected a few cities as strategic growth poles to welcome foreign investors (Friedmann 2005). Later, inward FDI became significant in many Chinese cities. The urban impacts involved at least the following three aspects. First, inward FDI is a contributing factor to economic vitality. FDI is involved with transfer of 'a package of assets' that include financial capital, management and organizational expertise, technology, entrepreneurship and access to global markets (Dunning 1993). Accordingly, the influx of FDI facilitates new business activities in host cities. Corporations, particularly MNEs, play dominant roles in FDI flows (Dunning 1993), but as analysed in Lee et al. (2014), an increase in inward FDI also improves the new creation of domestic small firms. When there is a FDI inflow, new economic activities, such as factory building, equipment upgrading, workers hiring, and R&D, trigger new business operations mainly in the cities.

Second, growth in economic activities leads to rural-to-urban migration; this will result in a rapid increase in urban population. The new activities discussed above need an expanding labour force, thus there will be new opportunities for peasants who relocate from their hometowns to cities in searching for better employment opportunities in the expanding domestic industries. These migrants are, in general, less educated and equipped with limited professional skills. Hence, their salary levels are low. Nevertheless, they provide the much needed cheap labour to firms in a wide range of industries, especially those corporations involved in FDI flows.

Third, the establishment of new foreign firms not only involves low-skilled labourers, but also requires knowledge workers. Knowledge workers can be both Chinese as well as international migrants. Foreign firms dispatch managers to control their FDI projects. These expatriates are highly paid professionals. In addition to a general salary, firms provide expatriates with other incentives such as a housing subsidy and an education subsidy for their children. These incentives are often required to secure staff for the firms in China. When expatriate managers bring their families to China, there is another set of urban outcomes. For instance, adult family members seek out language training centres. Foreign children are likely to attend international schools that provide similar or even higher quality education services than their home country. International education institutions have sought opportunities for their expansion in China, targeting the demand created by expatriate families. Hence, new institutions are added to some cities.

Due to the language barriers, foreign nationals tend to form ethnic communities, rather than mix with locals. Also, their housing choice is distinctive from that of the local Chinese. Expatriate families opt for expensive housing (particularly when companies provide allowances) in most cases rented due to the likely short duration

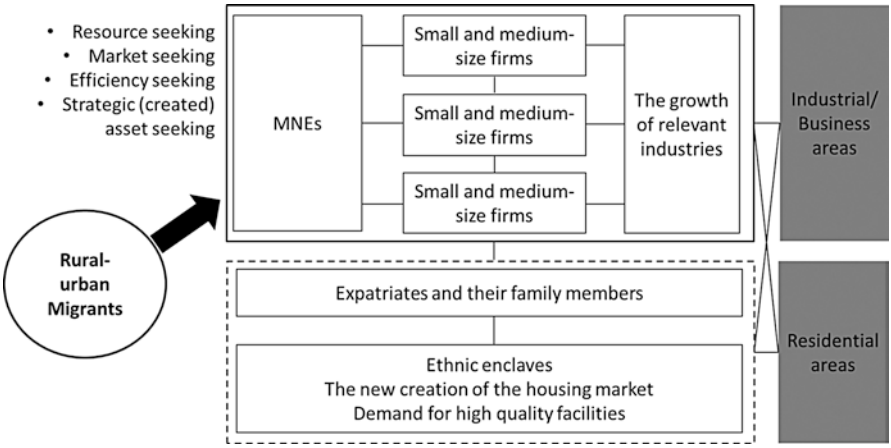


Fig. 8.1 Foreign firms and the impacts

of their stay. They want to live in high quality houses at least comparable to that in their home country. Also, as many firms pay for their staff housing, expatriate families are able to choose expensive houses. Thus, there are emerging ethnic enclaves in small geographical areas in which the housing market revolves around foreign nationals. In addition to retail services, these areas increasingly have public facilities such as medical centres, hospitals, and dental clinics, serving expatriate families who have high consumption power. These effects are seen in many global cities, but research outcomes have reported the similar polarizing patterns in cities in China, too (Li and Wu 2006).

The three outcomes mentioned above are conceptualized in Fig. 8.1. MNEs are playing a leading role; the direct impacts can be seen in industrial and business areas. In addition, the location of businesses results in indirect impacts in residential areas. The purpose of this chapter is to explore the strength of the relationships outlined in Fig. 8.1 at a national scale, and to explore those outcomes in more detail using Suzhou, more specifically Suzhou Industrial Park (SIP), as a case study.

8.2 Foreign Firms and Economic Vitality

The volume of inward FDI had increased rapidly as can be seen in Fig. 8.2. Between 1992 and 2012, inward FDI into China increased 25 % per year on average, with an annual growth rate ranging from 0.7 % in 1999 to 272.7 % in 1993. There was no decrease in that period.

The increase in inward FDI was closely related with the number of foreign firms. In the statistics presented in Fig. 8.2, foreign firms (or foreign invested firms) represented the companies that were jointly invested by Chinese and foreign investors or invested solely by foreign firms. In the late 1990s the number of foreign firms decreased, possibly due to the Asian financial crisis when firms that originated from

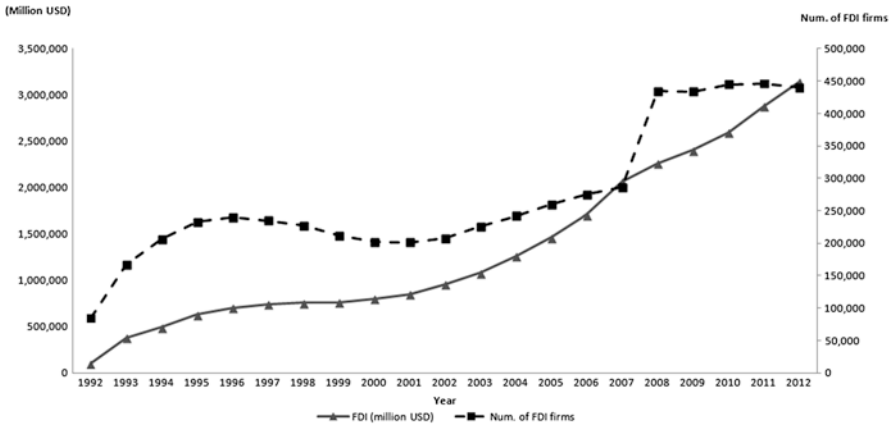


Fig. 8.2 FDI and FIEs in China, 1992–2012

Asian countries faced a negative economic outlook so they reduced the size of their investment in China. After the recovery from the crisis, the number of foreign firms increased again steadily. There was a sudden increase in the number of foreign firms in the period 2007–2008. During this period, there were two important events. Firstly, the global economy faced the Global Financial Crisis (GFC) in 2007. As the GFC was detrimental to the United States and European economies, a high number of firms established branches in China that experienced relatively sound economic growth. Secondly, there was the Beijing Olympic Games in 2008. This mega sports event encouraged the Chinese government to build new infrastructure (Preuss 2007) which improved the business environments for many foreign firms (Brunet and Xinwen 2009).

The influence of FDI on economic vitality in China can be seen in Fig. 8.3, where change in China's GDP was closely associated with inward FDI. Over the last two decades, the correlation coefficient between GDP and FDI was as high as 0.99. It seems that over this period the growth in GDP could be explained by FDI inflows to a large extent.

To examine the regional impact of FDI, a panel regression model is specified. The dependent variable is GDP in 31 provinces between 1995 and 2012 and the independent variables are the level of FDI flows and population. The natural log of these two variables is used; it assists interpretation as the coefficient represents elasticity (Gujarati 2003). The panel regression model is specified as Model (8.1):

$$\ln GDP_{R,T} = \beta_0 + \beta_1 \ln FDI_{R,T} + \beta_2 \ln POP_{R,T} + u_{R,T} \tag{8.1}$$

where R is region; T is year; and u is the error term.

Although Model (8.1) includes only two variables, the R-square is 92 %, showing high explanatory power. As the result of the one-way fixed effect panel analysis shows (Table 8.1), FDI brings about a positive economic impact. The result shows

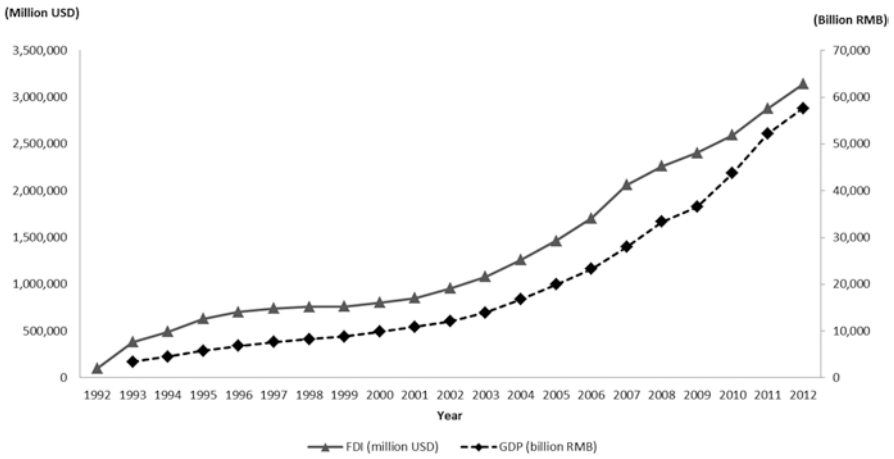


Fig. 8.3 FDI and GDP growth in China, 1992–2012

Table 8.1 The result of the panel analysis (one-way fixed effect)

Dependent variable – natural log of regional GDP				
Variables	Coefficient	Standard error	T-value	P-value
Intercept	−5.8844	0.6649	−8.85	<0.0001
Natural log of FDI	0.7764	0.0263	29.57	<0.0001
Natural log of population	2.5521	0.2469	10.34	<0.0001

1. R-square is 0.92
2. Coefficients of dummy variables (provinces) are not presented due to limited space
3. The random effect model is not chosen because, in the Hausman test, the null hypothesis that both estimates of the fixed effect and the random effect are consistent is rejected
4. Data between 1995 and 2012 are included and pooled by province for the one-way fixed effect model. Only data on Chongqing include between 1997 and 2012

that a 1 % increase in FDI leads to a 0.77 % increase in regional GDP in the analysis period. Population size, a control variable in the analysis, plays a pivotal role in economic growth as expected. A 1 % increase in population leads to 2.55 % increases in regional GDP. The result provides convincing evidence that inflows of FDI, as well as population growth due to in-migration, have improved the economic vitality in China's regions. The vitality of China's cities is tied to business investment and the rural–urban migrants. The next section focuses on these migrants.

8.3 Foreign Firms and Rural Migrants

When migration was regulated during the per-reform era by the Chinese government, China achieved 'industrialization without urbanization' (Friedmann 2005) as governmental efforts went into stimulating heavy industries often in smaller cities

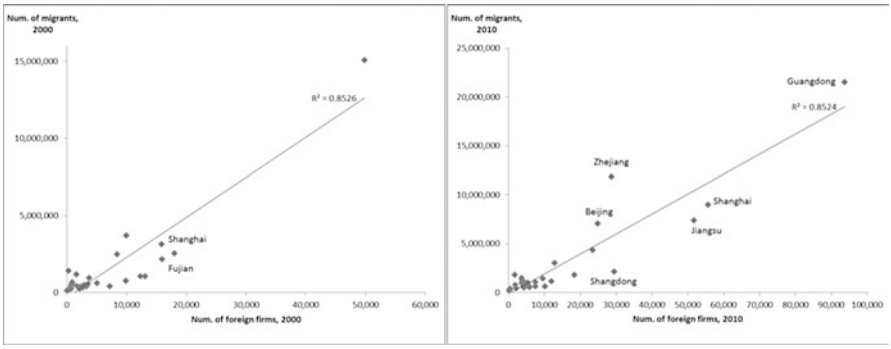


Fig. 8.4 Foreign firms and rural migrants in 2000 (*left*) and 2010 (*right*)

and regions. Through this period the number of urban residents hardly changed at all. Urban population was 17 % of the national population in 1970 and increased to merely 21 % by 1982 (Friedmann 2005). Since Deng Xiaoping's 'reform and open' policy, the growth of China's economy has relied on a wider range of industries, in particular in the labour-intensive manufacturing sector. Manufacturing accounted for 60–79 % of inward FDI in total amount between 1997 and 2003 according to National Bureau of Statistics of China.[1] Although the share of FDI by manufacturing fell after 2003, the sector was still the most important industry in inward FDI. The association between the FDI inflows and the number of migrants, measured by non-local '*hukou*' holders, can be seen in Fig. 8.4. In both years there was a strong correlation between the number of foreign firms and the number of regional migrants as seen in a high R-square, 85 % in both 2000 and 2010 (Fig. 8.4). It was clear that foreign firms had a strong influence upon the number of regional migrants.

By virtue of the priority that foreign investors gave to coastal regions, foreign firms are heavily concentrated in only a few selected provinces such as Guangdong and Jiangsu or province-level large cities such as Shanghai. Guangdong houses exceptionally large groups of migrants and foreign investment. In Guangdong province, the number of migrants reached 15 million in 2000 and increased up to 21.5 million in 2010. The number of foreign firms also increased from 49,900 in 2000 to 93,800 in 2010, showing an 88 % increase over one decade. Suzhou in Jiangsu province is a typical example of the effect that foreign firms have played on the influx of regional migrants. From the beginning of modern Suzhou development, foreign influence was manifest (Pereira 2004).

Based on the agreement between China and Singapore, Suzhou Industrial Park (SIP) was created in 1994, modelled on the way that Singapore had attracted foreign capital for economic growth. In Suzhou, there has been a massive presence of foreign firms that hire rural–urban migrants. For instance, Samsung Electronics, known as Suzhou Samsung Electronics Corporation (SSEC), established an assembly line in 1995 in Suzhou, and expanded its presence to more factories in Suzhou in 2009.

[1] http://data.stats.gov.cn

The number of employees in SSEC reached approximately 9,100 in 2013. Approximately 6,000 people were working in the factory and 3,000 people in office jobs.[2] The number of expatriate managers in this firm was 23 in 2014. The rest of employees were Chinese and the majority were migrants from other regions. There are also other Samsung's companies in Suzhou including Suzhou Samsung LCD (SSL) and Samsung Electronics Semiconductor. In addition to Samsung, other MNEs currently operational in Suzhou include Bosch, Siemens, Fujitsu, Altria, BOC, Eli Lilly, Black & Decker, Baxter, Hitachi, and Sumitomo. The effect of such a large cluster of firms is felt across the city as forward and backward linkages between firms provide a spill-over effect that stimulates the growth of new firms. These small- and medium-sized firms provide intermediate products and components and employ engineers equipped with technical skills in factory production. In addition, the expanded cluster of firms needs services such as banks, financial services, accounting, legal service, IT support and hotels to accommodate visiting staff. Accordingly, Suzhou has witnessed a rapid growth not only in terms of the size of inward FDI in a wide range of industries, and in the number of rural–urban migrants who accounted for more than 60 % out of the total population in Suzhou in 2012 (Suzhou Government), but also in urban services and activities.

8.4 Foreign Firms and Foreign Nationals

There is ample evidence that top-tier Chinese cities are transforming themselves into global cities (Yusuf and Wu 2002; Wu 2003; Zhu et al. 2006; Zhang 2014). One feature these cities share is an increase in inflows of highly educated professionals associated with the corporate activities of MNEs (Sassen 2001). To secure quality working environments for managers and executives, a number of firms are willing to provide subsidies for their staff and also family members, including a housing subsidy, an education subsidy for children, and travel allowance. Compensation is necessary to secure quality employees because expatriates are involved with social disconnections and 'disadvantages of alien status (Caves 1971).

The number of foreign population in China is steadily increasing according to the Chinese Ministry of Human Resources and Social Security. The number of foreign nationals with a working permit in China increased from 180,000 in 2006 to 250,000 in 2012. Koreans, Americans and Japanese are the most dominant foreign ethnic groups in China. In 2013, Koreans accounted for 20.3 %; Americans, 12.0 %; and Japanese, 11.1 %, followed by people from two developing countries, Myanmar (6.7 %) and Vietnam (6.1 %).

These substantial numbers of professional staff tend to select housing, and also use retail and other services in just small parts of cities, resulting in spatial and economic segregation of foreign nationals. This outcome can be seen in at least three

[2]The information is from the interview with staff in Human Resource of SSEC, conducted in December, 2013.

sectors. Firstly, foreign nationals affect the local housing market. High-quality expensive rental housing is likely to be provided for expatriate families. The effect can be seen in Shanghai where rents in March 2014 reached 30,000 Yuan per month in an area where foreigners were concentrated such as Longyang Street in Pudong.[3] In contrast, the average rental price for locals is 54 RMB/m^2 per month in March 2014; rental prices of housing with an area of 85 m^2 were approximately 4,600 Yuan.

Secondly, foreign nationals form a spatially distinct ethnic community due to language and cultural barriers (Sassen 2005), as an outcome seen in earlier times in the Chinatowns in many cities outside China (Ma and Wu 2005). For example, in Shanghai, well-known foreign ethnic enclaves are Gubei for the Japanese and Koreans, Biyun for Europeans and immigrants from the USA and Longyang Street in Pudong. In Beijing, there are well known foreign ethnic communities such as Wangjing District for Koreans, Jiuxian Bridge for the Japanese and Shisha District for Europeans and Americans. These communities provide a platform to share information and have social activity and play a key role in the daily life of professional staff. Also, when foreign nationals stick together, they feel comfortable psychologically. As the vast majority of expatriates from MNEs stay in China for a short time, they are not willing to integrate themselves into the Chinese society. However, as the number of foreign nationals increases, the number of long-term foreign residents is also on the rise. As this number grows, the links with the local Chinese community may increase and the strength of the ethnic clusters may reduce.

Thirdly, foreign nationals utilize language-specific public facilities that provide high quality services, such as international schools and medical clinics. Education for children is one of the main considerations. Expatriate families have to find appropriate educational facilities for their children. Most parents judge that Chinese public education does not provide a friendly environment for foreign children who do not have proficient Chinese language skills. By 2011, the number of international schools in China had reached 276 with 144,000 enrolled students.[4] These education facilities increase the separation of foreign nationals from the local Chinese legally and financially. Only foreign passport holders are allowed to enrol in these international schools by law. Also, it is difficult for the locals without any education subsidy to afford extremely expensive tuition fees. For instance, in Suzhou Singapore International School (SSIS), founded in 1996, its yearly tuition fees ranged from 142,000 Yuan (app. US$23,000) to 164,000 Yuan (app. US$28,000) while the average monthly salary for factory workers was 3,000 Yuan (app. US$500) in the same city.[5] Healthcare is another important concern among expat communities. Foreign firms provide health insurance that can cover high-cost private medical clinics and hospitals. These medical clinics, dental services and hospitals are located around foreign ethnic residential communities.

[3] City house website, http://sh.cityhouse.cn/market/lease.html viewed at April, 2014.

[4] http://epaper.xkb.com.cn/view/728850 viewed at April, 2014.

[5] Website of SSIS, http://www.ssis-suzhou.net, and interviews with staff in HR office, SPS, medium-sized manufacturing firm in Suzhou.

8.5 A Case Study of Suzhou Industrial Park (SIP)

SIP is a typical example of the way that foreign firms have played a pivotal role in China's urban transformation. SIP was farmland in peri-urban Suzhou until the early 1990s (Wei et al. 2009). Urban development began after a partnership was agreed between the Chinese government and the Singapore government in 1994. SIP has experienced a rapid growth by virtue of FDI inflows (Wei et al. 2009, 2013). It is one of the several large development areas surrounding Suzhou, another being Suzhou New District (SND) supported by the Suzhou government (Pereira 2004). Previous research has shown that SIP has been developed as a MNE satellite district (Wei et al. 2009, 2011, 2013). In 2004 in fact, SIP contributed 17 % of the total industrial-added value, 30 % of the total registered capital, and 31 % of total import and export although it had only 3.0 % of the total land and 3.5 % of the total population in Suzhou (Wei et al. 2009). It was a destination of ICT firms from Taiwan, Japan and South Korea (Yang and Hsia 2007; Yang and Wang 2008). Suzhou was recognized as the largest laptop producing city in the world (Yang and Hsia 2007; Yang and Wang 2008).

As can be seen in Table 8.2 that reports the amounts of total investment in SIP (D) and realized FDI (F), FDI in SIP accounted for approximately one-third of the total investment (F/D) between 1994 and 2010. The rate of inward FDI of the total investment reached record in 1999 as high as 89.9 %, while the ratio was 6.2 % and 4.6 % in the period 2000–2009, respectively in Jiangsu province and China. Development of SIP seemed interrupted when the Singapore government announced disengagement with SIP in 2002 due to the unfair competition from the nearby SND. However, the scale of inward FDI into SIP increased gradually even after the disengagement of the Singapore government in 2002. Along with the growth of inward FDI, regional GDP has also increased to the extent that GDP per capita reached more than US$30,000 in the 2000s (Table 8.2).

Locations of wholly foreign invested/owned firms were spread out over the Suzhou region but were concentrated around the city core, SIP and SND in particular as shown in Fig. 8.5. In fact apart from one cluster of firms to the east (near Kunshan on the map) the vast majority of clusters of foreign firms were within 20 km of SIP and SND. This outcome illustrates the effect that manufacturing has upon city development, where firms seek out sites outside and around the central city, in contrast to the effect of FDI in producer services which are subject to local agglomeration effects evident in their clustering in the centre of global cities (Kim and Han 2014).

SIP has shown a moderate increase in total population. With a land area of 288 km^2 the population was less than one million, which was obviously a small urban community by Chinese standard. However, the rapid population expansion of the Suzhou region is linked to the jobs in SIP. More detailed research is needed to establish the strength of this link. Analysis of the production networks of the foreign firms showed weak links between foreign and domestic firms. This is well illustrated in the patterns of ICT firms. While domestic ICT firms were located in the old

Table 8.2 Descriptive statistics for Suzhou Industrial Park, 1994–2012

Year	Population (1,000) (A)	Local population (1,000) (B)	Foreign population (1,000) (C)	Total investment (US$100 million) (D)	Contracted inward FDI (US$100 million) (E)	Realized inward FDI (US$100 million) (F)	GDP (100 million RMB) (G)	Ratio of inward FDI to total investment (%) (F/D)
1994	–	165	–	2.5	1.8	0.7	–	28.0
1999	–	166	–	8.9	8.2	8.0	–	89.9
2000	–	170	–	10.1	9.7	6.3	–	62.4
2001	–	177	–	37.9	36.9	5.3	–	14.0
2002	–	210	–	48.4	17.7	9.1	251.7	18.8
2003	–	223	–	58.3	20.9	12.1	365.0	20.8
2004	–	258	–	100.8	40.8	18.1	503.0	18.0
2005	–	273	–	77.5	38.1	15.8	571.0	20.4
2006	–	297	7.8	75.1	38.3	16.0	680.0	21.3
2007	–	314	8.3	95.3	47.7	18.2	836.0	19.1
2008	–	327	13.0	59.2	30.2	18.0	1,001.5	30.4
2009	–	339	13.0	49.3	27.0	18.1	1,120.1	36.7
2010	695	355	10.4	63.5	28.6	18.5	1,380.0	29.1
2011	713	372	15.1	–	29.6	19.4	1,589.7	–
2012	762	392	14.1	–	14.7	19.6	1,738.0	–

Source: 6th Census; 2010 Suzhou Statistical Yearly Book (Suzhou Government website); and SIP Public Security Bureau

Notes:

1. Local population (B) means the person who has local *hukou* (formal residency registration) while the total population (A) includes migrants from other regions
2. RMB 1 was US$0.16 in 2014
3. (D) Total investment includes FDI and Chinese domestic investment
4. GDP per capita was calculated by (G)/(A). GDP per capita was US$32,000 in 2010, US$36,000 in 2011, and US$36,000 in 2012 respectively, if the foreign exchange rate was US$0.16 to 1RMB

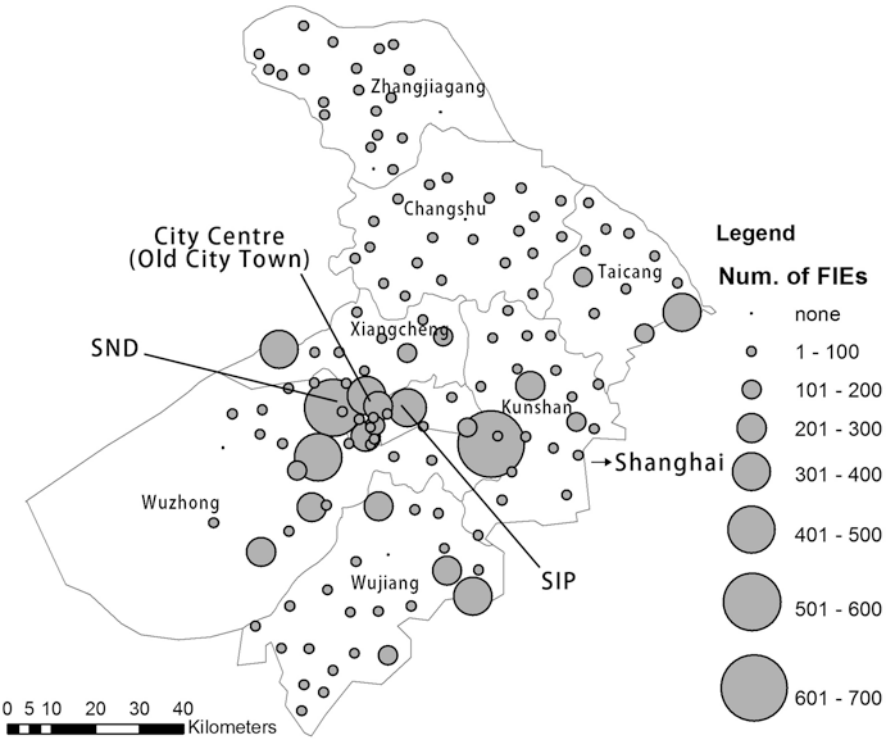


Fig. 8.5 Locations of foreign invested firms by zip code in Suzhou, 2004 (Source: Raw data regarding firms were from China Data Online (http://chinadataonline.org) based on China 2004 Economic Census Data; 11,219 wholly foreign invested firms were included in this map, inclusive of firms from Hong Kong, Macao, and Taiwan; and 144 districts by zip code were used. This map included all industrial types)

city and a provincial government sponsored development zone, foreign ICT firms were concentrated in SND and SIP. As a result, there was less opportunity for spill-over effects, in the form of, for example, knowledge transfer from the MNEs to local firms. Foreign ICT firms heavily relied on foreign suppliers in their production, instead of local manufacturers (Wei et al. 2009).

Large MNEs, as key anchors, persuaded their suppliers in their home country to follow when MNEs established new production lines in Suzhou (Wei et al. 2011; Wang and Lee 2007). Thus, the impact of large MNEs on the growth of Suzhou has been substantial. Samsung's companies and their suppliers are an excellent example of this link.[6] For instance, Samsung Suzhou LCD (SSL), established in 2003, drew in Korean subcontractors as the 1st-tier suppliers (Taesan and DS), which were established in Suzhou in 2002 and 2004 respectively. While SSL produced Liquid

[6] Information in this section was from interviews with the firms and the institutions, conducted in 2014.

Crystal Display (LCD) panels that needed highly advanced technology, it had to rely upon these 1st tier suppliers for a Back Light Unit (BLU) that was an essential part of their LCD production. In turn, to produce the BLU, more than 100 parts and components were needed. In this way, the 1st-tier Korean suppliers also brought in 2nd-tier Korean suppliers that produced the parts/components, moulding and chassis for LCD production. Again, the 2nd-tier suppliers purchased raw materials from the 3rd-tier suppliers who were often large MNEs such as Mitsubishi, General Electronics (GE), and LG Chemical. These suppliers, especially at 1st-and 2nd-tiers, had little connection with the firms outside Samsung's umbrella. For instance, Taesan, the 1st-tier supplier, provided 100 % of its products, the BLUs, to SSL. Taesan was itself a large company employing more than 3,000 workers in Suzhou at the peak period. When Taesan itself looked for suppliers, it did engage with Chinese and Taiwanese firms, but only for less than 20 % of their purchases. The rest was obtained from other Korean suppliers. In these ways, the Samsung cluster at SIP fostered an inward looking production system, isolated from the surrounding Chinese activity, in much the same way as we will see Korean residents too have isolated themselves.

There are four main reasons for the inward looking, vertically integrated supply links between Korean firms. First, LCD requires high technology and skills and Korean firms judged that Chinese firms were not equipped with that technology. Second, there was hyper-competition in the ICT industry among Korean firms, e.g., between Samsung and LG, between them and Taiwanese, Japanese and Chinese firms. Maintaining the vertical integration of the supply chain minimizes the disclosure of key technology to these competitors. Third, the firms involved in this supply chain already had established trustworthy relations in Korea. Hence, it was easier to re-establish these links in Suzhou than taking risks with quality control and the necessary just-in-time delivery that could occur with domestic firms. Finally, cultural/language barriers and different business styles played a significant role in selecting suppliers. Korean firms rarely had Chinese local connections and judged that working with their known Korean firms was likely to be more efficient than working with Chinese firms. Thus, the entire production networks were transplanted from Korea to China.

Due to these supply chain links, the establishment and operation of SSL created massive urban impacts in SIP and in the Suzhou region. The effect was intensified as other service firms were needed in day-to-day operations. For instance, technical support for the operation of assembly lines was needed. Professional logistics with appropriate technology were required to deliver intermediate products from the 2nd-tier suppliers to the 1st-tier suppliers as ICT products were vulnerable to external shocks and dust, so Korean firms with necessary experience were used. These technical service firms were outside the direct supply chain described above, and they added to the over impact. Also, demand for producer services was high. To deal with issues in China such as financing, taxation, accounting and government regulations, newly-established Korean firms relied upon service firms. Once again some were drawn from Korea. The banks are typical examples; three Korean banks have established in Suzhou. For instance, Industrial Bank of Korea (IBK) was established

in SIP in 2007. Other two banks were established in 2007 and 2010 respectively. The vast majority of customers in IBK are Korean firms and Koreans, so Korean language is a requirement for staff in Suzhou IBK.

When there are the production and service networks of the other technology-intensive industries in which Korean firms are involved, which include semiconductors, electronics, LCD, and precision machines, there is a massive presence of Korean firms in Suzhou. In fact, IBK identified 850 Korean firms in Suzhou; one-third of the Korean firms (or 280 firms) in Suzhou were in SIP in 2013. Two-thirds of the Korean firms were located within 1-h driving distance from SIP for easy access to other Korean firms. Hence, inflows of Korean firms have led to large numbers of Korean professionals, technicians, and engineers located in Suzhou.

Although the discussion above has highlighted high technology issues, it is important to understand that these activities are also labour-intensive, as the production system calls for large-scale fine detail assembly. That effect can be seen in the employment of over 9,000 people, 6,000 of whom are in factory activity in the Suzhou Samsung Electronics Corporation cited above. Many of these employees were drawn from the in-migrants to Suzhou.

Other measures of the presence of Koreans can be found in school enrolments. Koreans are the largest foreign ethnic group among international students in Suzhou Singapore International School (SSIS). The top five origins of the country in SSIS were Korea (33 %) followed by Taiwan (11 %), the USA. (8 %), Germany (7 %) and Malaysia (4.5 %) in 2014. IBK estimates the number of Koreans in Suzhou reached 15,000 in 2014.

Koreans have found their own residential sites within SIP. Although SIP houses only one-third of the Korean firms in Suzhou, the majority of expatriate managers and their families likely live in SIP, and are geographically concentrated in a small area, the centre of SIP. They have selected this location in response to the high-quality living conditions including concerns for security, education for children, and access to Korean daily lifestyle. Even when the firms such as Taesan which are located outside of SIP, their driving distance is just 1 h away from SIP. Korean companies arranged also rental houses for their expatriate singles and provided housing subsidies for those with families.

Koreans have formed Korean communities sharing information and language-specific facilities. In these communities, there are Korean restaurants, grocery stores, real estate agencies for Koreans, private education centres for the school-aged, Korean-speaking dentists and accommodations for short-term visiting staff from Korean firms. Koreans can easily access local information from free magazines written for Korean communities and from face-to-face contacts. In short, they maintain a familiar lifestyle in their ethnic community. Delivery of food is easily arranged; Korean formal schools are within easy reach[7]; and even houses with Korean-style heating are available.

[7] One Korean school (Wuxi Korean School) was open in 2008, 30–40 km away from SIP; the other (Suzhou Korean School) was open in 2014 in Suzhou, 15–20 km away from SIP. The new Suzhou Korean School was temporarily established and now it is planning to build a permanent school building. School shuttle buses are in operation to serve the Korean community in SIP.

Hence, the production as well as residential and community impacts of Koreans are contained within a small geographical area because of highly concentrated residential choice, high consumption power, and a willingness to stick to ethnic ties and culture. The experience of Koreans in Suzhou shows how expatriates employed in MNEs are contributing to the change in the structure and organization of Chinese cities.

8.6 Conclusion

Urbanization in China is complex due to its massive scale and the wide range of factors involved. One of those factors is the role of foreign firms as discussed in this chapter. Inward FDI that involves production has generally been associated with positive economic outcomes at the national scale, despite uncertainty on job creation effects (Sonn and Lee 2012). The research in this chapter has shown how that effect can be felt at a city level. The effect was seen first in the job opportunities created by the establishment of vertically integrated supply chains by a number of MNEs.

In essence, urban change has been driven by an 'urbanization by global linkages', especially within manufacturing, and it has spread to the service sector. Many of these job opportunities were taken up by in-migrants, which has boosted up the urban population. At the same time this FDI has created highly skilled technology-based employment for expatriate staff. Although most of these foreign nationals stay temporarily in China, their presence is significant to Chinese cities as they have formed foreign ethnic communities clustered in small areas within a city, well served with high-cost public services.

Both processes have expressed in inward looking spatial concentrations as a result of their desire to live close to one another which however has limited their contact with domestic Chinese. Over time, some employed expatriates may open their own businesses using their know-how, experience, Chinese language skill, and the connections acquired from their former company. Their new business may target their own ethnic group, but may also reach out to the Chinese market. If these changes occur in Chinese cities, the effects of their globalization effect will enter another stage.

The links between economic growth, FDI, local and international communities mean that Chinese cities may have to overcome planning challenges to ensure a more harmonious multi-cultural society, and foster social integration. In addition, as high standards of liveability are required to attract global talents, attention will be needed to create a better living environment. This however will be difficult as the emphasis of inward FDI is on manufacturing, which is often associated with poor air-quality and other environmental problems. As investment shifts toward the tertiary sector including the knowledge-led economy, global investors will begin to assess issues of regulations, transparency and efficiency of governance. Hence, the Chinese cities will face a new era of globalization with another array of urban policy challenges.

Acknowledgement This research received a research fund, RDF-13-03-02, from Xianjiaotong-Liverpool University.

References

Brunet F, Xinwen Z (2009) The economy of the Beijing Olympic Games: an analysis of first impacts and prospects. Centre d'Estudis Olímpics, UAB, Barcelona

Caves RE (1971) International corporations: the industrial economics of foreign investment. Economica 38:1–27

China Data Online. http://chinadataonline.org. Accessed June 2014

City house website. http://sh.cityhouse.cn/market/lease.html. Accessed Apr 2014

Dunning JH (1993) Multinational enterprises and the global economy. Addison-Wesley, Wokingham/Reading

Friedmann J (2005) China's urban transition. University of Minnesota Press, Minneapolis

Garnaut R (2009) The great crash of 2008. Melbourne University Press, Melbourne

Gujarati DN (2003) Basic econometrics. McGraw Hill, Singapore

He C (2002) Information costs, agglomeration economies and the location of foreign direct investment in China. Reg Stud 36:1029–1036

Kim HM, Han SS (2014) Inward foreign direct investment in Korea: location patterns and local impacts. Habitat Int 44:146–157

Lee IH, Hong E, Sun L (2014) Inward foreign direct investment and domestic entrepreneurship: a regional analysis of new firm creation in Korea. Reg Stud 48:910–922

Li Z, Wu F (2006) Socioeconomic transformations in Shanghai (1990–2000): policy impacts in global-national-local contexts. Cities 23:250–268

Ma LJC, Wu F (2005) Restructuring the Chinese city. In: Ma LJC, Wu F (eds) Restructuring the Chinese city: changing society, economy and space. Routledge, London, pp 1–18

Mardon R (1990) The state and the effective control of foreign capital: the case of South Korea. World Polit 43:111–138

Markusen JR, Venables AJ (1999) Foreign direct investment as a catalyst for industrial development. Eur Econ Rev 43:335–356

National Bureau of Statistics of China. http://data.stats.gov.cn. Accessed Apr 2014

Pereira AA (2004) The Suzhou Industrial Park experiment: the case of China-Singapore governmental collaboration. J Contemp China 13:173–193

Preuss H (2007) Signaling growth: China's major benefit from staging the Olympics in Beijing 2008. Harv Asia Pac Rev 9:41–45

Sassen S (2001) The global city: New York, London, Tokyo, 2nd edn. Princeton University Press, Princeton

Sassen S (2005) Global cities and diasporic networks. In: Ember CR, Ember M, Skoggard IA (eds) Encyclopedia of diasporas: immigrant and refugee cultures around the world. Springer, New York

Sonn JW, Lee D (2012) Revisiting the branch plant syndrome: review of literature on foreign direct investment and regional development in Western advanced economies. Int J Urban Sci 16:243–259

Sun Q, Tong W, Yu Q (2002) Determinants of foreign direct investment across China. J Int Money Financ 21:79–113

SIP Public Security Bureau (2014) http://www.sipac.gov.cn/zjyq/yqgk/201501/t20150106_333971.htm. Accessed Nov 2014

Suzhou Government Website. http://www.jsw.suzhou.gov.cn, http://www.rd.suzhou.gov.cn. Accessed Apr 2014

Suzhou Singapore International School. http://www.ssis-suzhou.net. Accessed Apr 2014

UNCTADstat (2013) Inward and outward foreign direct investment flows, annual, 1970–2012. UNCTADstat, New York
Wang J-H, Lee C-K (2007) Global production networks and local institution building: the development of the information-technology industry in Suzhou, China. Environ Plan A 39:1873–1888
Wei YHD, Lu Y, Chen W (2009) Globalizing regional development in Sunan, China: does Suzhou Industrial Park fit a neo-Marshallian district model? Reg Sci 43:409–427
Wei YHD, Liefner I, Miao C-H (2011) Network configurations and R&D activities of the ICT industry in Suzhou. Geoforum 42:484–495
Wei YD, Yuan F, Liao H (2013) Spatial mismatch and determinants of foreign and domestic information and communication technology firms in urban China. Prof Geogr 65:247–264
Wu F (2003) The (post-) socialist entrepreneurial city as a state project: Shanghai's reglobalisation in question. Urban Stud 40:1673–1698
Yang YR, Hsia CJ (2007) Spatial clustering and organizational dynamics of transborder production networks: a case study of Taiwanese information-technology companies in the Greater Suzhou Area, China. Environ Plan A 39:1346–1363
Yang DY-R, Wang H-K (2008) Dilemmas of local governance under the development zone fever in China: a case study of the Suzhou region. Urban Stud 45:1037–1054
Yusuf S, Wu W (2002) Pathways to a world city: Shanghai rising in an era of globalisation. Urban Stud 39:1213–1240
Zhang T (2002) Urban development and a socialist pro-growth coalition in Shanghai. Urban Aff Rev 37:475–499
Zhang L-Y (2014) Dynamics and constraints of state-led global city formation in emerging economies: the case of Shanghai. Urban Stud 51:1162–1178
Zhu J, Sim L-L, Zhang X-Q (2006) Global real estate investments and local cultural capital in the making of Shanghai's new office locations. Habitat Int 30:462–481

Part II
Spatial Planning

Chapter 9
The Giant City-Regions in China's New Urbanization

Sun Sheng Han

Abstract This chapter sheds light on the role and type of the giant city-regions, and examines the planning efforts on these city-regions in China. By analyzing policy and planning documents about new urbanization, national spatial planning, city-region and city master plans, the chapter reveals that these urban giants are expected to serve as spatial platforms of China's national development. There are four basic types categorized by a two by two table featuring both dimensions of spatial extent (i.e., multiple vs single provincial unit involvement) and main forces of formation (i.e., passive outcome vs active intervention). Though planning efforts are discernible at three levels (framework/economic plan, city-group plan, and city master plan), none of the seven giant city-regions have systematic plans at all the levels. Heavy top-down planning approach is questionable for legitimacy and effectiveness. The lack of plans for institutional integration is yet another area that needs serious attention by planners and policy-makers.

9.1 Introduction

A remarkable change in the twenty-first century urbanization of China is the recognition of the role of giant city-regions, or *chengshi qun*, as policy drivers of the process.[1] In March 2014, the Central Government endorsed a national urbanization plan which not only addresses the on-going problems of socioeconomic inequalities between urban and rural residents, but also sets up directions for the location of the projected new urbanites in designated *chengshi qun* (The State Council 2014).

[1] The term *chengshi qun* literally means a 'group of cities'. Chinese urban researchers interpret this term using various translations, such as mega cities, urban agglomerations, urban clusters, interlocking metropolitan areas, and extended metropolitan areas. In this paper, the term 'giant city-region' is used interchangeably with *chengshi qun* in order to earmark its extraordinary scale and its relevance to the terms 'world city-region' (Hall 1966) and 'global city-region' (Scott et al 2001).

S.S. Han (✉)
Faculty of Architecture, Building and Planning, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: sshan@unimelb.edu.au

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_9

These groups of cities range from large urban agglomerations such as the Beijing-Tianjin-Hebei area, which cross provincial administrative boundaries, to smaller urban clusters such as the Changsha-Zhuzhou-Xiangtan city-group in Hunan Province. Seven *chengshi qun* are explicitly named in the new urbanization plan with reference to a national spatial plan that organizes the overall development intensities in various part of China (The State Council 2010).

This chapter sheds light on the role and type of the giant city-regions used in China's new urbanization policy, and examines the planning efforts on these city-regions. Policy and planning documents about new urbanization, national spatial planning and selected city-regions as well as cities were collected and analysed. The discussions are organized around three major areas of city-region formation, that is, economic specialization, infrastructure improvement and institutional integration. This chapter is divided into five major sections: the city-region concept, a brief review of the literature, the new urbanization policy and the seven giant city-regions, their planning, and a discussion section.

9.2 City-Region as a Concept

City-region is a term used to describe the spatial-economic outcomes of urbanization in the post-war period and the present urban century. Although popularly used in the literature, city-region is loosely defined as a concept. There are two meanings connoted by the term. One refers to large cities with an extended hinterland, such as London and Mexico City. The other refers to a group of cities with their regions, such as Randstad in the Netherlands, the extended Rhine-Ruhr metropolitan region and the Yangtze River Delta region in China.

The formation of city-regions was observed more than half a century ago. In his seminal book, *The World Cities*, Hall (1966: 9) claimed that 'in the early 1960s there were twenty-four metropolitan centres in the world each with a population over three million; thirteen with over five million; four with over ten million'. Some of the metropolitan regions were world cities as they had international significance in politics, trade and economic production. Others, such as Osaka-Kobe, Chicago and Los Angeles only had regional but not national or international significance in Hall's analysis. On the other hand, the Dutch Randstad played a key role as an international centre of trade, finance and culture despite its relatively small population size. This led to two types of world city-regions. One was a single dominant metropolitan area surrounding and growing out from a world city such as London, Paris or Tokyo. The other was a widely spread metropolitan region containing several contiguous metropolitan areas such as the extended Rhine-Ruhr metropolitan region and the Randstad region.

The observation and analysis of the American North Eastern Seaboard in the mid-twentieth century added another example to the 'widely spread metropolitan region'. Gottmann (1961: ix) saw 'a steady trend toward the concentration of dense population in large urbanized regions' as a trend gradually becoming characteristic

of the 20th century'. He used the term 'megalopolis' to describe this 'widely spread metropolitan region' and argued that 'megalopolis differs from any other part of the country because it has a denser population, a greater density of activities, and a mixture of industries and trades that altogether endow it with a unique regional economy' (Gottmann 1961: 741).

A half century later, there were 'more than three hundred city-regions around the world with populations greater than one million,' with at least 20 of them having populations in excess of ten million (Scott et al. 2001: 11). As a result city-regions of today are much larger than in the past. Both types of single-city dominated and polycentric city-regions remain prominent. Today, however, recognition of the international influence of these city-regions in the global economy has been deepened. The present day global city-regions differ from Hall's (1966) 'world city-regions' and Gottmann's (1961) 'megalopolis' not only in size and number but also in the policy context. City-regions of the mid-twentieth century were rather passive outcomes of the overall population growth in the countries where they sat, and of the rapid urbanization of the time which led to a concentration of population and economic activities in and around these cities (Hall 1966). The present day city-regions, in contrast, are partly an outcome of active pursuit of global competitiveness by governments and other stakeholders in the global economy. This pursuit involves active internal and external forces designed to forge city-region development and to aid their growth and that of their nation. These internal forces can be seen from the bottom-up initiatives for co-operation, collaboration and coordination (refer to Head 2008: 735–736 for definition of these terms) between neighbouring governments for the purpose of improving their competitiveness. Similar actions can be observed among businesses (Henton 2001). External forces that have stimulated this activity include the new international division of labour (Cohen 1981; Friedmann and Wolff 1982) while national perspectives in public sector planning, such as urbanization policies and infrastructure improvement plans made by national and regional governments, are also influential. There is currently a lack of understanding of these new aspects of city-region formation, especially in the interplays between actors within each city-region (Hall 2001).

9.3 On-Going Problems in and Knowledge About the City-Regions

The early problems of large cities that were observed half a century ago are still relevant today. These include overcrowding in the central city, urban sprawl, traffic congestion, lack of finance, and difficulties of government (Hall 1966). The challenges of dealing with conflicting needs and coordinating resources such as water, housing and transportation (Gottmann 1961) are not only still there but have also been amplified to an even higher level. The need to live in a diversified cultural environment, with people from a range of income and ethnic backgrounds, has become 'even more challenging in its direct political and policy implications'

(Scott et al. 2001: 19). The perceived role of global city-regions as 'the motors of the global economy' demands more urgency for research and policy attention in order to better understand the nature of giant city-regions.

The needs for improved regional economic integration and a new spatial planning configuration were also highlighted as main issues to be resolved half a century ago. In the USA, the need for governmental coordination called for the creation of 'special districts' (e.g. fire protection districts, soil conservation districts, and drainage districts) for areas 'spanning other types of administrative divisions' (Gottmann 1961: 758). Annexation and consolidation were used as ways to deal with the neighbouring districts; in other situations, a metropolitan type of government was established to deal with coordination. In terms of spatial structure of the city-regions, Hall (1966: 242) foresaw that polycentric metropolitan regions were potentially a 'new metropolitan structure' that was no less efficient but suffered less congestion and long commuting. This new structure could be developed by 'concentrating specialized types of activity, or systems of urban linkage, into partly specialized centres'.

In the past half century, the spatial extent, economic performance and governance structures of the giant city-regions brought exciting new academic challenges (Thrift 2002; Harrison 2012). Despite signs of collaboration (Henton 2001; Salet et al. 2003) and recognition of economic benefits (Meijers and Burger 2010) in the global city-region space, strong inertia of the single-city based governance structures, business operations, and localised household commuting patterns all worked to reinforce original administrative territories (Keating 2001; Zhao and Zhang 2007; Harrison 2012). Enormous challenges continue to lie ahead for stakeholders to 'extend themselves beyond their familiar home-base roles and functions' (Head 2008: 736) in the formation of a global city-region.

Several recent studies shed light on the internal dynamics expressed by the challenges created by governance, economic performance, and spatial patterns in city-regions. In a series studies about European cases, Salet et al. (2003) show the tensions involved in governance by analysing the problems of collaboration between large and small cities in polycentric regions. Zhao and Zhang's (2007) analysis of three global city-regions in China shows that local government competition for foreign direct investment has had an influence upon spatial outcomes. The difficulties faced by the state in managing urban change in China's Pearl River Delta are clearly shown by several authors (Lin 2001; Shen 2004; Enright et al. 2005). Henton's (2001: 397) study of the Silicon Valley suggests that some businesses played distinctive roles in the formation of a global city-region. These studies show that in emerging global city-regions, cooperation, coordination and collaboration efforts co-existed with, and were sometimes undermined by, competition (Keating 2001). As such, existing entities, whether they were territorial governments or businesses, showed a 'scalar amplification or contraction' in the new city-region governance frameworks (Lord 2009); and "'new' governance arrangements often 'sit alongside' rather than replace extant institutional frameworks and supports" (Harrison 2012). Providing more clarity on this situation presents a heightened intellectual urgency

around the need to conceptualise the emergence of city-regions as the "product of a particular set of economic, cultural, environmental and political projects, each with their own logics … to discover for which interests city-regions are necessary and for whom this new territoriality is merely contingent" (Jonas and Ward 2007: 176).

Meijers and Burger (2010: 1383) analysed US metropolitan areas and concluded that' agglomeration diseconomies remain relatively limited in the more polycentric metropolitan areas, whereas agglomeration externalities are to some extent shared among the cities in such an area". This provides evidence to show that the 'motors of the global economy' (Scott et al. 2001) work in the giant city-regions. In other words, all participating cities can benefit once a single-city based economy is reconfigured into a network-of-cities based economy.

In terms of their spatial structure, global city-regions are huge in area. They incorporate several separate administrative urban units, can be structured either as monocentric or polycentric, and include a wide range of activities (Scott et al. 2001). The one-city-dominated global city-region is already complicated in spatial configuration; the multiple business centres, edge cities, and specialized sub-centres are observed but little is known about the internal interplays in these regions (Hall 2001: 73–74). The spatial extent of the global city-regions is another task demanding research attention today (Harrison 2012).

Policymakers are keen to promote the development of city-regions. This is seen in many national development initiatives where large urban agglomerations are identified as an investment focus. The American Regional Plan Association, for example, proposes 11 'mega-regions' in the USA for federal infrastructure investment (America 2050 2014). The Chinese Central Government has named seven 'giant city-regions' in its 2014 national urbanization policy as the spatial platforms for China's economic and urban development for the next 15 years (The State Council 2014). Despite the enthusiasm in China to promote the growth of city-regions, very little is known about the way that these regions fit into the new urbanization policy. Several key research questions remain to be answered: How does the giant city-region fit into China's urbanization debate? How are the city-regions planned? We now turn to a discussion of the new urbanization policy and the seven giant city-regions.

9.4 The New Urbanization Policy and the Seven Giant City-Regions

9.4.1 The New Urbanization Policy

On 16 March 2014, the State Council publicised a policy document known as 'The National New Urbanization Plan 2014–2020'. This policy is the first of its kind endorsed by the central government, and aims at macro, strategic and fundamental

issues that define a healthy urbanization in China, with a core focus on people[2] (Xu 2014). The policy document includes 31 chapters grouped into eight sections (The State Council 2014).

The Deputy Director Xu Xianping of China's National Development and Reform Commission (NDRC), which was the leading author of the new urbanization policy, indicated that the plan was formulated through a wide consultation process that included a number of central government ministries, research institutions, and foreign organizations (Xu 2014). Top leaders of the central government such as Xi Jinping, Li Keqiang and deputy prime ministers participated in the process and gave instructions at key stages. Nevertheless, the Plan is a typical top-down initiative, with no public participation component in its formulation process.

The rationale behind this new urbanization policy includes considerations of not only urban–rural inequalities but also the poor global economic prospects (Zhongguo Xinwen Wang 2014). The former requires resolutions to the long-lasting problem of urban–rural divide seen in both an urban–rural dichotomy and an urban dichotomy.[3] Further, the extensive concentration of rural migrant workers in large cities such as Beijing, Shanghai and Guangzhou, amongst many others, has led to overcrowding and urban sprawl. In the countryside, many rural workers have migrated to urban areas, leaving behind 'empty villages' and idle farmland. The list of problems in Chinese urbanization is long, and the new urbanization policy aims to address those problems.

To address the poor economic prospects, the new urbanization policy aims at creating a huge engine for China's economy growth (Zhongguo Xinwen Wang 2014). It recognises that the world economy has a gloomy outlook, and external demand for Chinese outputs may not be a reliable source of economic growth. In contrast, urbanization offers a remarkable potential to increase domestic demand. As such, the new urbanization policy would create a new driver for the Chinese economy.

There are several important new dimensions of this policy which deserve to be highlighted. First, it has a people focus. It aims at allowing rural migrant workers to have equal access to services and facilities in cities through reform of the household registration system. Efforts have already been made to open up cities, especially the smaller ones with a population of half million and less, to anyone who intends to settle in. Second, the policy emphasizes quality, not quantity. Instead of using measurement of built-up areas and urban population, the success of the new urbanization will be measured by changes in economic structure, employment, the living environment, and social security. Third, the policy makes use of giant city-regions, or, *chengshi qun*, as a spatial carrier for demographic economic changes. This strategy will channel rural migrants to small cities and towns in selected giant city-regions, which could be an innovative solution to end the long-time policy debate

[2] This is to contrast with a land focused urbanization which has characterised the Chinese urban development for the past decades.

[3] The urban–rural dichotomy describes the inequalities between urban and rural settlements; the urban dichotomy describes the inequalities between rural migrant workers and urbanites in cities.

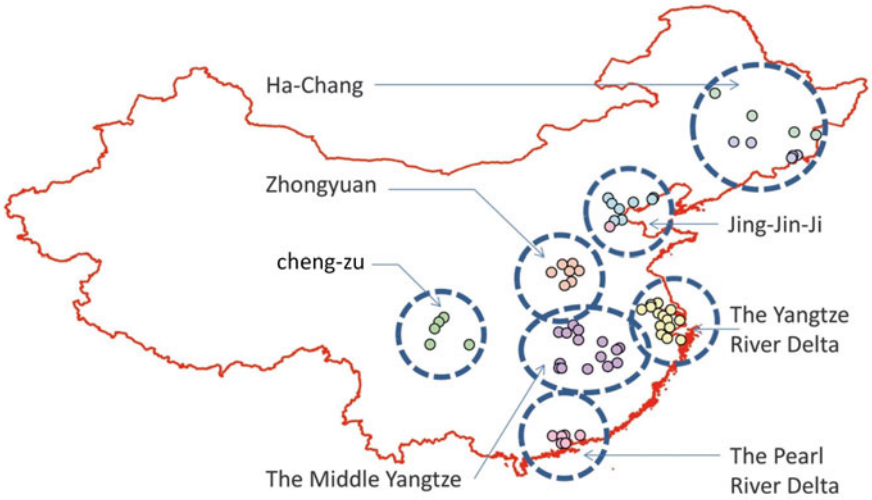


Fig. 9.1 The seven giant city-regions named in the new urbanization plan 2014 (Note: Prepared by author, based on shape file from www.fas.harvard.edu/~chgis/data/dcw only mainland China is drawn on map)

about the role of large and small cities in China's urbanization. We now turn to the spatial characteristics of the new urbanization policy.

9.4.2 The Seven Giant City-Regions

Figure 9.1 shows the location of the seven giant city-regions explicitly named in the new urbanization policy and expected to serve as national spatial and economic platforms. Three are the established city-regions located along the coastal line, including the Jing (Beijing) – Jin (Tianjin) – Ji (Hebei) region, the Yangtze River Delta region, and the Pearl River Delta region. One is in the north: the Ha (Harbin) – Chang (Changchun) region. The other three are the Zhongyuan city-region, centred on Zhengzhou, Kaifeng and Luoyang in Henan Province; the middle Yangtze city-region centred on Wuhan, Changsha and Nanchang; and the Cheng (Chengdu) – Yu (Chongqing) city-region. According to China's three-region division of the country, the Ha-Chang, Zhongyuan, the middle Yangtze, and the Cheng-Yu city-regions are all located in Central China, although Ha-Chang is not central in China's geography at all.

Guiding the designation of the seven giant city-regions was a national spatial plan known as the National Plan of the Major Functional Areas (NPMFA). This Plan was endorsed by the State Council in December 2010, but the idea had been in discussion for more than 10 years. Officially, the concept of major functional areas first appeared in the Chinese Communist Party Central Committee's Suggestion

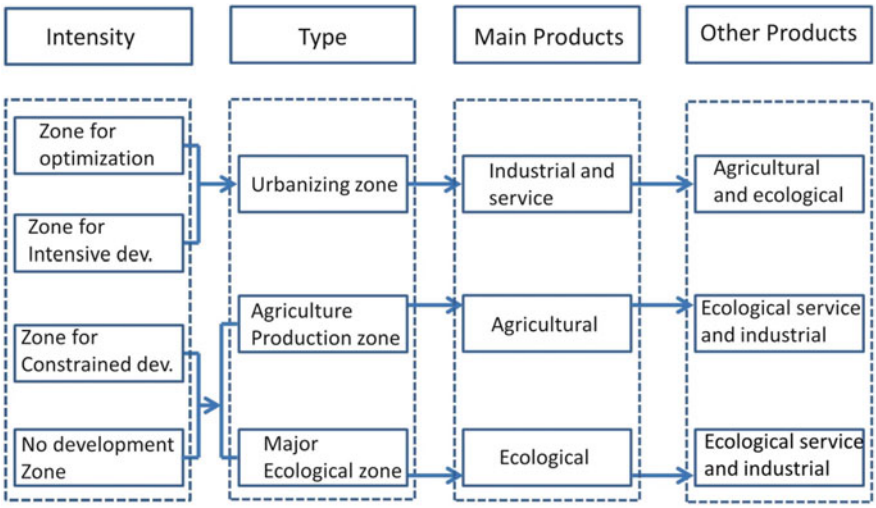


Fig. 9.2 The major functional areas and their products (Source: Prepared by author, based on The State Council 2010)

about Formation of the 11th Five-Year Plan for Economic and Social Development, which was a directive from the Chinese Communist Party to the Central Government, in 2005. This term consequently appeared in the 11th Five-Year Plan (2006–2010), which was endorsed by the State Council in 2006 (Zhang and Liu 2012: 8).

NPMFA aims to coordinate the future population distribution, economic layout, land-use, and urbanization by classifying areas to one of the four functional zones for development optimization, intensive development, constrained development, and no development (The State Council 2010). The first two functional zones form the Urbanizing Zone, with a major function of providing industrial and service products supplemented by the production of agricultural and ecological goods.[4] The constrained and no development zones are the production zones of agricultural goods and the major ecological zones. Main products of the agricultural zone are agricultural goods, supplemented by ecological, service and industrial goods. The ecological zone will provide ecological goods supplemented by other goods such as agricultural, service and industrial goods (Fig. 9.2).

The spatial framework for China's urbanization incorporates two horizontal corridors and three vertical corridors (Fig. 9.3). The two horizontal corridors refer to the transportation route linking Lianyungang in Jiangsu Province with Alashankou (Alataw Pass) at the border with Kazakhstan in the Xinjiang Autonomous Region, which is a part of the grand Eurasian Continental Bridge, and the Yangtze River belt. One of the three vertical corridors refers to the coastal belt, while the other two are all formulated along main railway lines including the Harbin-Beijing-Guangzhou

[4] These include fresh air, clean water, and liveable climate (The State Council 2010: 10).

Fig. 9.3 The urbanizing zones defined by the national plan of major functional areas 2010 (Source: Prepared by author, based on The State Council 2010)

line and the Baotou (Inner Mongolia) – Kunming (Yunnan Province) line. Twenty-one main urbanizing zones are designated along these five corridors. A wide range of scales are included – with the large ones containing several giant city-regions (e.g., the Pan Bohai Ring Region which hosts the Jing-Jin-Ji, the Central-South of Liaoning and Shandong Peninsula city-regions) and smaller ones hosting giant city-regions within one province (e.g., Zhongyuan *chengshi qun*).

A comparison between Figs. 9.1 and 9.3 reveals that the terms *chengshi qun* (giant city-regions) and *chengshihua diqu* (urbanizing zones) are used interchangeably. For example, six out of the seven giant city-regions except Jing-Jin-Ji are referred as region (*diqu*) or economic region (*jingjiqu*) in NPMFA. It is also clear that the geographical space is marked loosely in Fig. 9.3 – only the central cities are used to demarcate the urbanizing zones while the wide spread of smaller cities in the same zone is ignored. This has led to a loss of information in reading the geographical extent of the urbanizing zones, and is a weak use of the city–region idea. A combined effect of the ambiguous terminology and loose definition (or lack thereof) of the giant city-region space leads to doubt whether or not the plan is rigorous. This doubt is further confirmed by examining the policy details. For example, the Pan Bohai Ring region is one of the main functional areas to optimize on a national scale. There are three sub-areas, i.e. the Jing-Jin-Ji region, the Central-south of Liaoning region and the Shandong Peninsula region. The plan for the Pan Bohai Ring region and its sub-regions focuses on potential roles of the major urban nodes and the location of economic activities only, without details about integration

in either the Pan Bohai Ring region or any of the three sub-regions for their development into giant city-regions. The same is true of other six giant city-regions named in the new urbanization policy.

Critics of the NPMFA point to additional shortcomings associated with the planning process, use of terminology, planning unit, right of development and implementation mechanisms. The top-down planning process allowed little input from the low-level governments and the public, leading to inadequate consideration of local conditions which are not only influential now but can change over time (implying that suitability of development will change). Feng (2014) argues that if the Plan were introduced in 1978, Zhejiang, Fujian and Jiangsu provinces would probably have been designated as no development or agricultural zones. But changing circumstances turned these provinces into highly urbanized areas. The zone for 'constrained development', for example, could be interpreted as a zone constrained by tough measures against development and thus be objected to by many local governments. Wu and Wu (2011) affirm that because of the disagreement on the terminology by provincial leaders in central and western China, the NPMFA, which could otherwise have been publicised at the beginning of the 11th Five-Year Plan in 2006, had to be postponed to 2010. By using counties as the planning unit, NPMFA was unable to accommodate the local differences of areas within. Zhang and Zhao's chapter in this book shows that Chinese towns are usually of the size of 100–400 sq km. As a county usually includes several towns, its size can easily be a few times larger. The ecological fallacy in spatial analysis relating to the use of spatial units (see Longley et al. 2011 for details) is found here.

The identification of ecological zones means that residents are denied development rights. The implication is that those residents are denied the opportunity to improve their income and living standards simply because of their location. Feng (2014) argues that a transfer of payment from the central to the local government would address the problem but past experience suggests it is unlikely to be adequate to compensate the individuals. In reality, the local government has never received adequate payment from the upper level government, and the payment received was never used solely for the compensation of individuals who had lost the development right. In the new policy the implementation mechanisms are not yet defined. It is not clear who governs in each of the functional areas, who is to be governed, what legal tools are available for use to govern, and what decision-making process is appropriate to govern (Zhang and Liu 2012).

Nevertheless, the new urbanization policy does provide general principles for city-region planning and development. The policy stipulates integrated planning for giant city-regions, with clear development goals, spatial structure and development directions, explicit functional roles and specialty, and coherent transportation infrastructure and communication network. It also calls for consistency between giant city-region plans and other plans such as city and town system plans, land-use plans, and ecology-environment plans. The approach calls for national-regional coordination as the central government is given the responsibility to plan giant city-regions that include parts from different provincial administrative units, while provincial

governments are responsible for planning giant city-regions within their respective territories.[5]

Within the city-regions themselves, the new urbanization policy expects that giant city-regions will serve as platforms to promote industrial specialization among the component spatial units, along with collaboration in infrastructure provision and environmental protection. It requires removal of the administrative barriers and local monopolies to promote the free flow and optimal combination of production factors according to market mechanisms across the whole city-region. These policy principles are expected to apply to all the three policy areas of economic specialization, infrastructure improvement and institutional integration. In essence, then, the policy has recognised the underlying features of a city-region. We now turn to the plans and examine to what extent these principles are applied in these plans.

9.5 Planning the Giant City-Regions

9.5.1 The Existing Plans as a Foundation for the New Policy

In China, there is a complex range of plans that shape the formation and development of city-regions. These plans are made by three government ministries,[6] which are respectively in charge of sectoral plans for socioeconomic development, land use, and urban development. The cities and regions formulate their sectoral plans at the local level.[7] For city-regions, the central government is given the responsibility to plan if the city-region straddled provincial boundaries, while provincial governments are expected to plan for those city-regions that are completely within their jurisdictions (The State Council 2014).

Using key words of the three sectoral plans mentioned above, and names of the seven giant city-regions and the key cities, an online search yielded three types of plans currently in existence: regional framework plans, city-group plans, and city master plans (Table 9.1). The first is an economic plan; the other two are spatial

[5] In both central and local governments, specialized ministries/departments such as NRDC and the Ministry of Housing and Urban–Rural Construction, are responsible for the plans and their implementation.

[6] They are the National Development and Reform Commission (NDRC), the Ministry of Land and Resources (MLR), and the Ministry of Housing and Urban–Rural Construction (MHURC). There are national plans endorsed by the State Council for economic development and land-use by NDRC and MLR respectively. MHURC worked on a national system of cities and towns in 2000–2006 but that plan was never endorsed by the State Council. By leading the formulation and approval process of both NPMFA and the new urbanization plan, NDRC is the most powerful planning authority at national level.

[7] For example, provinces and cities have formulated local plans for major functional areas that detail the NPMFA. Similarly, local governments formulate local five-year plans which detail the national five-year plans.

Table 9.1 Plans in the seven city-regions

City-region	Key city	Economic plan	Spatial plan	
		Regional framework Plan	City-group (*chengshi qun*) plan	Central city master plan
The Pearl River Delta	Dongguang Guangzhou Huizhou Zhaoqing Foshan Jiangmen Zhongshan Shenzhen Zhuhai	Framework plan of reform and development in the Pearl River Delta region (2008–2020); formulated by the National Development and Reform Commission in 2008; endorsed by the State Council in 2008 Source: Shenzhen xinwen wang http://news.sohu.com/20090106/n261589746.shtml accessed on 14 Sept 2014	The coordinated development plan for the Pearl River Delta *chengshi qun*[a] (2004–2020); formulated by CAUPD; endorsed by the Guangdong provincial government in 2005 Source: Guangdong provincial government website http://www.gd.gov.cn/govpub/zfwj/zfxxgk/gfxwj/yf/200809/t20080916_67131.htm accessed on 3 Oct 2014	Guangzhou city master plan 2001–2010; endorsed by the State Council in 2005. (The new master plan was ready to submit for endorsement in May 2013; no follow-up information is available) http://www.gov.cn/gongbao/content/2006/content_212092.htm accessed on 14 Sept 2014 Shenzhen city master plan 2010–2020; endorsed by the State Council in 2010. http://finance.people.com.cn/GB/12521483.html accessed on 18 Sept 2014
The Yangtze River Delta region	Taizhou Yangzhou Zhenjiang Nanjing Nantong Changzhou Wuxi Suzhou Shanghai Huzhou Jiaxing Hangzhou Shaoxing Ningbo Zhoushan	Regional plan for the Yangtze River Delta region; formulated by the National Development and Reform Commission in 2010; endorsed by the State Council in 2010 Source: Renmin wang http://politics.people.com.cn/GB/1026/11683369.html accessed on 12 Sept 14	It was reported that MHURC worked on a *chengshi qun*[a] plan for the Yangtze River Delta at the same time when the NDRC worked on the regional framework plan. But there is no information about the completion and endorsement of the *chengshi qun* plan Source: Renmin wang http://politics.people.com.cn/GB/1026/4282994.html accessed on 3 Oct 2014	Shanghai city master plan 1999–2020; endorsed by the State Council in 2001. http://www.chinaacc.com/new/63/73/129/2006/2/hu087851446152260024845-0.htm accessed on 14 Sept 2014 Nanjing city master plan 1991–2010 endorsed by the State Council in 1995 http://www.gov.cn/zhengce/content/2010-11/12/content_5939.htm accessed on 18 Sept 2014 Hangzhou City Master Plan 2001–2020; endorsed by the State Council in 2007. http://wenku.baidu.com/view/cd59f8106c175f0e7cd137d0.html accessed on 18 Sept 2014

Jing-Jin-Ji (Beijing-Tianjin-Hebei) region	Qinhuangdao Bejing Beidaihe Haibin Tangshan Langfang Tianjin Huanghua Cangzhou	Three grand plans (i.e. a master plan and two specialized plans for transportation and environment protection) are to be completed by The National Development and Reform Commission and to be submitted to the State Council for endorsement. http://news.xinhuanet.com/fortune/2014-07/23/c_126785199.htm accessed on 14 Sept 2014	Regional plan of Jing-Jin-Ji metropolitan region was made by the National Development and Reform Commission and was submitted to the State Council for endorsement in 2010. http://wenku.baidu.com/view/9139dd44b307e87101f6961f.html accessed on 19 Sept 2014	Beijing city master plan 2004–2020; endorsed by the State Council in 2005 http://www.gov.cn/gongbao/content/2005/content_63352.htm accessed on 14 Sept 2014 Tianjin city master plan 2005–2020; endorsed by the State Council in 2006. http://business.sohu.com/20060809/n244693134.shtml accessed on 14 Sept 2014
Zhongyuan city-region	Xinxiang Jiaozuo Kaifeng Zhengzhou Luoyang Xuchang Pingdingshan	No official plan	Framework plan for the overall development of the Zhongyuan city-region; formulated by the Provincial Development and Reform Commission; endorsed by the provincial government in 2006. http://www.dahe.cn/xwzx/zt/hnzt/zbyt/zbkstd/t20061102_715137.htm accessed on 14 Sept 2014	Zhengzhou city master plan 2010–2020; endorsed by the State Council in 2010. http://finance.people.com.cn/GB/12521483.html accessed on 14 Sept 2014 Kaifeng city master plan 2005–2010; endorsed by the State Council in 1999. http://www.gov.cn/zhengce/content/2010-11/14/content_5884.htm accessed on 18 Sept 2014
Cheng-Yu city region	Mianyang Deyang Chengdu Leshan Chongqing	Regional plan of Cheng-Yu economic region; formulated by the Provincial Development and Reform Commission; endorsed by the State Council in 2011. http://www.gov.cn/zwgk/2011-06/02/content_1875769.htm accessed on 14 Sept 2014	Development plan for the city-region in the southern part of the Cheng-Yu economic region; formulated by the Provincial Development and Reform Commission in 2014; submitted to the National Development and Reform Commission for endorsement. http://sichuan.scol.com.cn/fffy/content/2014-04/24/content_7770479.htm accessed on 14 Sept 2014	Chongqing urban–rural master plan 2007–2020; endorsed by the State Council in 2011. http://www.gov.cn/zwgk/2011-10/18/content_1972607.htm accessed on 14 Sept 2014 Chengdu city master plan 1995–2020; endorsed by the State Council 1999 http://wenku.baidu.com/view/cd59f8106c175f0e7cd137d0.html accessed on 19 Sept 2014

(continued)

Table 9.1 (continued)

City-region	Key city	Economic plan Regional framework Plan	Spatial plan City-group (*chengshi qun*) plan	 Central city master plan
Ha-Chang (Harbin – Changchun) city-region	Changchung Jilin Tumen Yanji Longjing Qiqihar Harbin Mudanjiang Suifenhe Daqing	No official plan	The Provincial Development and Reform Commission in Heilongjiang province organized a forum in August 2014 to explore opportunities related to the development of the Ha-Chang city-region. Ideas are organized for further discussion with Jilin province. http://www.dqfgw.gov.cn/fgwweb/WN010018/16045.htm accessed on 14 Sept 2014	Changchun city master plan 2011–2020; endorsed by the State Council in 2011. http://www.ce.cn/xwzx/gnsz/gdxw/201112/30/t20111230_22965185.shtml accessed on 14 Sept 2014 Jilin city master plan 1996–2010; endorsed by the State Council in 2001. http://www.gov.cn/gongbao/content/2001/content_60710.htm accessed on 14 Sept 2014 Harbin city master plan 2011–2020; endorsed by the State Council in 2011. http://www.reformdata.org/content/20110517/1727.html accessed on 19 Sept 2014
The Middle Yangtze city-region	Wuhan Qianjiang Xiantao Xianning Jiujiang Jingdezhen Huanggang Nanchang Yingtan Changsha Fuzhou Xiangtan Zhuzhou Xinyu Erzhou Tianmen	The National Development and Reform Commission began the process in 2013 to formulate an integration plan for the city region in the middle Yangtze region. http://finance.sina.com.cn/china/20130725/021916232488.shtml accessed on 14 Sept 2014	Regional development plan of the Wuhan metropolitan area 2013–2020; formulated by the Provincial Development and Reform Commission; endorsed by the National Development and Reform Commission in 2014. http://yueyang.house.sina.com.cn/news/2014-02-13/09363921246.shtml accessed on 14 Sept 2014 Regional plan of the Chang-Zhu-Tan city-region 2008–2020; prepared by the government of Hunan province; endorsed by the State Council in 2010. http://www.chinareform.net/2010/0112/6625.html accessed on 14 Sept 2014	Wuhan city master plan 2010–2020; endorsed by the State Council in 2010. http://bbs.tianya.cn/post-develop-389778-1.shtml accessed on 14 Sept 2014 Nanchang city master plan 2001–2020; endorsed by the State Council in 2012. http://www.gov.cn/zwgk/2012-12/13/content_2289743.htm accessed on 14 Sept 2014Changsha city master plan 2003–2020; endorsed by the State Council in 2014. http://www.gov.cn/zhengce/content/2014-04/18/content_8769.htm accessed on 14 Sept 2014

Note: The table is constructed based on online search of the relevant plans. All sources are listed together with the information provided in each cell
[a]The Chinese phrase that is used in these plan/reports is *chengzhen qun* (group of cities and towns) instead of *chengshi qun* (group of cities)

plans. Except the Pearl River Delta, none of the seven giant city-regions has all the three plans.[8] In the Yangtze River Delta and the Cheng-Yu regions, there is no city-group plan but there are regional framework plans and city master plans. In Zhongyuan city-region, there is no regional framework plan, but a Zhongyuan city-group master plan, and city master plans. In the Jing-Jin-Ji and the Ha-Chang city-regions, there are only city master plans. In the middle Yangtze region there is no regional framework plan, but there are city-group plans for the Wuhan metropolitan region and the Chang-Zhu-Tan city-group, and city master plans. Apparently, the city master plan is the most frequently used plan type in practice. At the city-region level, planning guidance can come from either a regional framework plan or a city-group plan.

Over the past few decades both administrative and market forces have acted on the formation of giant city-regions, creating city-regions stretching beyond one or more provincial administration units. The market was relatively more developed along the coast where the Yangtze and the Pearl River deltas are located. Their pioneering role in China's 'reform and open' experiment has allowed these two delta regions to restructure their economies according to market conditions (e.g., location rent and agglomeration economy) over a city-region space, although public planning continues to exert its influence. For the majority of the new giant city-regions, government planning is probably the sole force behind their existence. This includes central government plans that deal with city-regions with national significance, and provincial level plans that aim at more local benefits but are accepted by the central government for their national roles (Table 9.2).

The next section looks into the plans in the Pearl River Delta, the Chang-Zhu-Tan city-group and Changsha City, with a focus on the ways that economic specialization, infrastructure improvement and institutional integration are dealt with. There is no intention to choose 'typical' or 'representative' examples, though the three are different in plan type, geographical scale, and location type (coastal vs inland). The following discussion offers a glimpse of the complexity of giant city-region planning in China.

Table 9.2 Types of the seven giant city-regions in China

	Within a provincial administrative area	Beyond a single provincial administrative area
Originated from government planning	Zhongyuan	Jing-Jin-Ji
		Ha-Chang
		The Middle Yangtze
		Chang-Yu
Originated from market and government planning	The Pearl River Delta	The Yangtze River Delta

[8] However, the Pearl River Delta *chengshi qun* Plan was made in 2005, long before the endorsement of the NPMFA and the new urbanization policy.

9.5.2 The Framework Plan of Reform and Development in the Pearl River Delta (PRD) 2008–2020

This is an economic plan made by the National Development and Reform Commission (NDRC) and endorsed by the State Council in 2008. The plan was based on a national strategic outlook and future development needs, and targeted to promote the creation of new advantages for the PRD region, and to further enable the region to perform an economic driver role by being a growth catalyst and an example for other regions in the national economy (NDRC 2008). The cities included in the planning area are all in Guangdong Province.

The plan places the PRD region in a global context, and aims to address the problems of poor competitiveness, unsustainability, uneven distribution of production and development, inadequate social services, and backward administrative structure. There are 12 sections in this planning document. It is characteristic that the plan addresses issues in the Chinese economic transition, including the evolving enterprise autonomy from state control, the relationship between central and local government, the effect of an open economy, urban–rural integration, administrative structure, and democracy and law. These are detailed in sections 4, 6, 10 and 11. Other key issues are outlined to cater for the needs of the rapidly developing economy. These include resource and environmental concerns (section 8), and poor social services (section 9). Sections 3, 5, 7 and 12 are specific to the three aspects that this chapter examines.

Section 3 sets up the economic goals for the region, with priority assigned to the development of the producer service industry, modern manufacturing focusing on capital and technology intensive activities as well as high-tech modern equipment industries. The restructuring and upgrading of traditional industries and the development of modern agriculture are also highlighted as priority tasks. Major urban nodes such as Guangzhou and Shenzhen are noted in the location of selected activities, such as finance and it is envisaged that they will become major financial centres. Special zones such as high-tech parks and logistic parks are also noted as spatial nodes in accommodating the planned activities. In addition, various fairs and events, such as the Guangzhou Import and Export Trade Fair and the Shenzhen International Cultural Industry Expo, are planned to expand. Industrial specialization is outlined in section 7, which assigns special industrial activities such as communication equipment, bio-engineering, new materials etc. to particular cities.

The spatial structure is defined using the logic of major functional areas and is outlined in section 7. Guangzhou and Shenzhen are designated as the main urban centres, and the economic activities are organized into three zones (Fig. 9.4). Guangzhou is expected to host producer services and modern manufacturing and to be the leader in technological innovation, cultural guidance, and to be a comprehensive gateway city. Shenzhen is expected to continue its role as an experimental city and also a demonstrator of China's reform and openness policy. It will consolidate its R & D activities and producer service sector, servicing the nation as an economic and innovation centre. The Shenzhen, Dongguan and Huizhou zones will develop

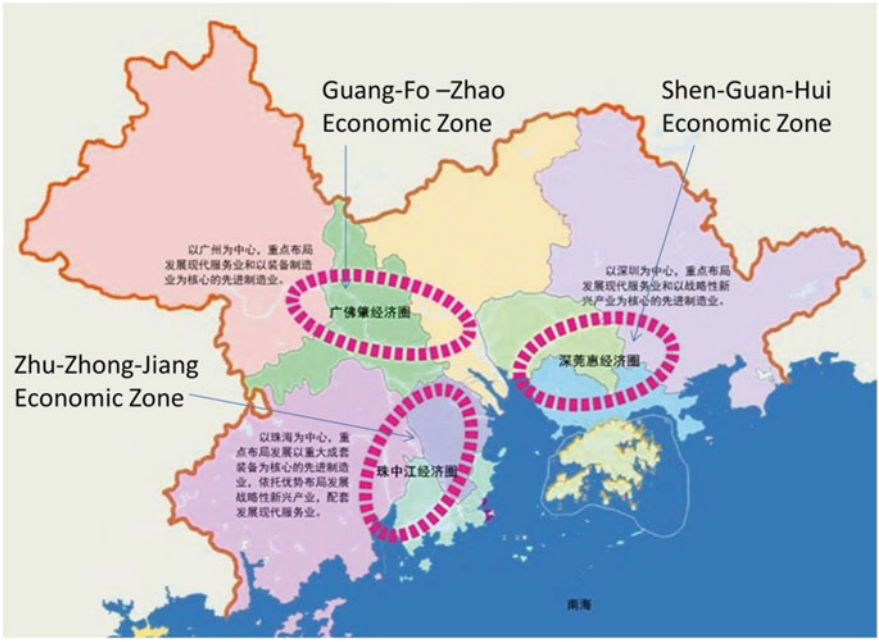


Fig. 9.4 Three economic zones defined in the Pearl River Delta framework plan 2008 (Source: Prepared by author based on http://www.gd.gov.cn/govpub/rdzt/ghgy2/wjzl/201008/t20100816_127493.htm)

modern manufacturing and high tech industries. The Zhuhai, Zhongshan and Jiangmen zones will develop modern manufacturing and producer services.

Section 5 details the plan for regional integration in infrastructure. The principle of building complete networks is noted as a justification for decisions in this area. These include the development of an open and modern comprehensive transportation network, an energy network, a water system and an efficient communication network. For both transportation and water networks, detailed projects are named. These will lead to a regional transport network composed of railway, highway and high-speed main roads.

Institutional aspects of regional integration are mentioned in sections 7 and 12. The statements are high level principles with little detail at the operational level. A top-down coordination process is expected to emerge with the provincial government to play a leading role, with participant cities, sectors, enterprises and the public also involved. The top-down coordination is reemphasized in section 12, stating that the government[9] needs to strengthen its leadership, coordination, supervision and inspection roles.

[9] The plan does not specify which government. In this type of statement it can be interpreted that it applies to all government levels involved.

9.5.3 The Changsha-Zhuzhou-Xiangtan City-Group Plan 2008–2020

The Chang-Zhu-Tan city-group has a long tail in its formation, tracing back to the 1950s when the idea of combining the three cities into one and using Mao Zedong as the name of the new city was proposed (Hunan Provincial Government 2007). There were no official planning efforts toward the city-group proposal until 2002, though discussion of the one-city idea never stopped. In 1997, the Hunan Provincial Government made a decision to promote integration of the three cities, and consequently incorporated this decision into the 10th Five-Year Plan in Hunan. An important step was taken in 2002, when the provincial government invited the China Academy of Urban Planning and Design (CAUPD) – the top institution in plan-making and research in China – to formulate the city-group plan. The CAUPD project team went through a process of field study – analysis – consultation – public exhibition – final approval, with several stages repeated as necessary, and completed the plan successfully at the end of 2004. The plan was consequently endorsed by the Hunan Development and Reform Commission (HDRC) in March 2005 (CAPUD 2005). Two years after the Plan was implemented, the State Council named the Chang-Zhu-Tan city-group as one of the two experimental zones for the development of resource-saving and environment-friendly societies. HDRC updated the CAPUD plan in 2008. With the above planning process, HDRC (2008) proclaimed that the Chang-Zhu-Tan City-Group Plan was China's first experimental case for an integrated regional economy based on initiatives from the provincial government.

The plan lists two rationales. One is that its location, historical efforts in integrated development and the central government policy of developing the central region present an important opportunity for the city-group to evolve into a leading driver of national development. The other is that there is a need to improve what is seen as a backward economy, deteriorated environment, and poor coordination within the city-group. As a reaction to the opportunities and problems, the plan aims to provide a guide for better allocation of resources, formation of an integrated city-group, development of the resource-saving and environment-friendly society, and promotion of leap-forward development in the entire Chang-Zhu-Tan region. Its vision was spelt out to be a national example of the resource-saving and environment-friendly society, a growth-pole in the development of the central region, the provincial leader in new urbanization, new industrialization, and new countryside development, and a modern ecological city-region with a global standard.

The plan covers a 28,000 sq km administrative area for the city-group. A core region was identified to include 8,448 sq km covering the built-up areas of the three main cities, the entire Wangcheng County, and parts of 11 county-level city, districts and counties. By 2020, there will be about 12–13 million people living in the core region. Four functional zones are defined within the core. They are the same as used in NPMFA, i.e., zones where development is prohibited, zones where development is constrained, main development zones, and optimizing zones. A spatial structure with 'one heart-two axes-two belts' was adopted to organize the main industries and

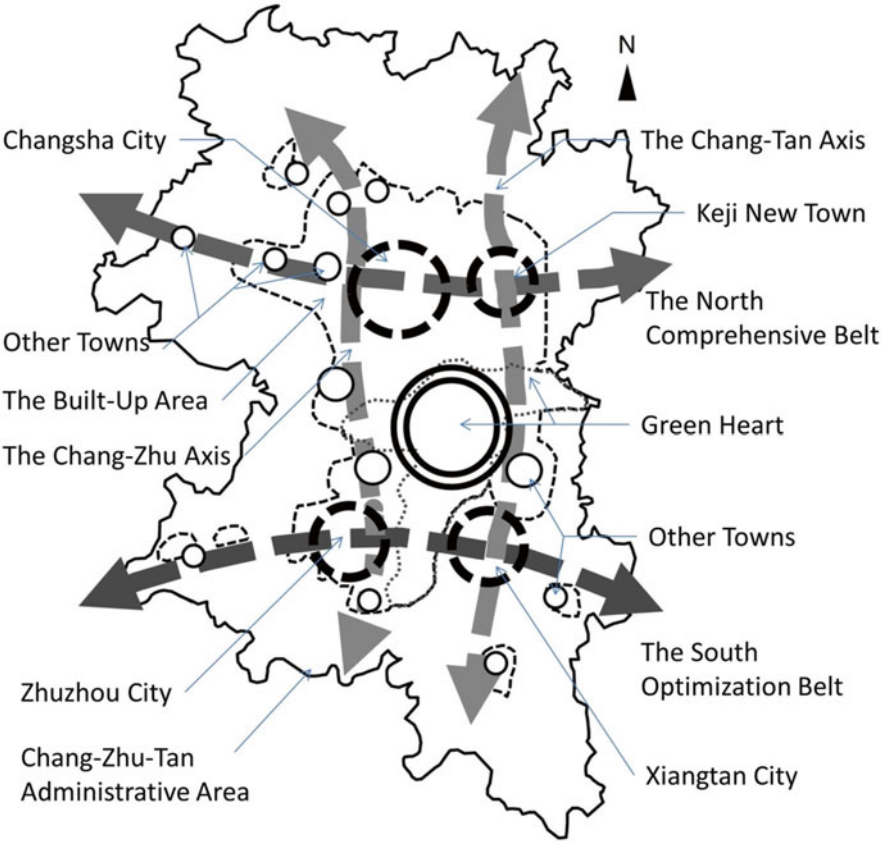


Fig. 9.5 Spatial structure of the Chang-Zhu-Tan city-group plan (Source: Prepared by author, based on Chang-Zhu-Tan city-group plan (Refer to Table 9.1 for reference details))

infrastructure (Fig. 9.5). Major cities in the core are expected to be centres of modern manufacturing, science and culture, logistics and technology innovation to serve the region. They are also local centres by hosting producer services, personal services, parks and recreation functions.

Economic specialization is defined in the plan with subregions organized using convenient geographical orientations such as the north, the west, the east and the south. Each of the subregions is given a list of economic activities as their local focus. Thus, the East subregion is planned to promote the manufacturing of fireworks and porcelain products, Henyang will expand its comprehensive manufacturing base and Loudi will emerge as a base for energy and raw materials. Major towns in these subregions are also planned to accommodate an economic specialty. For example, Liuyang will maintain its traditional fireworks industry and host high-tech industries, while Shaoshan, the hometown of Mao Zedong, will be developed into a tourist base by articulating its revolutionary heritage.

The transportation plan outlines six routes in air, on water and land that connect the city-group with outside regions, and also an internal network linking the various parts within the city-group. The latter includes a new rapid transit system between the central cities, upgrading of the low-level roads, and improvement of connections with the rural areas. River ports and airports are grouped in a hierarchical port system. This is further detailed in the discussion of supporting measures and other infrastructures such as energy, water, sewage, solid waste, flood prevention, communication and irrigation facilities. In the transportation and other infrastructure plans, there are projects specified for implementation in the planning period 2008–2020.

In terms of institutional integration, the plan proposes to set up a provincial-level coordination commission to lead the city-group's development. A principle of 'overall coordination at provincial level, action at municipal level, and application of market mechanisms' is listed. The institutional framework will remain top-down. The plan specifies that the city-group plan should be the base for all lower-level and sectoral plans, and for all policies and administrative rules. Cross-city collaboration and benefit sharing are also advocated, although precise ways that this will be achieved are not specified. Interestingly, the plan proposes to institutionalize public participation in implementation decision-making and monitoring – not, however, the formulation of plans!

9.5.4 Changsha City Master Plan 2003–2020 (2014 Revision)

This plan is the sixth endorsed-plan for Changsha City. Since 2008, the changing circumstances have prompted the city government to consider a revision. Major considerations include that (1) Changsha is expected to play a new role in demonstrating the planned transition towards a resource-saving and environment-friendly city in the Chang-Zhu-Tan city-group; (2) the central government has new expectations for Changsha in the development of China's western region; (3) Changsha reached the level of socioeconomic development that was set up for 2020 12 years earlier, in 2008; and (4) the need for strengthening the legal effectiveness of the master plan. The revision followed administrative procedures including project initiation, public exhibition, municipal, provincial and national endorsement, and final approval by the State Council in April 2014.

The Plan covers 4,960 sq km, about 2,000 sq km larger than the area defined by the 2003 version. In the core area, the planned population for 2020 is planned to be capped at 6.29 million, and the built-up area will be capped at 629 sq km – both more than double the 2003 projections (2.64 million and 253 sq km respectively) (Wang 2014).

The expanded space is organized by a spatial structure characterized by 'one axis, two belts, and multiple centres' (Fig. 9.6). The one axis is defined by the Xiangjiang River; the two belts are in the north and south; the multiple centres include the city core, two sub-zones and five clusters. The urban core is envisioned

Fig. 9.6 Spatial structure of Changsha city (Source: Prepared by author, based on Changsha city master plan (Refer to Table 9.1 for reference details))

to develop into the CBD and accommodate information, finance, business and administration functions. One of the subzones will utilize its existing concentration of universities and research institutions to develop further into a high-tech and modern producer service zone. The other subzone will focus on new industries, high-tech agriculture, aerospace industry, producer service and cultural recreation activities. In each of the five clusters, there will be trade, tourism, logistics, high-end manufacturing, and recreation, among other activities. This is a clearly expressed city plan, but it is not clear how the planned two belts are related to the northern development corridor of the city-region expressed in the Chang-Zhu-Tan city-group plan, and how the Xiangjiang River axis is related to the two north–south corridors in the city-group plan. If the two belts could be understood as a detailed configuration of the northern corridor, the Xiangjiang axis would be an aggregate of the two north–south corridors. This lack of clarity is possibly an outcome of inconsistent use of scale. But it is also possible that the Changsha City Master Plan is not coordinated with the Chang-Zhu-Tan city-group plan, illustrating once again the limited perspective of the city-region in current planning approaches.

The transportation plan focuses on both external and internal connections. A 'one-hour metropolitan field', in effect a spatial unit that would encompass a city-region, was proposed to connect Changsha with places within 100 km radius in less than 1 h commuting time. There is little detail about the 'one-hour metropolitan field', but it is likely that development of railways, river routes and ports, and especially the highway system will be the main transportation infrastructures. In this section, the inter-city rail links are mentioned, together with the construction of the second runway of the airport – these are projects consistent with the Chang-Zhu-Tan city-group plan. Internal transportation planning is focused on the city core. Plans for street upgrades, layout, subway projects, bus services, parking, freight as well as passenger transport aimed to meet the demand for transportation facilities within the city. No specific attention is given to the connection between this internal transportation plan and that for the Chang-Zhu-Tan city-group. For all other infrastructures, such as water, sewer, electricity, gas, communication and sanitation networks and facilities, the plan proposes capacity increases and upgrading. It is not clear how the planned capacities will meet the demand from Changsha, and whether or not the planned capacities will be dealing with the Chang-Zhu-Tan city-group.

There is no discussion of plan implementation. However, there were six suggestions in the 2003 version of the plan: (1) adjusting the administrative area by using annexation and combination so that all administrative units within the planning area will be governed by the Changsha municipal government (which fits the 'scalar amplification' argument by Lord (2009) in describing the local government behaviour toward city-region formation); (2) consolidating planning legislation so that a system of law and regulations will be available to guide plan formulation and control; (3) completing zoning plans and action plans so that majority of the administrative units will have the plan details in 2–3 years; (4) improving the government-driven land banking system; (5) strengthening the planning guidance to urban development by using planned input of land and investment of infrastructure; and (6) publicizing the plan and establish necessary institutions to promote public participation.

9.6 Discussion and Conclusion

As outlined above, the planning approach operates at three scales although only one of the seven giant city-regions possesses all the three plans. City-group plans have been rapidly formulated, driven in particular by provincial governments' ambition to improve their own competitiveness by using smaller city-regions such as Chang-Zhu-Tan and the Wuhan metropolitan area. Urban planners again play a major role in developing this type of plans, as the Chang-Zhu-Tan city group plan demonstrates. Top level coordination plans for large 'urbanizing zones' such as the Pan Bohai Ring region is being made by NDRC. The existing framework plans in the Yangtze and Pearl River deltas are framework plans with typical characteristics of this plan type – they are made by economic planners and deal with macro socioeconomic issues which are supposedly more closely connected to the national five-year

plans.[10] Given the range of giant city-regions, the three plan types will be applicable to the largest city-regions, such as the Pan Bohai Ring city-region, but in other situations (such as the Pearl and the Yangtze River deltas) the framework plans may be combined with the city-group plans. In smaller city-regions such as the Chang-Zhu-Tan city-region, the three plans may be merged into one.[11] This will require reform of the current planning and governance systems in order to improve both sectoral and local government cohesion.

Another issue worth noting is the top-down process. The planners, whether they are of urban or economic origins, have all employed a rational planning model (Bryson 2004) to decide on the economic specialization and development magnitude for places. This is problematic as the suggested economic activities are based on the present technological and economic structure. Given the fast innovation and rapidly changing economy, the planned specialization could be soon obsolete. In that context, efforts to encourage interaction between firms located across the city-region (necessary to develop new products and processes) might be a more important future focus of the plans, rather than simply identifying sites for expected future activities. Further, economic plans decided through a top-down process take away the opportunity for equal competition as local entrepreneurs and governments are restricted from operating beyond the given list of activities. It will only make sense if the plan was made according to resource constraints (e.g., water and energy) which make it unfeasible to develop certain sectors without incurring extraordinary costs (such as pollution control). These are not yet discussed in the plans. Moreover, the lack of participation of local government, business and the general public weakens the sense of ownership and legitimacy of the plans.

Among the three aspects that are critical to the development of an integrated city-region, economic specialization is dealt with in the most detailed manner. However, the effect of economic planning is seriously questionable, as discussed above. The transportation plans are another focus though here attention is generally paid to national network projects running through the city-region – thus the local government looks for a free ride from central investment - or projects that deal with local bottle-necks. An integrated transportation network for the city-region is largely absent in the plans. Institutional integration is the weakest link in the plans, with limited discussion except reinforcing the idea of top-down control and coordination. The new urbanization policy by the central government has spelt out the principles of economic specialization, infrastructure improvement and institutional integration, but these principles are yet to be applied in the various city-region plans.

[10] This does not exclude a strong spatial focus in these types of plans, as the Yangtze River Delta plan exhibits. The planning contents and responsible agencies are hot topic in debate about urban planning reform in China. A dedicated analysis is required for further details.

[11] The discussion here focuses on economic and spatial planning. Land-use planning which is under the purview of MLR is not examined. It is beyond the scope of this paper to discuss the existing issues relating to the economic, land-use and urban planning, as well as proposals for and against the combination of the three plans. Nevertheless, this chapter shows that geographical scale needs to be considered in the analysis.

China's giant city-regions fit into the discourse of urbanization and policy research in at least two ways. First, their development and planning provide new test grounds for the efficiency of polycentric city-region structure. Second, they provide a new spatial focus of urbanization in China, which moves away from the long-standing debate between spatial strategies dominated by large cities and those by small cities and towns. If properly integrated, the giant city-regions will feature a group of large and small urban places which will work in concert to drive the urbanization process.

The designation of giant city-regions as spatio-economic platforms in China's new urbanization has provided excellent opportunities for institutional innovation in planning practice and research. This chapter demonstrates some remarkable gaps in policy debate, city-region definition, and planning practice. Without considerable consolidation and re-direction of the current policies and plans, the potential contribution of the giant city-regions to China's urbanization and the broader economy will not be tapped; even worse, the unstoppable growth of the urban giants will bring harm to the already strained society, resources and the environment.

Acknowledgements Part of the contents of this chapter was presented in the 2014 Global Chinese Real Estate Conference in Nanjing, China. The author is grateful to H. Detlef Kammeier, Kevin B. O'Connor, and Bo Qin for their constructive comments on an earlier draft. Ada Chan helped to prepare Figs. 9.5 and 9.6; Jerome Han helped to prepare Fig. 9.3. Yuanyuan Liu assisted to gather several planning policies and documents from Baidu policy bank. Irene Han proofread the draft. All the remaining errors are the author's.

References

America 2050 (2014) About America 2050. http://www.america2050.org/about.html. Accessed 22 Sept 2014

Bryson JM (2004) Why strategic planning is more important than ever. In: Bryson JM (ed) Strategic planning for public and nonprofit organizations, 3rd edn. Jossey-Bass, San Francisco, pp 2–29

CAUPD (2005) Regional plan of the Chang-Zhu-Tan city-group 2003–2020. Available in Baidu Wenku. http://wenku.baidu.com. Accessed 22 Sept 2014

Cohen RB (1981) The new international division of labor, multinational corporations and urban hierarchy. In: Dear M, Scott AJ (eds) Urbanization and urban planning in capitalist society. Methuen, London, pp 287–315

Enright MJ, Scott EE, Chang KM (2005) Regional powerhouse: the Greater Pearl River Delta and the rise of China. Wiley, London

Feng XY (2014) Building the major functional areas: is this another round of destruction to the property right? http://www.china-review.com/eao.asp?id=26844. Accessed 2 Sept 2014

Friedmann J, Wolff G (1982) World city formation: an agenda for research and action. Int J Urban Reg Res 6:309–344

Gottmann J (1961) Megalopolis: the urbanized Northeastern Seaboard of the United States. MIT Press, Cambridge, MA

Hall P (1966) The world cities. McGraw-Hill, New York

Hall P (2001) Global city regions in the twenty first century. In: Scott A (ed) Global city regions: trends, theory and policy. Oxford University Press, Oxford, pp 59–77

Harrison J (2012) Global city-region governance, ten years on. In: Derudder B, Hoyler M, Taylor PJ, Witlox F (eds) International handbook of globalization and world cities. Edward Elgar, Cheltenham, pp 309–317

HDRC (Hunan Development and Reform Commission) (2008) Regional plan of the Chang-Zhu-Tan city-group 2008–2020. Available in Baidu Wenku. http://wenku.baidu.com. Accessed 22 Sept 2014

Head BW (2008) Assessing network-based collaborations: effectiveness for whom? Public Manag Rev 10(6):733–749

Henton D (2001) Lessons from Silicon Valley: governance in a global city-region. In: Scott A (ed) Global city regions, trends, theory and policy. Oxford University Press, Oxford, pp 391–400

Hunan Provincial Government (2007) Major events about the Chang-Zhu-Tan city-group. www.hunan.gov.cn. Accessed 2 Sept 2014

Jonas A, Ward K (2007) An introduction to a debate on city-regions: new geographies of governance, democracy and social reproduction. Int J Urban Reg Res 31:169–178

Keating M (2001) Governing cities and regions: territorial restructuring in a global age. In: Scott A (ed) Global city regions, trends, theory and policy. Oxford University Press, Oxford, pp 371–390

Lin GCS (2001) Evolving spatial form of urban–rural interaction in the Pearl River Delta, China. Prof Geogr 53:56–70

Longley PA, Goodchild MF, Maguire DJ, Rhind DW (2011) Geographic information systems and science, 3rd edn. Wiley, Danvers

Lord A (2009) Mind the gap. The theory and practice of state rescaling: institutional morphology and the 'new' city-regionalism. Space Polity 13:77–92

Meijers EJ, Burger MJ (2010) Spatial structure and productivity in US metropolitan areas. Environ Plan A 42(6):1383–1402

NDRC (The National Development and Reform Commission) (2008) The framework plan of reform and development for the Pearl River Delta 2008–2020. Document available in Baidu wenku. http://wenku.baidu.com. Accessed 20 Sept 2014

Salet W, Thornley A, Kruekels A (eds) (2003) Metropolitan governance and spatial planning. Spon Press, London

Scott A, Agnew J, Soja E, Storper M (2001) Global city regions. In: Scott A (ed) Global city regions, trends, theory and policy. Oxford University Press, Oxford, pp 11–30

Shen J (2004) Cross-border Urban Governance in Hong Kong: the role of state in a globalizing city-region. Prof Geogr 56(4):530–543

The State Council (2010) National plan of major functional areas. PDF version available at http://chinaup.info/2011/06/964.html. Accessed 28 Aug 2014

The State Council (2014) The national new urbanization plan 2014–2020. PDF version available at http://www.51baogao.cn. Accessed 28 Aug 2014

Thrift N (2002) Performing cultures in the new economy. In: Du Gay P, Pryke M (eds) Cultural economy. Sage, London, pp 201–234

Wang CJ (2014) April 23. Changsha Master Plan revealed: capacity double to the 2003 plan. http://economy.caijing.com.cn/2014-04-23/114125927.html. Accessed 22 Sept 2014

Wu DT, Wu ZZ (2011) On the problems in planning and implementing the main functional zones. Renmin luntan, no 24. http://paper.people.com.cn/rmlt/html/2011-08/15/content_924125.htm?div=−1. Accessed 2 Sept 2014

Xu XP (2014) Speech in press conference for The National New Urbanization Plan 2014–2020. Voice recording available at http://www.scio.gov.cn/xwfbh/xwbfbh/wqfbh/2014/20140319/. Accessed 18 Sept 2014

Zhang KY, Liu Q (2012) Study on challenges and policy problems of implementation of the planning of main functional areas. Xiandai chengshi yanjiu 6:8–11

Zhao SXB, Zhang L (2007) Foreign direct investment and the formation of global city-regions in China. Reg Stud 41(7):979–994

Zhongguo xinwen wang (2014) Commentary on China's new urbanization: new demand for urbanization with unique Chinese characteristics. http://news.dzwww.com/shehuixinwen/201407/t20140716_10661736.htm. Accessed 2 Sept 2014

Chapter 10
Upscaling in Progress: The Reinvention of Urban Planning as an Apparatus of Environmental Governance in China

Calvin King-Lam Chung

Abstract Through the lens of scalar politics, this paper examines how the Chinese national state has attempted to reassert its control over environmental governance through urban planning with successive rounds of scalar reconfiguration since the 1990s. Along with utilizing the traditional regulatory hierarchies, it has forced in a green urbanism agenda in local planning regimes through three forms of upscaling, namely, regionalizing urban development, intensifying intercity competition, and fostering global-local alliances. Not all of these attempts can claim immediate success, and the introduction of some has created new headaches to China's urban advancement and environmental protection.

10.1 Introduction

The contemporary era of China is an era of cities. At the dawn of Deng Xiaoping's reforms in 1978, urban dwellers only comprised 18 % of the nation's population. By 2030, this is estimated to break the 70 % mark. This quantum leap in the size of urbanites reflects the strong gravitational force of Chinese cities as locomotives of the industrialization, globalization and lately tertiarization of the nation's economy. Safeguarding urban environmental sustainability has never been such an imperative to the Chinese leadership, at least for three reasons: to maintain the physical wellbeing of its urban majority, to sustain the growth momentum of its urban-biased economy in the age of environment, and to mitigate socio-political crises linked to environmental problems which have emerged lately to challenge social stability.

Traditionally, environmental management is a policy responsibility of the Ministry of Environmental Protection, which employs a mix of command-and-control and market instruments to force in environmentally-responsible behaviour.

C.K.-L. Chung (✉)
Bartlett School of Planning, University College London, London, UK
e-mail: calvin_chung64@hotmail.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_10

These endeavours have met strong resistance in Chinese cities, where intercity contests for GDP growth have driven them to pursue development at all costs. Under stronger control of entrepreneurial urban governments than their corresponding upper-level agencies after 1978, many municipal urban planning departments not only have played loose on arresting environmentally-damaging land use patterns, but sometimes even actively engaged in legitimizing them. To reverse this trend, the national state of China have made various attempts since the 1990s to guarantee that urban planning in her cities is practised in the interest of the environment, thereby recentralizing environmental governance from the hands of urban governments.

Through the lens of scalar politics, this chapter argues that the initiatives put forward by the Chinese central state to force in a green urbanism agenda in local urban planning represents successive rounds of scalar reconfiguration. Along with utilizing the traditional regulatory hierarchies, the central government has attempted to redefine the interactional dynamics of urban players through at least three other scale-sensitive ways, namely, regionalizing urban development, intensifying intercity competition, and fostering global-local alliances. As this chapter will review, not all of these attempts can claim immediate success, and the introduction of some has created new headaches to China's urban advancement and environmental protection.

10.2 Scale and China's State Reconfiguration

A core idea in geography, scale has gained widespread popularity among contemporary human geographers and other social theorists as an instrument to narrate and analyze the organization and dynamics of social processes. While the spatial science tradition imagines scale as a rigid spatial limit inherent to the operational extent of a socio-environmental phenomenon, the new social or material perspective views it as fluid spatial framing an actor intentionally imposed on such phenomenon.

Given excellent discussion on the social perspective on scale can be found elsewhere (Brenner 2001; Marston et al. 2005), it will suffice here to highlight two of its fundamental caveats. First, the scale at which an issue is problematized is historically contingent (Brenner 2001). A national matter at one historical juncture may no longer be assigned to the national portfolio at the next one, but transferred to another scale, say, local. This redefinition of scale, or rescaling, is undertaken for a social actor to achieve at least one of the following three advantages (Lebel 2006): enlarging benefits or control to an issue, distancing from negative consequences, and creating room for negotiation and consensus-building. Scale is thus also dialectical, with the articulation of one scale both influencing and being influenced by practices at other geographical resolutions (Herod 2011). Socio-environmental and spatial metamorphosis is intertwined with a 'politics of scale', a process of struggle to establish a provisional system of differentiated yet related spatial units embodying the relative power of actors involved (Brenner 2001).

Applying the scalar lens, literature on the socioeconomic development of post-reform China (Ma 2005; Wu 2002; Zhu 2004) have underscored "a downward scalar shift of the state's functions" (Xu and Yeh 2009: 560) following the relegation of policy-making and fiscal power from the national state to urban governments in the 1980s. Cities are portrayed as quasi-autonomous entrepreneurial units where the relevance of the central government and the hierarchy of governance established during the pre-reform era have shrunk considerably. Yet, latest studies (Li and Wu 2012; Xu and Yeh 2009; Xu and Wang 2012) have identified that while power decentralization has indeed occurred, Beijing's leadership has not been all that passive to the territorialization of its urban citadels. Rather, it has been actively rearticulating and consolidating its presence in the Chinese regime of capital accumulation through various strategies to alter the current scales in its political-economic operations. During this process of state reconfiguration, significant attention has been given to reworking the scales of urban planning (Xu and Wang 2012), a municipal function which cities have extensively exploited to boast themselves as more capturing spaces to the free-flowing capital.

Parallel to this vivid picture of economic struggle is the widespread urban disregard of national environmental targets in blind pursuit for economic growth. There have been plentiful accounts (Chen 2009; Economy 2010; Shapiro 2012) on the emasculation of local environmental protection bureaus after the same downscaling of the state, and the consequential dire environmental trends in cities which persistently contradict the high-sounding goal of building a green China at the national level. Urban planning also constitutes part of the discussion as the central state strenuously heralds it as an alternative form of environmental intervention since the 1990s, a change widely seen as China's catching-up with the global vogue of sustainable urbanism. However, considering the aforementioned new context of urban governance (Li and Wu 2012; Xu and Yeh 2009; Xu and Wang 2012), this chapter believes that the recent outpouring of environment-linked urban planning initiatives from Beijing also constitutes part of a full-fledged attempt to reassert the national state in municipal decision-making, and is deeply entrenched in the same complex set of scalar politics.

It is in this context that this chapter argues for a scale-sensitive framework to interpret the changing contours in the environmental roles of China's urban planning system. New environmental discourses and practices introduced by the Chinese central state to urban planning can be understood as successive attempts to displace power and control from one scale to another which, in a nutshell, all aim at re-empowering the national and coercing the urban in the landscape of environmental governance. To illustrate this argument, subsequent sections in this chapter are dedicated to examine some of the most well-known environment-linked urban planning initiatives launched by the national state with an emphasis on how urban planning has been upscaled, how successful they have been, and what impacts, both intended and unintended ones, they have made.

10.3 Central Initiatives to Upscale Urban Planning

10.3.1 A Preamble: The Traditional Regulatory Hierarchies

Traditionally, the Chinese leadership relies on a hierarchical governing structure to enforce its agenda across the country. In the field of urban planning, legislations and policies introduced by the central state are passed down for implementation along a vertical chain of provincial, municipal and sub-municipal urban planning agencies technically supervised by the Ministry of Housing and Urban–rural Development (MOHURD; formerly the Ministry of Construction, MOC). In the post-reform era, formal attempts to force in an environmental awareness to the urban planning sector were first made with the promulgation of the *City Planning Act* (1989), which included the following terms (NPC n.d.):

> Article 14: In the compilation of the plan for a city, attention shall be paid to the protection and improvement of the city's ecological environment, the prevention of pollution and other public hazards, the development of greenery and afforestation, the improvement of the appearance and environmental sanitation of urban areas… and the natural landscape.

These principle terms were translated by the MOC into a set of operational prescriptions for plan-making known as Urban Plan Formulation Measures (1991). The Measures detail the basis of preparation and mandatory components of a city's master plan, the de jure planning instrument formulated by each city to articulate its spatial vision over a two decade horizon. The imperative of environmental protection is emphasized in the Measures, so does the necessity of planning in an environmentally-rational manner. A master plan is expected to contribute to environmental protection through including three mandatory components: a green space system layout for the built-up area, a zoning plan on pollution control, and a list of green spaces requiring conservation and planning regulation.

Nonetheless, promoted by post-reform entrepreneurialism, the customary use of plans in China as construction blueprints had effectively subsumed the environmental interests which the Measures seek to inculcate. The focus of master plans in some cities prepared during the 1990s was still confined to the built-up portion of the urban territory and other parts favourable for creating more production and consumption spaces in the future. Except for certain sites with outstanding natural beauty, urban planner rarely introduced development control on environmental hotspots, but at best avoided zoning them for development. Such non-interventionist approach left the environment highly vulnerable to urban perturbation especially in cities where plan enforcement remained less than effective.

With the enshrinement of sustainable development as China's leading governing discourse, the MOC was pressed to uplift both the capability and commitment of its urban planning sector to safeguard the environment. In response, it rolled out a series of new directives (Table 10.1) to make the environment a principle component of consideration in urban planning. Under their regulations, urban master planning are now mandated to begin with identifying such ecologically-sensitive areas as wetland, water conservation area and agricultural land uses in a city. On this basis,

Table 10.1 National legislations related to urban planning and its environmental requirements

Legislative tier	Approving and promulgating agency	Legislations (year of promulgation)
Law	National People's Congress Standing Committee	Urban and Rural Planning Law (2007)
		Environmental Impact Assessment Law (2003)
		City Planning Act (1989; now defunct)
Administrative ordinance	State Council	Plan Environmental Impact Assessment Ordinance (2009)
		Scenic Spot Ordinance (2006)
		Nature Reserve Ordinance (1994)
		Urban Greening Ordinance (1992)
Department regulation	MOHURD/MOC	Urban Plan Formulation Measures (1991; revised in 2005)
		Urban Blue Line Management Measures (2006)
		Urban Green Line Management Measures (2002)
		Provisional Measures on Urban Plan Compulsory Content (2002)
		Provisional Measures on Near-Term Construction Planning (2002)
		Regulation on Urban Greening Planning Standards (1993)

a city's territory should be trichotomized as 'no-go zone', 'restricted development zone' and 'developable zone'. Dissent spatial strategies should be adopted for each of these zones in urban master plans to minimize damage to the environment in the course of urban development.

Beyond the urban planning system, China's central government has also sought to re-regulate local urban planning practice through reinforcing inter-ministerial checks and balances. In 2003, the Environmental Impact Assessment (EIA) Law was promulgated to make compulsory EIA of major urban spatial plans by specialists supervised by the environmental protection system, which is led by the Ministry of Environmental Protection. The law specifies that EIA for plans should not be an ex-post exercise but performed during the plan-making process, and any plan who fails to include a chapter on its EIA results would not be vetted by its respective approving agency. Later, the Plan Environmental Impact Assessment Ordinance (2009) further empowers the environmental protection system to keep track of the implementation of comments made in EIA for plans. If a plan is found to impose significant adverse impacts on the environment at its implementation, environment protection agencies can recommend plan amendments to their plan approving counterparts.

With these two legal pieces in force, urban planning exercises for the first time have to be externally scrutinized for their commitment to the environment as a core constraining factor of development.

10.3.2 Regionalizing Urban Development

However sophisticated they are, legislations can only govern the general directions of local planning practices. In what ways these directions are translated into detail spatial prescriptions remains predominately influenced by urban officials. In a bid to ensure that no environmental hotspots would be left behind, the upper-level states have made its first upscaling attempt through reviving the pre-reform practice of regional spatial planning to enforce micro-control on local plans with regional plans.

While decision-making of urban governments is bounded by their administrative boundaries, elements and processes in the natural world do not. Apart from upsetting its own communities, environmental problems created by one city almost inevitably diffuse and adversely affect its neighbours, but the former often enough turns a blind eye to its externalities as well as local voices to constraint its damaging behaviour. This is unequivocally the case in post-reform China, whose developmentalist ethos has produced fierce competition among cities as economic citadels for investments and natural resources, thereby fragmenting both the economy and the environment of their respective geographical regions. To combat such localism, a new form of plan, regional strategic plans (RSPs, cf. Xu and Wang 2012), has emerged since the 1990s to rescale the concern of cities from municipal to regional wellbeing. They contrast regional plans in the 1950s, which were vehicles for a rational distribution of settlements and productivity to support the national economy (Wang and Hague 1993). They are also different from the statutory urban system plans required by the urban planning legislations, whose formulation usually subscribes to a normative paradigm focusing on articulating of a perfect spatial form (Wong et al. 2008).

One of the post-reform centres of 'regional renaissance' is the Pearl River Delta (PRD), the earliest test bed of China's market economy experiment. Devolution of economic power and responsibilities to municipalities since the 1980s has driven urban governments in the PRD to pursue city-centric accumulation strategies (Xu 2008). The lack of intercity coordination results in regional economic inefficiency, manifested as overlapping and excessive supply of infrastructure to the PRD as a whole. In an equally obvious manner, the regional environmental system suffers from rapid deterioration, in the form of significant loss of open space to the urban pressure of housing and industrialization. Transcending the municipal administrative boundaries, regional spatial plans are found wanting to rationalize intercity relations and herald synergy among member cities.

When regional strategic planning was first practised in the 1990s, provincial states were the primary driver. In the PRD, RSPs had been independently prepared by the Guangdong Planning Commission and the Guangdong Construction

Commission to reassert the power of the Guangdong government in governing the region (Xu 2008). However, from the 2000s onwards, the central state has also actively intervened such process of regional re-formation. For instance, announced in 2004, the PRD Urban Cluster Coordinated Development Plan (UCCDP) was prepared collaboratively by the Guangdong committee of Chinese Communist Party, the Guangdong government and the MOC. The plan sought to build a 'green PRD' through setting aside 20 % of the PRD's territory to form a system of 'regional open space' for ecological protection. Central to this system are the northern mountain range and the southern coastline which jointly define the PRD's physical geography, plus three other regional mountainous 'green cores'. These components are connected by a network of ecological corridors, such as streams, hills, farm belts and municipal greenbelts. Such system rebuilds the cohesion of the region's ecological patches which has been underplayed by territorial interests of individual cities.

While similar environmental zoning could be found in the 1990s' plans, the UCCDP is distinguished by its proposal for selective recentralization of planning power. Each of its nine policy zones is tied to one of the four levels of a spatial regulation scheme (Xu 2008: 177). As a policy zone with the highest regional importance, the regional open space system is assigned to the level of 'supervisory governance' and is subject to the most stringent top-down control. Its territory and attributes could not be amended by any parties unless with approval from the provincial state. To facilitate its implementation, the UCCDP includes a collection of municipal scale sub-plans to indicate the principle coverage of the regional open space within each city. Urban planning departments of all PRD cities are expected to enforce their respective sub-plan through introducing development control to the designated open space and rerouting their development.

As regional strategic planning becomes more widely employed in China, its effectiveness of forcing in a regional environmental agenda in cities is under siege. Until now, RSPs are not institutionalized instruments of governance. The absence of legislations related to regional strategic planning means urban government can evade from the responsibility of following RSPs in their urban planning exercises at little cost, leaving RSPs as toothless tigers (Li and Wu 2013). The UCCDP was a rare exception to this trend with the enactment of the PRD Urban Cluster Coordinated Development Plan Ordinance. Under the Ordinance, municipal governments are obliged to formulate plans to detail the coverage of regional open space within their territories. Since regional open space is under supervisory governance, such plans have to be submitted to the Guangdong government for its approval. Having institutionalized its relationship with local urban plans, the UCCDP is equipped with greater capabilities to upscale urban planning decisions for the regional environment.

Another worry relates to the ministerial scramble of leadership in regional spatial planning. Unlike the preparation of urban master plans, there are no provisions on what agencies are competent RSP-makers and how RSPs should be prepared. Apart from the MOHURD, which is entitled to physical planning at all jurisdiction levels, other central ministries have also collaborated with the provincial states at variable

extents in regional spatial planning. In the PRD, they include the State Environmental Protection Administration (SEPA, now the Ministry of Environmental Protection, MEP), the Ministry of Land and Resource (MLR, responsible for land resource management) and, most recently, the National Development and Reform Commission (NDRC, China's central economic planning agency). With different political assignments, these ministries, while all rhetorically agreeing to prioritize the environment, offer rather different visions on how the new spatial balance in the PRD should be achieved (Table 10.2). As all these plans claim a say on urban planning, confusion over the regional future among the urban officials may result in none of these RSPs being fully adopted by cities in their space formation. The sheer intricacy between the central ministries in regional spatial planning ought to be clarified and formalized to assure policy consistency across plans and prevent any environmental loophole.

10.3.3 Intensifying Intercity Competition

In terms of the governance approach they represent, legislations and RSPs are similar. They are both 'sticks' to prevent urban planning from infringing the environment under the conventional postulate of effective top-down enforcement. Cities are posited as rebellious objects incapable of leading an environmentally friendly trajectory without coercive measures from the national state. However, adapting to the highly decentralized and economic-driven urban context, the Chinese central government has enriched its policy toolbox for sustainable urban planning with 'carrots' – policy instruments which carry benefits desired by urban governments upon their implementation. Cities are conceptualized in a more optimistic manner, as economic animals which can spontaneously recognize the priority of environmental protection in urban planning if they are given the right incentives.

One of the most well-known forms of 'carrot' from the national state is model city campaign, a reinvention from the pre-reform campaign strategy of 'model-making'. Under the reign of Mao Zedong, territorial units and individuals could be designated by the central government as models to articulate the direction of nationwide socio-political changes (Shapiro 2001). For instance, settlements built during the Cultural Revolution were expected to emulate spatial layouts of Dazhai commune and Daqing oil city after the central state identified them as embodiments of communist revolutionary ideals. Given any deviation from the models could be smeared as anti-revolutionary, dogmatic copying of the models without regards of their suitability to local physical setting occurred. It was reported that, in imitating the Daqing model, an oil field town had attempted (and in fact succeeded) in opening up new farmlands along the frontier of Gobi Desert (Koshizawa 1978). 'Model-making' was thus a costly exchange of environmental wellbeing with political authority (Shapiro 2001).

Nonetheless, when the MOC pursued model-making again in 1992, it was aimed at the very contrary. Their creation, the National Garden City (NGC) campaign, was to honour cities whose conscious effort in planning for high environmental

Table 10.2 Major central-provincial collaborations in regional strategic planning of the PRD

Plan	Collaborating ministry	Spatial zoning for the PRD	Core ecological components of the PRD
PRD Urban Cluster Coordinated Development Plan (UCCDP) (2004–2020)	MOC	Nine policy zones under four levels of spatial regulation: *Supervisory governance:* Guangdong government (GG) claims complete control; regional open space is under this level *Regulative governance:* GG sets out specific requirements *Coordinative governance:* GG and municipal governments collaborate in plan-making *Conductive governance:* GG plays an advisory role	A ring of mountains A coastal belt 3 regional green cores A three-tier ecological corridor network
PRD Environmental Protection Plan (2004)	SEPA	Three zones of different development intensities: *Strictly-protected zone:* areas of high ecological importance and sensitivity which require strict conservation *Regulative development zone:* areas requiring ecological protection but can accommodate non-polluting development *Directive development zone:* areas for agriculture and urban development	18 nodes 16 corridors 6 cores from 6 regions Supported by a three-tier ecological function zoning scheme
National Planning at Guangdong (2006)	MLR	Two functional regions: *Development-upgrading region:* areas around the estuary where high-end development should concentrate; requires ecological restoration *Development-optimizing region:* outer ring of the PRD accommodating development opportunities overflown from the estuary; should strengthen agricultural development and ecological protection	Not detailed; the plan however includes a layout of 'ecological leisure space' which resembles the ecological structure articulated in *PRD UCCDP*
PRD Urban–rural Integration Plan (2009–2020)	NDRC[a]	Only proposed an outline of regional spatial structure; reference made to the zoning in PRD Environmental Protection Plan (2004)	A circumferential ecological barrier A ecological ring for bay area 3 metropolitan green cores 6 greenways Rivers and streams in the region

Note: [a]The *PRD Urban-rural Integration Plan* was prepared by the Guangdong Development and Reform Commission for the spatial implementation of the NDRC's *Outline of the PRD Development and Reform Plan* (2008–2020)

Table 10.3 Initial point-based assessment scheme of National Garden City, 2000 (MOC 2000)

Aspect	Examples of assessment areas	Points
Organizational effort	Set up specialized agency for urban greening	12
	Expenditure on urban greenery	
	Lessons can be learnt by other cities	
Regulatory effort	Careful formulation and implementation of urban green space plan	10
	Promote plating of native species and diversity of flora	
Landscape protection	Natural landscape protection	10
	Heritage protection	
	Rationality of urban spatial structure	
	Protection of old and valuable trees	
Greening effort	Municipal green coverage and green space provision	30
	Greening of roads, residential areas and work units	
	Promotion of vertical and rooftop greening	
Garden-building effort	Provision and distribution of public green space	10
	Protection of traditional gardens	
	Planting in parks and squares	
Ecological environment	Air and water quality compliance	14
	Wetland protection	
	Popularization of green architecture	
Municipal facilities	Coverage of gas and water provision	14
	Public transport vehicles per 10,000 inhabitants	
	Proportion of commuting served by public transport	
	Total	100

quality should be followed by others in China. At the beginning, the MOC followed the old way, granting the title to a city as they saw it fit. However, since 2000, NGC became a title which cities can compete for based on a point-based assessment scheme (Table 10.3). Cities wishing to become a NGC should apply to the MOC, which would assess their fulfilment of various criteria set out in the scheme. Apart from re-examining their performance on a five-yearly basis, the MOC seeks to keep the NGC winners on their toes by creating a higher-level award, National Ecological Garden City (NEGC), in 2004. Currently with an elaborative set of 91 criteria, NEGC extends its requirements from the NGC's purview of pollution control and green space expansion to sustainable resource use, ecological security and climate change responses.

The introduction of competitive model city titles reflects the central state's attempt to better put forward their environmental agenda in the context of corporatist local states. NGC, NEGC and many other national model city titles have been

associated with plentiful economic benefits (Bai 2007; Hoffman 2009, 2011) which spur cities to take a proactive approach to environmental issues. To begin with, urban governments view these titles as effective place marketing tools. The high-profile announcement of new members to the club of NGC by the central government represents a vote of confidence to winners' environmental achievements. To cities notorious for pollution, acquiring such title epitomizes a golden opportunity to rebuild their environmental image. These reputational gains are translated into more tangible benefits when cities succeed with their title in attracting more investors, professionals and tourists. Meanwhile, the environment can secure a higher priority in the making of urban plans as environmental benchmarks in the assessment scheme become yardsticks of urban planning exercises undertaken by candidate cities. In a nutshell, this coupling of environmental actions and economic competitiveness make it more convincing for urban governments as entrepreneurs to take the environment more serious.

Enthusiasm for cities to acquire such title must also be understood from the political interests it entails. In China, local governors are well-known for their keen interest in GDP-ism because their promotion to higher positions is de facto dictated by the economic performance of their respective territorial units (Ran 2013). Conversely, they downplay the importance of meeting environmental targets, not only because such targets are impediments to the development imperative, but also because any environmental noncompliance constitutes only a minor demerit to their cadre report card. However, by binding environmental targets with economic interests, NGC offers the necessary political initiatives to stimulate local governors' effort in developing their cities with a good dose of environmental awareness. As environmental sustainability is rising to a par with economic objectives in the national agenda, earning one's city a model title becomes a strategy for local governors to score higher in their competition for career advancement.

Yet, there have been doubts on how far these models can actually steer a paradigm shift in China's approach of urbanization. While it is rather plain sailing to carve out new green refuges on the drawing board, it has been daunting to translate them into realities and realize their ecological utility. In the NGC reassessment in 2010, the MOHURD found that some cities transplanted mature trees in larger quantities from distant forests to vegetate their barren land. Others made the same attempt to replace original plantations with flora of higher biological value or exoticness. Apart from creating heavy financial burden to local governments, such attempt is equally costly in ecological terms, for it damages the ecosystem of where the transplanted floras were uprooted. Chou Baoxing (2009), the former deputy minister of the MOHURD, also noted that cities have been too obsessive with meeting the target such that they may demolish buildings to make room for tree-planting. In other cities, the model scheme failed to address the chronic deprivation of greenery in inner city areas because new green spaces have been created in the outer city where more room is available.

10.3.4 Fostering Global-Local Alliances

Taking its endeavour to reregulate environmental discourses in urban planning to the extreme, the national state has spurred the construction of 'model alternatives' ab initio to palpably exhibit the ecological paradigm underlying the nation's new trajectory of urbanization. Urban development is expected to be undertaken in them in compliance with ecological principles so that their inhabitants will live in harmony with the environment. Depending on their geographical features and development objectives, such initiatives have been variedly named as 'eco-city', 'eco-island', 'low-carbon city' and the like in their respective development schemes, but for simplicity this chapter would collectively refer them as eco-cities. As of 2013, such urban planning laboratories have proliferated to beyond 200 across the country (Pow and Neo 2013a).

One underpinning feature among the forerunning eco-cities, and thus the tone setter of the current wave of change, is their embeddedness in the global arena. Under the auspice of the central government, transnational cooperation has emerged as an increasingly popular and privileged way of their development (Fig. 10.1), and planning of these eco-cities have been globalized in terms of both their participating parties and discourses. The role of the central government in steering such rescaling varies from case to case, which can be generalized three forms: endorsing local state engagement of overseas parties, engaging in bilateral agreements with another national state on transactional collaboration, and setting up inter-governmental joint ventures (de Jong et al. 2013). But regardless of its level of commitment, the central government regain a greater say over urban planning affairs in its capacity as the gatekeeper of local-global interactions.

The presence of a 'triple coincidence of wants' explains why the transnationalization of Chinese eco-cities has been so well-received at all fronts. To the central state in Beijing, transnational collaboration secures China's access to overseas successful lessons in making their cities more sustainable and saves the tremendous cost in developing solutions from scratch. New ideas and technologies on eco-urbanism are rapidly imported through the direct involvement of overseas institutions in eco-city planning (de Jong 2013). To foreign interests, having a stake in Chinese eco-cities paves way for them to secure a firm footing in the booming market in China. For urban planning firms in particular, the Chinese state offers them with immense spatial and institutional flexibility to translate their ambitious conceptualizations into brick and mortar. And to urban governments, needless to say, eco-cities as prestigious global projects are carrots well meeting their appetite of internationalization. To cite one case, Chinese cities had contested for the right to cooperate with Singapore after the city-state decided to build an eco-city with China (Pow and Neo 2013b).

While all signs are propitious for China to set sail on a greener pathway from the eco-cities, opinions are critical about the effectiveness of the whole campaign to 'gre-enlighten' Chinese urbanism. Suspicions have mounted over the ultimate objective of building eco-cities. The prominence of real estate components in their plans (Cheng and Sheppard 2013; Pow and Neo 2013b) has been cited as evidence

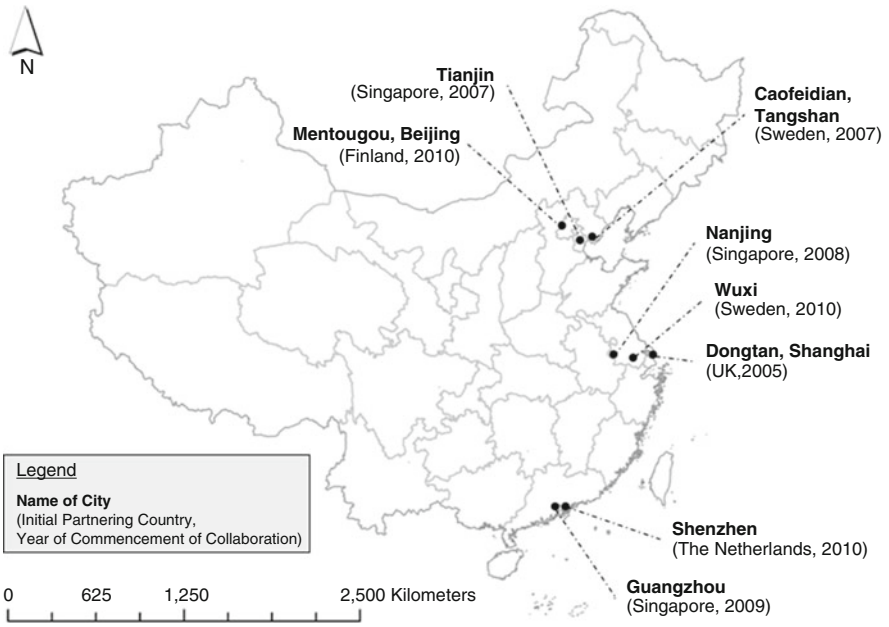


Fig. 10.1 Major Sino-foreign eco-city initiatives in China

that Chinese eco-cities are crafted as new vehicles of land-based urban economics appealing to the discourse of sustainability. Expensive tags of residential units fuel further criticism that these project are producing "premium ecological enclaves" (Hodson and Marvin 2010: 298) affordable only to the wealthy minority. The impossibility of the temporary workers who built the flagship eco-city in Tianjin to afford a flat in it is but an obvious example (Caprotti 2014). However, before concluding that eco-city projects are purely speculative, one needs to consider the unique way they come into being. Resembling how Ebenezer Howard's garden city utopia was realized in Letchworth, Chinese eco-cities are built from scratch within a few years rather than being allowed to develop organically over time. The widespread application of ecological technologies means that their buildings cost 30–50 % more than ordinary ones (Shen and Wu 2012). If eco-cities have to be developed without purely relying on state subsidies, it is rather likely for them to transfer some of the financial burden to their inhabitants.

The concern of financial viability here leads us to an interrelated question – whether current eco-cities can deliver their trigger down effect to the urban sphere. Obvious enough, prohibitive cost of building eco-cities would prevent their rapid replication in China, but this is not an ineradicable barrier in a nation with track record for the central government to heavily fund local infrastructure projects for a dual boast in social progress and economic growth. To think a step backward, one can also explore whether we have less costly options to fix urban sustainability. What is though more pertinent is the determination of the existing eco-cities to break their functional isolation. So far, no concrete action plans are observed to har-

ness them as points of departure for spatial transformation on a greater scale. This lack of a radiating agenda needs to be promptly addressed if these eco-cities were not to remain "pearls in the sea of degrading urban environments" (Wong 2011:131) in the long run.

Last but not least, the current globalization of eco-city planning is at risk of decontextualization. Despite their technical superiority, foreign planning practitioners often face a steep learning curve in China (Wu 2012). In the Sino-British Dongtan project, the British-led planning brigade claimed that they would give due respect to indigenous historical peculiarities in their development plan. However, when it boiled down to reality, socio-cultural baseline studies for the project were performed by foreigners who received no formal training about Chinese contexts (Held 2009). In other cases, even the local governments involved are also responsible for socially unrealistic plans, for they superimpose their views on the social realities over what is really ongoing among the affected (May 2011). Unlike concept plans for Chinese cities, which are also commonly formulated by foreign design firms, eco-city plans serve more than visionary statements. As blueprints for implementation, they should be drafted in conscious of the people and space being planned.

10.4 Concluding Remarks

As the above reflective account shows, the Chinese national state is clearly on an uphill battle to reinvent urban planning as an apparatus of environmental governance through various upscaling attempts to redefine the environment, and related urban planning exercise, as a regional, national or global matter. One can affirm that the status of the environment, rhetorically at least, has been raised in local urban planning regimes as they are introduced to a wide variety of hard and soft constraints. One can also affirm that China's central government has created for itself more channels, both institutionalized and ad hoc ones, to inject its escalating environmental commitment to the municipal urban planning departments, which hold the key to realize visions from above in the urban space. However, the introduction of these initiatives has entailed side-effects to the broader social, economic, political and, to our greatest concern, environmental terrains across which urban planning operate. Dealing with these consequences necessitates revision of the operational details of these initiatives, as well as the institutional setup with which they are crisscrossed.

From the range of initiatives employed, one can also notice the transformation of central-local relationship from conflictive to collaborative on the fields of urban planning and environmental governance. While the central state does not give up on governing the cities through hierarchical coercion, taking the form of legislations and RSPs, it has also explored the use of implicit economic incentives, including the NGC/NEGC campaign and Sino-foreign eco-city projects, to stimulate bottom-up rerouting to the favour of the national environmental agenda. An overall conclusion

on their impacts would be a cautiously optimistic one. On regionalizing urban development, regional spatial planning is a productive attempt to safeguard the environment against localism, but the law of diminishing returns may set in when multiple regional visions co-exist for a city to follow. On intensifying intercity competition, model city campaigns helps translate the competitive mindset of cities into a catalyst of planning the environmentally-sensitive way, but sometimes it may also push local leaders too far to damage the environment instead. On fostering global-local alliances, Sino-foreign eco-city projects may seem all but cashing in the environment, but the transfer of policies and technologies involved in this coupling of entrepreneurialism and environmentalism may stimulate some serious, yet not necessarily perfect attempts to remodel China's urbanization.

China is not alone in reworking the scales for the environment. Similar attempts have also been widely observed in European and North American nations, examined through the lens of multilevel environmental governance (Weibust and Meadowcroft 2014). Despite obvious differences in their political-economic contexts, these nations have all engaged in continuous negotiation between the central and the local, in which decentralization and hierarchicalization have coexisted. This reflects a very fundamental principle of good environmental governance: that is, the universality of environmental problems requires engagement of all parties to work in a coordinated manner for the environment so that no space would be left out for intervention.

Meanwhile, as reregulation continues on various scales by the central state, and as the urban continues to be the favoured scale of development, further inquiries on the scalar politics in China remains much needed for a more nuanced understanding of the nation's momentum towards flourishing in a sincerely green manner. Urban planning in China needs to be viewed as a terrain not only contested for economic benefits, but also increasingly for environmental sustainability.

Acknowledgements I would like to thank the Research Grants Council of Hong Kong (Project Number CUHK457711) for funding this research, and an anonymous reviewer for the useful comments.

References

Bai X (2007) Solar powered city. In: Starke L (ed) 2007 state of the world: our urban future. Worldwatch Institute, Washington, DC, pp 108–109

Brenner N (2001) The limits to scale? Methodological reflections on scalar structuration. Prog Hum Geogr 25(4):591–614

Caprotti F (2014) Eco-urbanism and the eco-city, or, denying the right to the city. Antipode 46(5):1285–1303

Chen G (2009) Politics of China's environmental protection: problems and progress. World Scientific Publishing, Singapore

Cheng ICC, Sheppard E (2013) China's eco-cities as variegated urban sustainability: Dongtan Eco-city and Chongming Eco-Island. J Urban Technol 20(1):57–75

Chou B (2009) Some mistakes and correction ways in garden city construction. Chin Landsc Arch 2009 issue: 8–11 (in Chinese)
de Jong M (2013) China's art of institutional Bricolage: selectiveness and gradualism in the policy transfer style of a nation. Polic Soc 32(2):89–101
de Jong M, Yu C, Chen X et al (2013) Developing robust organizational frameworks for Sino-foreign eco-cities: comparing Sino-Dutch Shenzhen low carbon city with other initiatives. J Clean Prod 57:209–220
Economy EC (2010) The river runs black: the environmental challenge to China's future, 2nd edn. Cornell University Press, Ithaca
Held M (2009) Sustainable urban development and the Chinese eco-city: concepts, strategies, policies and assessments. Fridtjof Nansen Institute, Lysaker
Herod A (2011) Scale. Routledge, Oxon
Hodson M, Marvin S (2010) Urbanism in the anthropocene: ecological urbanism or premium ecological enclaves? City: analysis of urban trends, culture, theory, policy. Action 14(3):298–313
Hoffman L (2009) Governmental rationalities of environmental city-building in contemporary China. In: Jeffreys E (ed) China's governmentalities: governing change, changing government. Routledge, Oxon, pp 107–124
Hoffman L (2011) Urban modeling and contemporary technologies of city-building in China: the production of regimes of green urbanisms. In: Roy A, Ong A (eds) Worlding cities: Asian experiments and the art of being global. Wiley-Blackwell, Oxford, pp 55–76
Koshizawa A (1978) China's urban planning: toward development without urbanization. Dev Econ 16(1):3–33
Lebel L (2006) The politics of scale in environmental assessments. In: Reid WV, Berkes F, Wilbanks T et al (eds) Bridging scales and knowledge systems: concepts and applications in ecosystem assessment. World Resources Institute, Washington, DC, pp 37–58
Li Y, Wu F (2012) The transformation of regional governance in China: the rescaling of statehood. Prog Plan 78(2):55–99
Li Y, Wu F (2013) The emergence of centrally initiated regional plan in China: a case study of Yangtze River Delta Regional Plan. Habitat Int 39:137–147
Ma LJC (2005) Urban administrative restructuring, changing scale relations and local economic development in China. Polit Geogr 24(4):477–497
Marston SA, Jones PJ III, Woodward K (2005) Human geography without scale. Trans Inst Br Geogr 30(4):416–432
May S (2011) Ecological urbanization: calculating value in an age of global climate change. In: Roy A, Ong A (eds) Worlding cities: Asian experiments and the art of being global. Wiley-Blackwell, Oxford, pp 98–126
MOC (Ministry of Construction) (2000) Notice on the promulgation of 'Implementation Proposal of Establishing National Garden City' and 'National Garden City Standards'. http://www.mohurd.gov.cn/zcfg/jsbwj_0/jsbwjcsjs/200611/t20061101_156922.html. Accessed 19 Apr 2014 (in Chinese)
NPC (National People's Congress) (n.d.) City planning law. http://www.npc.gov.cn/englishnpc/Law/2007-12/12/content_1383918.htm. Accessed 19 Apr 2014
Pow CP, Neo H (2013a) Eco-cities need to be based around communities, not technology. https://www.chinadialogue.net/article/show/single/en/6427-Eco-cities-need-to-be-based-around-communities-not-technology. Accessed 19 Apr 2014
Pow CP, Neo H (2013b) Seeing red over green: contesting urban sustainabilities in China. Urban Stud 50(11):2256–2274
Ran R (2013) Perverse incentive structure and policy implementation gap in China's local environmental politics. J Environ Policy Plan 15(1):17–39
Shapiro J (2001) Mao's war against nature: politics and the environment in revolutionary China. Cambridge University Press, Cambridge
Shapiro J (2012) China's environmental challenges. Polity Press, Cambridge

Shen J, Wu F (2012) Restless urban landscapes in China: a case study of three projects in Shanghai. J Urban Aff 34(3):255–277
Wang YP, Hague C (1993) Territorial planning in China: a new regional approach. Reg Stud 27:561–573
Weibust I, Meadowcroft J (eds) (2014) Multilevel environmental governance: managing water and climate change in Europe and North America. Edward Elgar, Cheltenham
Wong TC (2011) Eco-cities in China: pearls in the sea of degrading urban environments? In: Wong TC, Yuen B (eds) Eco-city planning: policies, practice and design. Springer, Dordrecht, pp 131–150
Wong C, Qian H, Zhou K (2008) In search of regional planning in China: the case of Jiangsu and the Yangtze Delta. Town Plan Rev 79(2–3):295–329
Wu F (2002) China's changing urban governance in the transition towards a more market-oriented economy. Urban Stud 39(7):1071–1093
Wu F (2012) China's eco-cities. Geoforum 43(2):169–171
Xu J (2008) Governing city-regions in China: theoretical issues and perspectives for regional strategic planning. Town Plan Rev 79(2–3):157–186
Xu J, Wang JJ (2012) Reassembling the state in urban China. Asia Pac Viewp 53(1):7–20
Xu J, Yeh A (2009) Decoding urban land governance: state reconstruction in contemporary Chinese cities. Urban Stud 46(3):559–581
Zhu J (2004) Local developmental state and order in China's urban development during transition. Int J Urban Reg Res 28(2):424–447

Chapter 11
Analyzing Eco-cities by Comparing European and Chinese Experiences

Meine Pieter van Dijk

Abstract Many cities have taken initiatives to become more sustainable or ecological cities. However, no definition of eco-city is generally accepted and few efforts have been made to actually measure achievements on a number of critical dimensions such as ecological policies, water management, energy saving, infrastructure policies, integrated urban management. In this chapter, eight Chinese and two European eco-cities are compared to determine the differences and common challenges faced in the transition process. The analysis of the Chinese eco-cities shows that their approach is often not integrated nor based on a strategic vision. Their study of eco-cities often focuses on only one or two sectoral issues. Integrated approach could indeed be incorporated in the framework of urban management but it is essential to involve stakeholders at different levels in the implementation process. During this process, their initiatives should be facilitated in line with the eco-city objectives. Based on data collected from eight Chinese eco-cities and two European eco-cities it is concluded that the eco initiatives are often very sectoral and not based on an integrated strategy. Such a strategy could be part of an urban management approach, which would try to involve the relevant stakeholders.

11.1 Introduction: What Are Eco-cities?

The world needs greener cities. We should promote eco-friendly remanufacturing methods and curb inefficient flow of goods and services (van Dijk 2014). In the eco-city of the future we want to recover the value of end-of-life products and increase the use of recycled products. European and Chinese cities, aware of their environmental challenges, have introduced policies and programs to deal differently with issues like water management, climate change and pollution. China is the only

M.P. van Dijk (✉)
The Institute of Social Studies (ISS) and the Institute of Housing and Urban Development Studies (IHS), Erasmus University Rotterdam, Rotterdam, The Netherlands
e-mail: mpvandijk@iss.nl

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_11

country in the world which has changed from a policy restricting urbanization to a policy encouraging urbanization. This type of urbanization is new according to Lan (2014: 34–36) because it focuses on people's rights, because "the plan emphasizes the integrated development of new-type urbanization, new-type industrialization, information technology (IT) application and agricultural modernization". Also, it considers the notion of urban clusters while taking cultural continuity and ecological factors into account. As such this integrated development of new-type urbanization is contrasted with the city level approaches, which often focus on one single objective to be achieved.

Cities increasingly want to become more ecologically secure and label themselves as an 'eco-city'. Approaches to incorporate eco-friendly measures include: closing water cycle circuit to lose no water; stimulating energy savings and reducing the greenhouse gas emissions; reducing waste and putting in place integrated waste management; developing integrated transport policies, etc. It is a challenge to achieve these goals within the urban management framework with responsibility in formulating and implementing urban plans. In this chapter, we will analyse and evaluate to what extent the Chinese authorities have developed liveable, productive and inclusive "eco-cities" in their own way. In parallel with this investigation, some key questions are addressed: what are the key urban policies that could contribute towards building eco-cities?; and which lessons can we draw from successful examples of eco-cities or neighbourhoods and inform the rapidly urbanizing cities in developing countries to use them as a model?

This study uses evidence collected from eight Chinese eco-cities using different indicators to determine to what extent these cities follow a sectoral or an Eco^{2}cities approach. The Eco^{2}Cities initiative launched by the World Bank intends to help cities in developing countries to achieve greater ecological and economic sustainability, based on a strategy or plan. The analysis in this chapter shows that the approach of Chinese cities is often not based on a strategic vision at the city level but involves activities at the neighbourhood, building design or household level. In practice, the Chinese focus of constructing eco-cities is often on one or two sectoral issues, managing separately the water cycle issue from pollution abatement and energy saving issue, without an integrated approach. Beijing however is an exception showing a good example of an integrated approach in managing its water management issue.

The chapter starts with the discussion of defining what eco-cities are and comparing a sectorial approach from the World Bank promoting a strategic Eco^{2}city approach. Subsequently, the major dimensions of eco-city policies are identified and analyzed. After addressing the methodology, it is followed by a literature review on water and waste flows, ecological issues, energy flows and flows of people and goods, which lays the basis in judging how ten selected cities in China and Europe perform. Towards the end, the chapter briefly presents with evidence that in practice many cities have not followed the strategy recommended by the World Bank, the Eco^{2}city strategic planning approach.

11.2 Eco-cities to Solve Environmental and Other Issues

Planning the city of the future requires a visionary debate. The decision-making process is not a straight forward computer-driven process. What exactly are eco-dimensions of eco-cities? One may note that it is a very idealistic, sectoral, or issue-based study of ecological cities in addition to a more strategic and integrative approaches (Bhatnagar 2009). For example, some norms and values play a role when a distributional and other issues are encountered, such as: should poorer people also enjoy more green environments (Sen 2009)? Should investments be made in improving water management (Howe et al. 2012), in lowering energy consumption or for changing the source of energy (Glaeser and Kahn 2010), or should the emphasis be on improving urban competitiveness (van Dijk 2006)?

All cities face environmental challenges and have to introduce policies and programs to deal with the consequences of climate change. Often they want to become more sustainable ecological cities, commonly termed eco-cities.[1] In this contribution, we will look at the major policies which make cities more eco-friendly and discuss the eco^{2}cities approach promoted by the World Bank (Suzuki et al. 2010) and a more sectoral approach where different stakeholders play a role at the city, the neighborhood, the building design and the household levels. Many cities claim to be ecological cities, but given that there is no generally accepted single definition of ecological cities, these claims are all parts of the overall picture. For example, many definitions have been suggested for eco-cities (see Bhatnagar 2009). Some authors have put their own subjective view on what is important in their definitions. Kenworthy (2006: 70) emphasizes the role of transport. Rombout (2009) stresses the importance of greening cities (he talks about garden or lobe cities) whereas Nepal (2009) stresses an environment-culture parity in urban development planning.

Wong and Yuen (2011: 3) note that the eco-city concept "suggests an ecological approach to urban design, management and towards a new lifestyle". The eco-cities movement advocates sustainable urban development,[2] or cities which function in harmony with their natural environment. Ten dimensions for sustainable city development in the Third World have been suggested by Kenworthy (2006). His dimensions for sustainable city development in the Third World give a good understanding of the issues at stake. In his terms, a sustainable city is characterized by a:

> compact, mixed urban form that protects the natural environment, biodiversity and food-producing areas … the natural environment permeates the city's spaces and embraces the city, while the city and its hinterland provide a major proportion of its food needs. (Kenworthy 2006: 68)

As a transport economist, Kenworthy pays little attention to water and sanitation and to the challenge of integrating the approaches of different disciplines,

[1] If measured in the number of conferences, articles and books on this topic, there is a real eco-city movement.

[2] Sustainable development is defined as development that meets the needs of the present generation without compromising the needs of future generations (Brundland 1987).

like the water expertise, the energy expertise and the approaches taken by environmentalists.

We suggest considering five main policy dimensions for moving towards a more ecological city. The approach can be contrasted with the Eco²cities approach of Suzuki et al. (2010). Their idea is to overcome the assumed contradiction between economic and ecological development. Moffatt et al. (2012) provide an overview of the Eco²cities approach in that cities should be primarily ecological cities as well as economic cities. The approach is based on five principles of Suzuki et al. (2010), summarized as follows:

1. A city based approach;
2. An expanded platform for collaborative design and decision making;
3. A one-system approach;
4. An investment framework that values sustainability and resilience; and
5. Developing a strategic plan or vision.

The publications of the Eco²cities initiative give a number of examples of cities which have succeeded in integrating the economic and ecological development.[3] Subsequently a number of methods and tools have been developed for eco²cities. Methods to help with the process of decision-making and to enhance group engagement and tools such as templates, checklists, diagrams, maps, specialized software applications and workshops, are made available for users.

The approach recommended by Suzuki et al. (2010) lacks nevertheless detailed information what an economic city or an ecological city would look like, but its strength is the effort to try to combine two often divergent approaches in urban management: the emphasis on economic development (competitiveness), or on ecological issues. From the synopsis of the Eco²cities initiative (Suzuki et al. 2010), we can learn that the approach is different from the conventional approach to urban management by:

1. The emphasis put on a strategic approach to eco²city development;
2. The use of a number of principles, which can be assessed for each city and of which the score can be put into a spider diagram;
3. The distinction of three core elements of Eco² development: leadership, planning and a supportive environment;
4. Providing a number of methods and tools;
5. Emphasizing the importance of mobilizing the necessary finance;
6. The bottom-up approach;
7. The emphasis on innovations;
8. An integrative or systems approach;
9. The emphasis on equity; and
10. The use of performance indicators.

[3] Examples of Curitiba in Brazil and Stockholm, capital of Sweden, pop up regularly. Other cases also come from less known cities like Yokohama and Soweto as they are presented in Suzuki et al. (2010).

11.3 Major Dimensions of Eco-city Policies

In the literature about eco-cities four issues can be distinguished:

1. Eco-cities are conceptualized as ecosystems where there is an interest in circularity of physical processes of resources (Wong and Yuen 2011: 3)[4];
2. These cities need to deal with challenges resulting from rapid urbanization, industrialization and climate change in the framework of urban management (van Dijk 2006: 50);
3. Different dimensions of an eco-city are considered relevant, ranging from water management to transport and infrastructure (Kenworthy 2006: 68) and from dealing differently with energy and waste to solving environmental problems; and
4. The need to deal with these challenges through an holistic approach which takes the interrelations between the different dimensions into consideration during the implementation (van Dijk 2011: 33)

We will discuss some examples of eco-cities. The following five main issues will be discussed in these cases: closing the water cycle and going for waste minimization and integrated waste management (Ministry of Information Singapore 2008); the importance of ecological thinking (in terms of reducing pollution or promoting eco-infrastructures; see Betancourth 2011); stimulating energy savings and reducing the greenhouse gas emissions (Glaeser and Kahn 2010); developing integrated transport policies (Kenworthy 2006: 67) and involving the different stakeholders during the implementation. Hence the five main dimensions of an eco-city policy which will be reviewed in this contribution are:

1. A different approach to water and waste management;
2. Dealing with the ecological dimensions of the city;
3. Achieving energy saving;
4. Changing the role of infrastructure and transportation; and
5. The integrating role of urban management to involve all the relevant stakeholders during the development and implementation of eco-city ideas.

11.4 The Methodology

Ecological activities in a city can take place at different levels. Four levels will be distinguished: the city, the neighborhood, the building and the household level. Burnett (2007) remains at the city level when pointing to the possibility of providing eco-labels to a city to prove its eco character. The focus could also be on a neighbourhood, or a new town. Then we will also give examples of ecological buildings:

[4]Yong et al. (2009) show how the circular economy concept is introduced and implemented at the regional level when evaluating the progress in Dalian at the regional level.

ecological villas, blocks of houses, or apartment buildings with common heating/cooling systems or shared grey water re-use facilities. Finally individual initiatives can be noted at the household level, installing for example sun boilers, spontaneously or triggered by incentives.

This paper is based on a number of case studies of Chinese cities that were identified using the following criteria:

(a) Public presentation by the relevant authorities or in publications to publicize the example of an eco-city;
(b) Actual implementation and ideas to create an eco-city;
(c) Data collected on the different activities pertaining to the five dimensions and four issues identified in Sect. 11.3 above; and
(d) Data on indicators for the different dimensions of an eco-city and the different levels of intervention.

The objective of the study is to show whether these cities are examples of a sectorally implemented or of an integrated Eco^{2}cities approach, which has introduced a package of activities to the city to make it economically sound and ecologically sustainable. The main difference between the integrated Eco^{2}cities approach and the sectoral approach, emphasizing for example a different way of managing water or energy, is that the integrated Eco^{2}cities approach emphasizes integration in the framework of a strategy, while the sectoral approach presented in this paper, stresses the relations during implementation with stakeholders between different policy dimensions, such as the greening of the cities (the ecological dimension), dealing differently with water and waste, diminishing the use of energy in general and the emission of CO_2 in particular, the role of infrastructure and transportation and an urban management approach, defined as implementing an urban plan together with stakeholders (van Dijk 2006: 7). Although eco-cites require a comprehensive or integrated approach, based on the data collected from eight Chinese eco-cities used as case studies in this paper, we will show that initiatives are often very sectoral and not at all based on an integrated strategy.

The reason to pay attention to different sectoral dimensions of eco-policies is that often the policy makers and implementing agencies are organized by sector and integrative coordination among the different sectors in the implementation stage is a real problem. Energy experts know very little about water and transport professionals may not think in ecological terms, as a result of which many key elements essential to eco-city development are left out. In housing development, for example, it is important not only in ensuring the number of units to be built, but also the choice of location (with support of transport), quality of buildings and implications for CO_2 emissions during the construction process. As it is not possible to deal with all aspects of eco-cities, this paper focuses only on water and waste-related aspects, energy aspects, the role of infrastructure and transportation and the management issues.

11.5 The Water and Waste Management

Due to climate change, cities may face floods or water shortages. They may have problems with drinking water, waste water and/or solid waste treatment. Under this circumstance, we consider more ecological ways in dealing with water and waste. The Switch project (Sustainable Water Improves Tomorrow's Cities' Health) with support from the European Union (EU) wanted a paradigm shift in urban water management (Howe et al. 2012). It embodies a more ecological attitude towards water and environmental issues. Through an interdisciplinary approach to the issues it hopes to be able to contribute to their solution. Nine cities around the world served as demonstration cities and a learning alliance framework has been established in each demo city (Sutherland et al. 2012). Switch wants to reduce risks such as droughts, flooding and water-related diseases.[5] The approach focuses on closing the urban water cycle, defined as the link between the resource, its use for drinking water and eventual treatment to allow water to flow back into the resource for reuse. Through the learning alliance platform, the barriers to information sharing are broken down and the process of technological and institutional innovation is sped up. Learning alliances have been created consisting of interested stakeholders to discuss the issues and to identify directions for research. The researchers would get a broader perspective by listening to the members of the learning alliance. This would increase the range of options in which they can make a better informed choice. The Switch project is visionary and it promotes sustainable and integrated urban water management, to make the city a better place to live. By generating new efficient methods from an integration of a diversity of actions across the urban water cycle, the quality of life in cities will improve.

The Millennium Development Goals (MDGs) has attempted to address water and waste issues in developing countries by reducing by 2015 the number of people with no access to safe water to half. This constitutes the first goal for about one billion people. But the actual number of those in the world with no access to safe sanitation is almost two billion, and this is a real urban challenge. More importantly, we want to point out the significance of dealing with waste water by promoting eco-sanitation and collective toilet facilities. Solid waste is also an important issue because it can block drains and cause health hazards (Usunju et al. 2011). Hence, solid waste minimization and integrated waste management are important. Drainage and flooding also need to be considered. To solve these problems it is necessary to forge new partnerships between parties which often have not worked together: government officials, non-governmental organizations (NGOs) and private sector businessmen.

To deal with these new challenges, including pollution and climate change, van Dijk (2012) argues that they require a more adaptive water management approach. Eco adaptive water management differs from traditional integrated water

[5] Information can be obtained from www.switchurbanwater.eu

management because it is less government initiated and top down. Stakeholders play an important role in dealing with the issues and contribute through their participation and resources towards a solution. Additionally, what does rainwater availability mean for drinking water supply and sanitation in the cities? Indeed, the solution lies fundamentally with integrated water resources management, which means closing the water cycle (not to lose any water) as argued by the Switch project. This suggests besides closing the water cycle, rainwater harvesting is needed (Liang and van Dijk 2011).[6]

The Switch project also looked at different ways of dealing with waste water, for example, by separating grey and brown water (Liang and van Dijk 2010). The project has showed that there is an extensive use of environmental technologies for a different approach to water and waste water management, by having a closed loop systems to prevent water loss. Thus, with regards to the criteria in assessing the progress on water use and water waste treatment, the key lies with closing the water cycle, rain water harvesting, separating grey and brown water, and the introduction of eco toilets, waste reduction and recycling etc.

11.6 The Ecological Dimension

Different authors have emphasized the importance of a green city, or nature conservation (for example, Betancourth 2011).[7] Trees have been part and parcel of cities and deserve a place, even if they may hinder the circulation of vehicles. Open and green spaces in an eco-city can serve several functions. For that reason, Duc and Nakagoshi (2007) introduce land suitability analysis to optimize the benefits of urban green spaces. The percentage of green space to total space would give an indication of the success of these policies.

How does the city deal with different pollution issues? Eco-cities should strive to have low pollution rates. Therefore policies to deal with different pollution issues are very important. Indicators can be chosen to measure different types of pollution or the city's ecological footprint and the resulting score would quantify the quality of urban life and the possibility of the reducing the city's footprint (van Dijk and Zhang 2005).

Eco-cities are often presented as a new green paradise, where it is good to stay and where the negative environmental impact of living and working is reduced. Cities may make an effort to emphasize their ecological nature. In this domain, we will consider efforts to create a greener city through conservation and pollution

[6] Beijing, like other major Chinese cities, has large rural areas as well and urban agriculture is important. It has a role of supplying the city with fruits and vegetables but the question is whether the current way is sustainable. Often groundwater is used, but this is a scarce commodity and its use should be limited and it could partially be replaced by rainwater.

[7] Betancourth (2011) makes the case for eco-infrastructure based on a case study in Colombia (Cartagenena).

abatement, as well as to deal with the consequences of climate change (van Dijk 2011). How does an eco-city deal with the climate change issues? Different climate change scenarios combined with increased pollution reveal the threat of temperature increases, higher rainfall or more frequent droughts. Climate change forces cities to opt for mitigation activities, or climate adaptation policies or other policies and programs. Many researchers have pointed out the need for effective leadership at local government level to tackle climate mitigation and adaptation over these issues (Howe et al. 2012).

11.7 The Energy Dimension

Energy management would also be part of an ecologically conscious city which usually means reducing greenhouse gas emissions. Indeed, increased energy use and the resulting CO_2 emissions are an important reason for climate change, which has an indirect negative effect on cities. Very often urban policies focus on CO_2 reduction. Kennedy and Sgourdis (2011) rightly emphasize the need to come up with a rigorous classification of different emissions and an agreement on carbon accounting principles (which sectors produce how much emission of what in a direct or indirect way) to achieve the ideal of a low or zero carbon city. Smith Morris (2011) shows how in the 'New urbanism' in England, CO_2 reduction played an important role. Different projects wanted zero carbon buildings and the eco-towns concept only later broadened its meaning. There is an extensive use of environmental technologies for energy management to make the city's life support systems to become closed loop systems.

How do we measure how the city deals with energy issues? Different indicators have been suggested. Glaeser and Kahn (2010) focus on the actual CO_2 emissions in urban areas and the possibility to reduce them, but we should also look at energy saving at the household level, at efforts to reduce greenhouse gases and to introduce renewable sources of energy. Measurement would also require the use of other indicators, such as the use of solar energy (for example solar panels), the use of wind energy (of which the production should ideally be allowed to be ploughed back in the network) and a registration of the use of heating and cooling systems, using underground or river water. In short, the question is what does a city have to achieve in terms of energy reduction to be called an eco-city?

11.8 The Role of Infrastructure and Transportation

A city requires goods and people to move around using infrastructure and different modes of transportation. However, there are many infrastructural options and different modes of transportation and some are more environmentally friendly than others. The choice between these different modes is often conditioned by history,

culture and climate and in some countries bicycles have survived because a proper infrastructure was provided (separate bicycle lanes), or the current regulation protects cyclists (for instance in the Netherlands).

Most of Kenworthy's (2006) list of dimensions for sustainable city development in the Third World deal with infrastructure and transportation. He emphasizes the need to move away from a car dominated city and to build cities around footpaths, bicycle lanes and public transportation. In an eco-city, as he says, it should have:

> a freeway and road infrastructure is deemphasized in favor of transit, walking and cycling infrastructure, with a special emphasis on rail. Car and motorcycle use are minimized … The central city and sub-centers within the city are human centers that emphasize access and circulation by modes of transport other than the automobile, and absorb a high proportion of employment and residential growth. … The city has a high quality public culture, community, equity and good governance. The public realm includes the entire transit system and all the environments associated with it. (Kenworthy 2006: 68)

Transport is indeed an important issue in a city since it is crosscutting; but it has to do with different means of transportation with appropriate fuel consumption, urban design and physical planning. Transport can be an important source of air and noise pollution. To counter its adverse effects, we have to go for indicators such as the use of bicycles and car calming measures in the city in an integrated transport policy. Then, what have we achieved in terms of reducing travel time and congestion? Have we introduced an eco-friendly rapid transit system to promote our eco-city? Effective management again is key to the success of eco-cities.

11.9 The Management of Eco-cities

Several chapters in Wong and Yuen's (2011) edited volume emphasize the importance of planning of eco-cities. Within urban development a distinction can be made between the urban planning and the urban management approach. In the first case the design, the planning process and the resulting urban plan receives most of the attention. The urban management approach emphasizes the importance of putting a plan into practice, with the help of all the relevant stakeholders. The urban manager may take a more activist stand, trying to achieve the necessary investments by promoting participation of all stakeholders (van Dijk 2006: 26).

Planners are concerned with the provision of housing, infrastructure and public transport and financial constraints may prevent them from considering green options. Eventually the private investors and project developers have a large say in the implementation stage. Some of them are interested in green features because it may increase the value of their property. Planning eco-cities has its own challenges. How can the eco-city be sustainable in the long term, when the issues change and alternative technologies may become available? To manage this process of change, the involvement of the most important stakeholders in the implementation process is crucial, as argued by urban managers. In this sense, attention is now turned to comparing some Chinese and European eco-cities.

11.10 Chinese and European Examples

Most examples of eco-cities in the literature are located in Europe or the Americas, but China probably has the largest number of new initiatives for eco-towns. Wu (2012: 170) notes that more than 100 Chinese municipal governments have proposed to build eco-cities or eco-towns. These are often new towns and low carbon cities and often international partners are used to achieve the desired status. To what extent do these examples contribute to the development of livable, productive and inclusive cities? What were the key urban policies that contributed to their success and which lessons can be drawn from successful examples of eco-cities or neighborhoods that can offer rapidly urbanizing cities in developing countries how to achieve sustainability? In response, Dongtan (near Shanghai) is often mentioned as having used a different approach towards eco-city development, although it is now seen as a failed project (van Dijk 2011). Recently, an alternative ecological harbour was announced in Shenzhen (China Daily 8-5-2012). We will now present briefly the initiatives to build an ecological harbour in Shenzhen, an eco-city in Dalian and Tianjin, Rotterdam and Malmo. Other cases in Beijing, Dongtan and Wuhan are also brought on board in more detail (Liang and van Dijk 2011; van Dijk 2013).

11.10.1 An Ecological Harbour in Shenzhen

The initiative to develop an ecological harbour in Shenzhen is unique. It uses inputs from the state-owned Overseas Chinese Town Group (OCT) and the port has been designed as part of overall urban development, rather than as a tourism destination outside the city. The boulevards, plazas and beaches at OCT Harbour are already a popular destination for people from Shenzhen. The emphasis is on the way polluted water is treated and the natural environment is restored. It is also hoped to save energy and to reduce emissions. The initiative taken by the state-owned Overseas Chinese Town Group wants to provide a new model for how China can transform cities.

11.10.2 Dalian

Dalian in China aspires to be an environmentally friendly city and Yong et al. (2009) evaluate the results in terms of water use, energy use, waste generation per capita and its reclamation and treatment. It is mentioned that this wave of initiatives is linked to a certain degree of economic decentralization and the rise of the entrepreneurial city. However, the initiatives are also part of international pressure on China and a movement within China to reduce its greenhouse gas emissions. China has formulated specific objectives in its 11th plan (2005–2010) concerning per unit

GDP energy consumption and wants to reduce its carbon intensity by 40–45 % between 2005 and 2020. The interesting aspect of these projects is that they are not state-funded, but built by real estate developers.

11.10.3 Tianjin's Eco-city

In Tianjin in the north of China the river became significantly polluted because of an upstream industrial accident. There was no riverbank infiltration system to mitigate the negative effects of this pollution. Achieving the eco-city status required a major initiative. A flagship eco-city project is located 45 km from the city of Tianjin and is developed in cooperation with Singapore and partially financed under the Global Environmental Facility (GEF). Dunn and Jamieson (2011) evaluate it in terms of the relation between eco-city development and sustainable tourism. The objective of the project is to develop an economically sustainable, socially harmonious, environmentally friendly and resource conserving city. Wu (2012) notes that it is located in a newly established district, which is a national strategic location comparable to Pudong in the 1990s. Total investment is expected to reach 30 billion Yuan, while China and Singapore each control half of this investment. It is largely located on unusable land, which makes the investment less sensitive to outside critique.

The story of the Sino-Singapore Tianjin eco-city is interesting and documented (for example, UNDP 2014). Its objective is to establish a harmonious and environmentally friendly city. A joint working committee has been established to study the major challenges. An eco-city management committee has been set up by the Tianjin Municipal government. Tianjin has learned from the experimental economic reforms and resulting business growth in the Binhai New area, the coastal area of Tinjian. The eco-city has achieved:

(a) The first smart power grid in China;
(b) To set a standard and go for 100% solid waste trade treatment; and
(c) That at least 20 % of the consumed energy is renewable.

11.10.4 Rotterdam Climate Proof

Rotterdam an important European port, located in the Netherlands, tries to deal with climate issues in its plan, Rotterdam Climate proof (Rotterdam 2008). The brochure Rotterdam climate proof gives a good overview of the main issues for a city wanting to deal with the climate change problem. It describes the consequences of climate change, formulates the challenges for Rotterdam and suggests climate adaptation policies for a safe Rotterdam. The Rotterdam Climate Initiative concerns climate adaptation, since a preventive strategy is not possible. Most policies concern

combating pollution at the source, or end of pipe solutions. The objective is that the emissions of Rotterdam in 2025 would be 50 % less. Rotterdam (2008) not only gives an overview of the main issues for a city wanting to deal with the climate change problem, it also describes the consequences of climate change and suggests an adaptation strategy (defined as adjusting to the new reality) for a safe Rotterdam. However, besides formulating the challenges for Rotterdam, it also wants to promote Rotterdam as a centre of knowledge (on climate), a place to experiment and demonstrate. Rotterdam wants to be a city for climate and water and it suggests a planning of the necessary activities.

Rotterdam also wants to invest in adaptation measures to ensure the security and health of the population, to limit the damage through climate change and to increase the return on investments in preventive physical planning and the existing infrastructure. Finally the brochure stresses the societal value of innovative and attractive solutions. Novel aspects of the plans in Rotterdam are: (a) public and private parties are supposed to take part; and (b) the city will get involved in strategic alliances with different levels of government, with knowledgeable institutes and consultancy firms.

Rotterdam is also on the list of the 20 Smartest Cities in 2014 (announced 31-3-2014). These New Economy Smart Cities Awards have been awarded to those cities that through efforts to achieve sustainable development can be considered cities of the future. Rotterdam for example is praised because it wants to be climate change proof in 2020 and is active to become the most sustainable port in the world, with particular concerns given to the following:

(a) Its transport network;
(b) The water management;
(c) Extra water storage; and
(d) A greening of the open space.

Rotterdam wants to be a laboratory for innovative solutions, interesting for other cities as well. The mayor Aboutaleb in his reaction emphasized that “together with universities and the private sector we are looking for solutions for the challenges faced by modern cities” Rotterdam has a climate adaptation strategy developed with major stakeholders (Rotterdam Municipality (2008).

11.10.5 The Malmo Approach

Malmo is an important port city in Sweden with almost 300,000 inhabitants, located just opposite Copenhagen, the capital of Denmark. The city experienced a serious decline in the 1980s when its shipyards could no longer compete with shipyards in East Asia. Hambleton (2009: 217) notes that the city lost one third of its jobs between 1992 and 1994. Subsequently Malmo opted for sustainable development focusing on different sources of energy and different ways of dealing with solid and liquid waste. Hambleton (2009: 216) emphasizes the importance of bold political

leadership, radical decentralization, recruitment of creative officers and empowerment of local communities. The focus of the city was on preparing for climate change, and is characterized as an example of local government at its best, resulting in an eco-friendly multicultural city with a neighborhood transformed into an eco-city (Augustenborg). It is an example of all kinds of environmental innovations, such a renewable energy, open space, recycling of waste and 10,000 square metres of green roof.

From Table 11.1, we see that although the challenge is to achieve integration in framework of an urban strategy and plan, in many cities the initiatives are mainly sectoral (focusing on energy saving, water-related issues, pollution abatement or ecological features) and sometimes only on one or two levels below the city level. In the majority of the cases a more sectoral approach was followed and in only half of the cases the emphasis is on the city level, rather than at the neighbourhood, the building or the household level.

A real new approach to water management can be found in Beijing, where recently different government departments were merged to form the Beijing Water Authority. Promoting a different approach to water management became its responsibility and hence initiatives like separating grey and brown water and to promote rainwater harvesting. This implied activities at the city level (creating a different government structure), but also at the household (rainwater harvesting) and building level (separating grey and brown water). Initiatives started in Beijing are often considered an example for other Chinese cities.

11.11 Conclusions

Eco-cities can be seen as a new lifestyle and type of management, which is more in harmony with the natural environment and predicated on the objective of long-term sustainability. The focus is on the urban metabolism or a different way of dealing with the cycles of energy, water, waste and pollution. Some authors want to go further by emphasizing the different life styles and the importance of community values. A real challenge is to keep up and expand the existing eco initiatives in a rapidly changing world where other priorities may develop.

Efforts to create urban environmental sustainability in a number of Chinese cities were analyzed and the question was to what extent have these cities followed a strategic city based or a more sectoral approach? Water is an important dimension of eco-city development, but the interrelations with the other dimensions should not be underestimated. Table 11.1 shows that almost half of the examples followed a more sectoral approach and in only half of the cases the emphasis is on the city level. The advantage of separating different sectoral interventions is that it allows a comparison or benchmarking on these dimensions, taking different indicators and comparing the performance. The initiatives do not have to come from governments. Project developers, other stakeholders and private individuals can also take the initiative and the activities of these stakeholders should be incentivized.

Table 11.1 Emphasis in eight Chinese and two European eco-city initiatives

Dimensions	Beijing	Dalian	Dongtan Shanghai	Nanjing	Shenzhen (city)	Shenzhen (port)	Tianjin	Wuhan	Malmo	Rotterdam
Level										
City (C)	C	C		C	C				C	C
Neighborhood (N)			N			N	N		N	
Building (B)	B							B		B
Household (H)	H									H
Eco & pollution (P)		P			E	P	E		P	P
Water & waste management	Water	Waste man				Water		Water	Water	Water
Energy aspects (E)	E	E				E		E	E	E
Infrastructure/transportation	I&T									
Integrated/s or sectoral approach	N	Y	Y	Y	N	Y	Y	N	Y	Y

Source: Compiled by author from different sources (Nanjing 2008)

Ideally the city would follow a system approach to assess the interaction between the different components distinguished so far. Objectives concerning justice such as equality are important, while also managing the urban risks. All decision making should be sustainability-based, integrating social, economic, environmental and cultural considerations as well as compact, transit-oriented urban form principles. Such decision making processes would be democratic, inclusive, empowering and engendering hope.

The European cities tend to work a bit more in an integrated way and they clearly state as the objective to deal with climate change and its consequences. The private sector is usually an important stakeholder and the initiatives tend to be more at the neighborhood and household level.

The evidence collected for Chinese eco-cities using different indicators shows that their approach is often not integrated nor based on a strategic vision document. In practice these aspiring eco-cities often focus on one or two sectoral issues instead, dealing differently with the water cycle, or energy saving, while they could benefit from a more integrated approach. Integration could take place in the framework of urban management, but the emphasis should be on involving stakeholders in implementing the sectoral initiatives, facilitating their initiatives at the city, neighborhood, building and household level.

References

Betancourth CH (2011) Eco-infrastructures, feedback loop urbanisms and network of independent zero carbon settlements. In: Wong T-C, Yuen B (eds) Eco-city planning, policies, practice and design. Springer, Dordrecht, pp 31–51

Bhatnagar M (ed) (2009) Eco-cities, perspectives and experiences. ICFAI University Press, Hyderabad

Brundland G (1987) Our common future. United Nations, New York

Burnett J (2007) City building – eco-labels and shades of green. Landsc Urban Plan 83:29–38

Duc UP, Nakagoshi N (2007) Application of land suitability analysis and landscape ecology to urban green space planning in Hanoi, Vietnam. Urban For Urban Green 7:25–40

Dunn S, Jamieson W (2011) The relation between of sustainable tourism and eco-city development. In: Wong T-C, Yuen B (eds) Eco-city planning, policies, practice and design. Springer, Dordrecht, pp 93–109

Glaeser EL, Kahn ME (2010) The greenness of cities: carbon dioxide emissions and urban development. J Urban Econ 67:404–418

Hambleton R (2009) From rustbelt to eco-city. In: Bhatnagar M (ed) Eco-cities, perspectives and experiences. ICFAI University Press, Hyderabad, pp 216–226

Howe C, Vairavamoorthy K, van der Steen NP (eds) (2012) Sustainable water management in the city of the future. UNESCO-IHE, Delft

Kennedy S, Sgourdis S (2011) Rigorous classification and carbon accounting principles for low and zero carbon cities. Energy Policy 39:5259–5268

Kenworthy JR (2006) Dimensions for sustainable city development in the third world. Environ Urban:67–86

Lan XZ (2014) A new road for urbanization. Beijing Rev 3: 34–36. http://www.bjreview.com/quotes/txt/2014-08/11/content_631043.htm. Accessed May 2014

Liang X, van Dijk MP (2010) Financial and economic feasibility of decentralized waste water reuse systems in Beijing. Water Sci Technol 61(8):1965–1974
Liang X, van Dijk MP (2011) Economic and financial analysis on rainwater harvesting for agricultural irrigation in the rural areas of Beijing. Resour Conserv Recycl 55:1100–1109
Ministry of Information of Singapore (2008) Sustainability. Ministry, Singapore
Moffatt S, Suzuki H, Iizuka R (2012) Eco²cities guide, ecological cities as economic cities. World Bank, Washington, DC
Morris SE (2011) Down with ECO-towns! Up with ECO-communities, or is there a need for model eco-towns? A review of the 2009–2010 Eco-town proposals in Britain. In: Wong T-C, Yuen BKP (eds) Eco-city planning, policies, practice and design. Springer, Dordrecht, pp 113–130
Nanjing (2008) Nanjing eco-city, proposals for further development, Nanjing-Dutch expert team on eco development. Municipal Bureau, Nanjing
Nepal RK (2009) Culture-environment parity in development planning: a way of ecological balance in growing cities. In: Bhatnagar M (ed) Eco-cities, perspectives and experiences. ICFAI University Press, Hyderabad, pp 79–98
Rombout E (2009) Sustainable architecture, ecologically sound urban planning and biodiversity thoughts about an ecopolis, plea for a lobe city. In: Bhatnagar M (ed) Eco-cities, perspectives and experiences. ICFAI University Press, Hyderabad, pp 99–142
Rotterdam Municipality (2008) Rotterdam, climate proof. http://rotterdamclimateinitiative.nl. Accessed Aug 2014
Sen A (2009) The idea of justice. Harvard University Press, Cambridge, MA
Sutherland A, da Silva WC, Darteh B, Butterworth J (2012) Researchers as actors in urban water governance? Perspectives on learning alliances as an innovative mechanism for change. Int J Water 6(3/4):311–330
Suzuki H, Dastur A, Moffatt S, Yabuki N, Maruyama H (2010) Eco²cities: ecological cities as economic cities. World Bank, Washington, DC
UNDP (2014) China national human development report 2013, sustainable and liveable cities: towards ecological civilization. Ministry, Beijing
Usunju JB, Schwartz K, Schouten MAC, Dijk MP van, Johnson WP (2011) Slums, socio-economic aspects of improved sanitation in slums. Public Health:1–9. doi:10.1016/j.puhe.2011.03.008
van Dijk MP (2006) Managing cities in developing countries, the theory and practice of urban management. Edward Elgar, Cheltenham
van Dijk MP (2011) Three ecological cities, examples of different approaches in Asia and Europe. In: Wong T-C, Yuen B (eds) Eco-city planning, policies, practice and design. Springer, Dordrecht, pp 51–91
van Dijk MP (2012) Shift in urban water governance paradigms: introduction. Int J Water 6(3/4):137–151
van Dijk MP (2013) Eco-cities of the future, learning from Chinese and Indian experiences. Artha Vikas 49(2):1–11
van Dijk MP (2014) Sustainable urban solid waste management in an integrated value chain perspective: closing the cycle and remanufacturing modular designed goods. Int J Waste Resour 4(3):e107
van Dijk M, Zhang MS (2005) Sustainability indices as a tool for urban managers, evidence from four medium-sized Chinese cities. Environ Impact Assess Rev 25:667–688
Wong T-C, Yuen B (eds) (2011) Eco-city planning, policies, practice and design. Springer, Dordrecht
Wu FL (2012) Editorial. Geoforum 430:169–171
Yong G, Qinghua Z, Doberstein B, Fujita T (2009) Implementing China's circular economy concept at the regional level. Waste Manag 29:996–1002

Chapter 12
Achieving Sustainable Transport in Guiyang, China: Dilemma and Hope

Tai-Chee Wong

Abstract Unprecedented urban expansion in many major Chinese cities has resulted in transport load exceeding their carrying capacity. Modernity pursuits have edged out pre-reform street users (cyclists and pedestrians), replaced by fast increasing vehicular traffic. Noise nuisance, discharge of pollutants and other adverse effects have run against the interests of eco-infrastructure and sustainable development essential to quality living of urban residents. This chapter selects Guiyang city to examine the feasibility of its sustainable transport system based on three issues: economic, ecological and social equity. Guiyang municipality has begun to use green energy for its public bus and light rail system, and develop a "slow-moving transport" – cycling. With great hope in promoting green urbanism, Guiyang's karst hilly terrains conditions are however a dilemma and challenge to sustainable transport prescribed in its Masterplan (2009–2020) in consideration of the cost, feasibility and effective use of land space.

12.1 Introduction

Over the last 30 years, rapid and extensive urbanization in China has seen vast tracts of suburban and city fringe farmlands being transformed into urban use. Market-led housing operations, rise in car ownership and more liberal flows of workforce have similarly extended the commuting distance of its urban population. Rising concerns in environmental impact, extended commuting time and congestion have called for the promotion of green transport and larger ridership in public transit (Liu et al. 2014; Hutton 2013; Holden et al. 2013). At the outset, public transit expansion requires substantial public financial support in both passenger fares and choices to attract more users and reduce automobile dependence. Consequently, therefore, it is

T.-C. Wong (✉)
College of Resource and Environmental Management, Guizhou University of Finance and Economics, Guiyang 550025, China
e-mail: taicheewong@yahoo.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_12

the economic sustainability that needs to be justified with the public authorities and users as the key stakeholders. Without public sources of financial support and volumes of users in scales, long-term viability would be unsustainable.

More specifically, topographic and hilly features of cities located in the south-western part of China, such as Guiyang City, trigger additional concerns in both economic sustainability for its high cost on one part, and environmental sustainability for its conflict with environmental conservation on the other part. Another issue of sustainability is social. Supply of heavily subsidized public transport may be interpreted as a crucial factor of success in the case of Guiyang City, given the relatively low income levels of its urban residents and being one of the poorest cities in China.

This chapter examines the issue of sustainable transport first from the international perspective. This is followed by investigating the transport policies in China in general, and finally Guiyang City in particular. For a more comprehensive analysis of the city's plan which aims to achieve sustainable transport, three key questions have to be addressed, namely: (a) what are the latest interpretations of sustainable transport?; (b) what are the unique characteristics of urban transport in China, and issues of sustainable transport?; and (c) how has green transport been promoted in Guiyang City's Masterplan that fits its hilly features? Having portrayed the layout of this study, we first review the theoretical approach in sustainable transport from the international perspective.

12.2 Sustainable Transport: Review and Interpretations

Any attempt to attain a high level of sustainable transport, which is a multi-faceted objective, is subject to debates about how this could best be achieved. It would be meaningless if we try to cover too many aspects in designing a developmental path, such as:

> protecting wildlife and natural habitats, reducing levels of noise, promoting economic growth, facilitating education and public participation, reducing congestion levels, minimizing accidents and fatalities, ensuring stakeholder satisfaction, enhancing aesthetic dimensions of neighbourhoods, supporting cultural activities, including tourism's contribution to GDP, promoting liveable streets and neighbourhoods, and minimizing transport-related crime. (Holden et al. 2013: 68)

Thus, if we were to avoid too broad a coverage, it is worthy of reviewing the study on the "Integrated Strategies for Sustainable Urban Development" carried out over a decade ago by the Fifth Framework Programme of Research and Technology Development for the European Union. One of the key research projects in this programme was known as PROPOLIS (Planning and Research for Land Use and Transport for Increasing Urban Sustainability) which aimed at testing the effects of land use and transport policies and assessment methodologies in search for long-term urban sustainable strategies. The indicators used for measuring sustainability

in seven selected European cities in the study were the environmental, social and economic dimensions (Lautso and Weneger 2007; European Commission 2004). Aiming to improve all three dimensions of sustainability, integrated strategies combining land use and transport policies (car pricing, improved public transit via reduced fares, better speed and service quality as well as anti-sprawling and pro-compact land use policies) were applied. The results showed that this combination produced stronger effects on urban sustainability than individual policies implemented independently from each other.

In any scale of urban development activities, we acknowledge that building large-scale transport infrastructure to meet rising demands of urban populations involves primarily irreversible degradation of natural systems. To satisfy social and economic needs embodied in human capital in the process, it tends to lead to in varying degrees damages of "natural capital" (for example, biodiversity, waste absorption, aesthetic of nature) and rising ecological footprints (see Toman 1994; Buchholz 1993). If ecologists argue more for sustainable natural functioning and resilience, and neo-classical economists more on growth and resource substitutability, the social dimension of sustainable transport needs equally considerable attention. The next section reviews briefly these three key issues of sustainable transport, from which a reference point is drawn to fit in the subsequent discussion of Guiyang City.

12.2.1 Economic Sustainability Consideration

Generally speaking, transport planning in the selection of land, water or air routes and means aims at saving cost and providing comfort in mobility. Seeking efficient movements of goods and services has always been on the research agenda of economic geography and planning. Enhancing local or regional level of accessibility, land use and transport network implies more appropriate allocation of scarce resources that has strong potential to contribute towards pursuits for national aggregate growth in market-led economies (Berry et al. 1992; Hutton 2013). In the same token, sustainable economic development provides advantages that support improvements in transport technology and infrastructure, thus improving competitiveness and generating positive chain effects in other related factors of production.

Economic sustainable transport in the physical and economic sense of it is strongly associated with the issue of accessibility. Accessibility is constrained by cost and time of travel, which means the longer and more costly the trip, fewer journeys would be made. Accessibility is most commonly considered in transit transport planning. A transport strategic study known as "Guidance on the Methodology for Multi-Modal Studies (GOMMAS)" published in 2000 in the United Kingdom is a commendable document, which illustrates the British government's urban transport modelling research aimed at promoting public transit. By including land use options,

this study is fundamentally economic in orientation and emphasis focusing on three following points:

- Interactions between land-using activities generate demands for transport, thus justifying provision of transport-related infrastructure;
- Availability and quality of transport services influences the intensity of interactions of those activities; and
- Appraisal of transport strategies is linked to whether the transport system provides the right types of accessibility that meet the demands of users and businesses (Hutton 2013: 245).

The above strategic study has been criticized for being primarily based on outdated concepts and models of the 1950s (Hutton 2013). It was thought to be somewhat economic-biased by focusing on effectiveness of demands of users and businesses whilst overlooking other non-economic issues which are equally important as indispensable parameters of sustainable transport. Effectiveness, for many economists, means measured value for money, calculated on the basis of rates of return. Disputably, the standard neo-classical growth model presents a literature that per capita consumption and welfare would grow if substitutability is adequately available between natural resources and capital accumulation. The model argues that welfare thus made available from accumulation should compensate the depletion and degradation of natural resources. Aggregate growth so obtained would have provided investments in human skills, production technology and social organization acts well as a trade-off. Overall, the basis of argument is that damages to ecosystems are inevitable but negligence of ecological preservation is intrinsically unacceptable (Solow 1986; Maler 1991).

On the other hand, whilst economic input has remained a crucial factor in making planning work, the end product of economic operations have the consequence of using up irreversibly physical assets of the mother Earth. In contemplating human society's impacts on the natural environment and "price to pay" as a result of environmental damages, one may wonder if setting a safe minimum standard to restrict economic exploitation could be seen as a technical means to safeguard nature (see Toman 1994: 405).

12.2.2 Ecological Sustainability Consideration

In the present eco-sensitive world impacted by global warming effects and environmental degradation, the key role of green transport is to support a sustainable eco-infrastructure and habitats, including human settlements. The importance of interdependency between natural habitats and man-made habitats is now more universally and scientifically understood. It is hence opportune to call upon the world community to identify workable models for implementation setting ecological sustainability as the target, using appropriate theories coupled with best practices (Mikeska and Tabor 2009; Wong and Yuen 2011).

In terms of transport, ecological sustainability is concerned chiefly with reduction in discharge of carbon dioxide and other greenhouse gases (GHGs). On this issue, the United Kingdom in recent years, for example, saw its transport sector accounting for about 25 % of CO_2 emissions. In the face of such an awkward situation, the British government has undertaken a radical move towards decarbonization of the transport sector, aiming to reduce by 2017, 80 % its CO_2 emissions from the 1990 levels. To be effective, the transport sector will have to move towards a sustainable mobility strategy reliant on a more compact urban form, an extended use of public transport, cycling, walking and cleaner fuels (Hickman et al. 2013; Jenks and Burton 1996).

Ambitions, though important, would remain a lip-service if implementation is ineffective and funding mechanisms are weak. In many developing countries especially, funding problems apart, the level of implementality is low as transport planning is often blocked by priorities to maintain political power (see Wong 2006). Hickman et al. (2013) have a strong belief in the usefulness of strategic and long-term planning in bringing about positive results through funding of green transport. Funding of sustainable green urbanism needs strong confidence from the national governments in collaboration with local authorities. An integrated collaboration at such level would cut down overlapping of policy documentations, and help achieve a better understanding of future policy direction. As cities cannot stand alone in planning merely for themselves without a regional outlook, they see that adopting strategic planning system at the regional level, and detailed implementation at the local level by a series of masterplans would work out better. As to funding, they cite the financial devolution experience of France is instructive in that local capital raising and expenditure would be used locally and justified locally. The notion of development value uplift gained from land acquisition and sales after value enhancement will help local governments raise money and pay for the transport investment to encourage public transit, walking and cycling (Hickman et al. 2013). At this point, social values such as justice of resource distribution and consumption are at stake for a greater depth discussion.

12.2.3 Social Sustainability Consideration

Social sustainable transport carries a strong notion in socially optimal allocation of resources in which the concept of (re)distributive justice is at play. Redistributive justice aims to serve more community interest as a whole rather than individual rights such as rights to private car ownership, free use of cars for convenience mobility. When green transport and public transit are promoted to assert the intrinsic value of natural assets, which are communal in nature, redistributive justice is also an equity issue that, through public subsidies, offer lower income groups or aged groups who do not drive more equitable access to destinations with affordable prices and ease of travel.

Social welfare approach is only made possible by sizeable aggregate growth from which trade-off is made to support it. Where social welfare maximization is exercised, the extent of trade-off from tax revenues is inclined to be even much higher (see Toman 1994; Buchholz 1993). In view of rising subsidies required by public authorities to support social welfare and budgetary restrictions, many Western economies influenced by British Thatcherism since the 1980s have placed greater emphasis on competitive pricing, coupled with privatization and outsourcing of operations to cut subsidies (Holden et al. 2013). Consequently, more market-oriented public transport operations have been put under practice these days.

No doubt it is firmly believed that public transit system could reduce private car use and is more environment-friendly, though effective transit promotion has to be achieved through public subsidies as incentives to users. Yet, there is another group of researchers who have found that people can be highly environmentally conscientious that they are prepared to give up driving. In their study in the highly motorized Buenos Aires, Argentina, Jakovcevic and Steg (2013) tested the acceptability level of 160 interviewees about their willingness to reduce car use. Using the Value-Belief-Norm theory of environmentalism as the framework, the authors discovered that the committed value towards environmental conservation could influence people's behaviour and mobility habits, and become part of their morality values. Their results showed that acceptability to reduce car use and support for sustainable transport was higher among those having strong biospheric and altruistic values than those with hedonic and egoistic values. The former value holders made up the majority of the interviewees. Whilst it remains uncertain if this altruist morality values are universally relevant or applicable to less developed countries such as China, two practical experiences on sustainable transport deserve attention here.

12.2.4 Sustainable Transport in Practice: Singapore's Integrated Transport and Cycling in Copenhagen

Singapore's Integrated Public Transport

Singapore's typical management of motorization through its persistent and tough car ownership and usage control is known worldwide. Its pragmatic practice and management of transport has been modelled to some extent by China under reforms since the 1980s. In theory, this stringent control aims at ensuring smooth flow of vehicular traffic in an island state of merely about 700 km^2 and a population of 5.3 million. In 2012, roads and related facilities had already taken up 12 % of total land space, and it was considered that further road expansion had to be dealt with cautiously in a land scarce city state. The ratio of private car to population had been maintained at more or less 1–10 over the last 10 years (LTA 2013); this reflects the high degree of difficulty in access to car ownership in a relatively affluent Asian nation. Consequently, the tough private car control is by rationale compensated by

a strong policy support towards public transit, using an integrated public transit mechanism.

To satisfy higher expectations of the population, Singapore's Land Transport Authority (LTA) has strengthened its quality of service in many ways. First, it has increasingly incorporated a commuter-inclusive and non-profit oriented public transit notion. In a densely built-up island state, it will use more environmentally friendly vehicles whose noise pollution impact will be lower. To meet the peak hour demand of commuters, more mass rapid transit (heavy-railed MRT) lines and trains will be provided, and flexible working hours are increasingly encouraged. By 2030, 75 % of peak hour commuting trips are expected to be made by transit transport, increasing by 110 % from today. In 2013, the average daily passenger trips were 4.24 million islandwide. More passenger trips were made in public bus than rail-based MRT; but rail trips were longer in distance and time as buses served more as a feeder tool to MRT stations, especially key terminals, and to destinations that the MRT did not cover (see LTA 2013 – its Master Plan, Wong 2013). Bus fares were on average 50 % cheaper than a comparable Asian city – Hong Kong, an indication of high-subsidies in its budgeting. Figure 12.1 shows the radial- and loop-patterned rail transport in Singapore, which is complemented by public buses.

Singapore's rail-based transit is designed with a largely radial pattern converging towards the city centre near the port in the south of the island. It is integrated and

Fig. 12.1 Singapore rail-based mass rapid transit, 2014 (Source: Land Transport Authority Website (2013) https://sp3.yimg.com/ib/th?id=HN.607990021599856643&pid=15.1&P=0)

supplemented by short-distance light rail transit (LRT) in the form of loops, and feeder bus system. The islandwide bus system had in 2007, 325 routes, a comprehensive coverage and its services are mainly circumferential in design, supporting the weaker links of the rail system. Choice of rail-service stations is tied in with residential and business/industry intensity in the city-state. Bus terminals, MRT stations and shopping malls are often integrated in one place or a hub, which facilitates smooth transfer of passengers, and satisfies daily needs of residents and commuters alike (see Han 2010). Discussion of Singapore's sustainable transport application is supplemented by a welfare state, Denmark which uses fiscal revenues to support cycling for ecological considerations.

Cycling in Copenhagen, Denmark

A study by Pucher et al. (2010) shows the share of trips in daily commuting by cycling varied substantially between large European cities during the 2000s. It was a low 1.2 % in London, 2.5 % in Paris, 10 % in Berlin, and as high as 37 % in Amsterdam and in 38 % in Copenhagen. Their study also shows cities enjoying high rates of cycling are supported by a cycling friendly environment and infrastructure such as on-road bicycle lanes, two-way travel on one-way streets, shared bus/bike lanes, off-street paths, signed bicycle routes and cycle tracks. Other supplementary infrastructure or features include coloured lanes, shared lane markings, bicycle traffic signals, maintenance services, traffic calming and control, home zones, car-free zones, park and ride facilities etc. (Pucher et al. 2010). Highest concentration points of bicycles are terminals served with integrated packages where car use is highly restricted.

Popularity of cycling in Copenhagen has its historical root in bicycle usage and a strong government support. Also, as a relatively small city with predominantly low-lying lands, traffic calming measures are more easily implementable than large cities like London and Paris. In 1995, Copenhagen became the first city in the world offering free-bike sharing services, and in 2007, Copenhagen municipality announced an ambitious plan to make the city "the world's best city for cyclists" before 2015. By 2010, the city was found to have 350 km of cycling tracks, 23 km of cycling lanes as well as 43 km of green cycle routes. Quite surprisingly, according to a survey conducted in 2010, 55 % of the respondents in Copenhagen cited faster speed being their reason for cycling, while 33 % felt "more convenient" and 32 % cycled for "healthy" reasons. Moreover, two-thirds of interviewees felt that it was safe to cycle (see Gossling 2013).

Both cases cited above on Singapore and Copenhagen have been referred to not only as an ecological initiative but also as a social equity measure. In this sense, they serve as valuable transport sustainability options in justifying allocations of highly valued urban land and public outlay in promoting an environmentally friendly motorized and non-motorized transport.

12.3 Characteristics of Sustainable Urban Transport in China

Over the last three decades, China's urban population has grown from a low 18 % to over 50 % today. Large-scale urban expansion and urban-related infrastructure has been deployed by the reformist administration as a means to bolster higher value producer services and export-led manufacturing industries. Transport infrastructure heavily invested has helped regions to link up more effectively and productively by capitalizing on their comparative advantages (see Comtois 1990). The double-digit annual domestic gross product growth thus achieved has paid heavy prices with serious environmental damage, resulting in an ecologically unsustainable situation (Wu 2012; Wong 2011). Appeals for green sustainable transport and implementing sustainable travel policies have since been on the air with great urgencies (He et al. 2013; Wei et al. 2013; Zhao 2013).

Since the advent of economic reforms in 1978, the work-cum-residence unit system which allowed urban workers to walk or cycle conveniently to work had gradually dissolved. The new reformist and market-led policy has enabled individual mobility freedom to optimize use of labour resources and efficiency. Extensive urban growth and suburbanization which followed has resulted in extended commuting distance and time of the workforce. Following rising incomes and emergence of urban middle classes, car ownership in China has risen rapidly, encouraged by car use advantages such as door-to-door delivery, flexible timing, shorter commuting time, comfort and as an indicator of social status (see Mackett 2013; Pan 2013). Indeed, vehicular growth in China had grown from 1.78 million in 1980 to 51 million in 2008 or 28.6 times over just 28 years. At the same time health hazards arising from industrial wastes, discharge of greenhouse gases, congestion and different forms of pollution are on the rise (Wong 2011; Zhao 2013; Liu and Diamond 2008).

By priority, therefore, the most critical measure to achieve sustainable urban transport is through control of private motorized transport (reduction of car use, promotion of public transit supported by integrated interchange system) that facilitates mobility, and facilitating non-motorized transport (cycling and walking). These two modes have been discussed above in detail with respectively Singapore and Copenhagen's cases. Further evidence in this aspect can be derived from the recent study of He and his partners (2013) on energy use and carbon emissions from urban passenger transport in China. Their study admitted that taking no action or keeping "business as usual" would continue to incur substantial annual economic loss up to 10 % of the GDP due to congestion, pollution and climate warming effects. China's transport sector in 2010 had produced 20–30 % of total particulate matters. Since 2005, fuel taxation measures have helped reduce fuel consumption by 15 % within 4 years. After introducing the stringent "traffic demand management" policies in Beijing and Shanghai, for example, through vehicular ownership and usage control, congestion and pollution levels have ceased to deteriorate further, and public transit system has seen improvement. As discussed earlier,

promotion of public transit would involve heavy public subsidies, and as such, it is essential to investigate the funding sources of cities as local governments in China.

12.3.1 Funding Mechanism of Local Governments

China's financial system was administered under a highly centralized planned economy from the early 1950s to 1994. In 1994, financial decentralization began as economic reforms intensified and incentives to provincial and local governments to support economic initiatives were provided. This new legislative measure allows local authorities to enjoy a great extent of localized power in decision-making, financial incomes in exchange for responsibility in the execution of public policies. Decentralization however has many limitations. First, local governments are merely implementers as they are not empowered to make key decisions on macro-level policies in relation to local developments; major policies still come from the central government (Liu and Yu 2012; Pan 2013).

In terms of local taxes, local governments have been given the areas of collection specified by the central authority. Local governments have by no means the power to formulate their own taxation rules nor modes of collection. In recent years, the sharing of financial power has encountered rising conflicts between the central and local governments as high DGP growth rates have provided substantial incomes to the latter. Higher local incomes have led the central government to tighten up local collection, and distribute heavier execution responsibility to local governments. This measure has seriously hit lower income provinces including Guizhou as heavier responsibility means higher administrative costs. Another dilemma is that financial decentralization measures have not been effectively enforced and there are loopholes in the by-laws (Pan 2013).

Additionally, three areas of weaknesses have been identified in the handling of financial matters by the public authorities: (a) negligence of the market forces; (b) actions undertaken by top government levels are slow moving and have failed to meet up with the demand of reforms; and (c) as GDP growth is the key yardstick to assess performance, local government officials are more focused on the output of the sectors they manage; this has resulted in negligence on the quality and quantity of supply and services (Wei et al. 2013; Pan 2013). Consequently, despite that public transport was listed by the State Council as a priority sector in 2007, these weaknesses have affected the transport sector in its quality of delivery and execution of environment-friendly policy measures.

12.3.2 Funding Sources of Local Governments

Off-budget funds are most often used by cities to fund their transport infrastructure development, maintenance and services, including public run transit services. These funds include borrowings, donations, surcharges from consumers and land sales or land concessions granted. For high-cost transport projects such as underground construction, the sources could be multiple, including the city government (or its subsidiaries or firms), central government agencies, domestic bank and foreign bank loans, and sometimes private entities. For example, the Beijing Underground Line 4 was a public-private joint venture, involving the Beijing Capital Group, Beijing Infrastructure Investment Company Limited and Hong Kong MTR Corporation. This Hong Kong corporation was granted a 30-year operating franchise and given an opportunity to take part in its construction activities (Pan 2013). As mentioned earlier, public transit should be the mainstay and responsibility of public authorities involving subsidy mechanisms to attract users. Arguably, public transport serves not only as a means towards green urbanism but also as a social equity actor in sustainable transport.

12.4 Sustainable Transport in Guiyang City

This section focuses on Guiyang city on how sustainable green transport has been promoted. Situated in the predominantly mountainous south-western part of China, physical barriers to movement of goods and services in the city are enormous. This is due to the fact that mobility over the rugged terrains is measured not only in terms of length, but also time and cost (see Comtois 1990). Here, modern physical infrastructure covers roads, overhead bridges and tunnels dug across a large number of karst mountain ranges.

Over the last two decades, substantial transport investment from the central government and Guizhou provincial government has been channelled to support economic development of the poorer inner regions under the "Great Development of the Western Regions" (Li and DaCosta 2013). From the strategic viewpoint, transport links and improvements stimulate not only economic growth and productivity levels of lagging regions including Guizhou, but also produce effects in territorial integration. This serves to narrow the economic gaps between coastal and inland western regions, thus offering more equitable distribution of resources and consolidating national unity.

In a recent transport study, Wei and his partners (2013) compared 34 Chinese cities, ranging from highly developed Shanghai, Beijing to remote cities like Xining, Urumqi. What they found was that Guiyang City, the beneficiary of national transport infrastructure development policy, achieved a high-ranking position in both sustainability (effective use of natural resources, low pollution impacts) and capacity efficiency (investment in transport and related human resources, land allocated

to transport sector). Beijing ranked at the bottom of both efficiency assessments due to high pollution levels caused by haze, noise, and other pollutants. Beijing is also handicapped by low environmentally efficient urban transport, and inadequate investment in public transit by population size. We now examine the long-term transport plan of Guiyang City in promoting green urbanism.

12.4.1 Guiyang City Masterplan (2009–2020) and Green Urbanism

China is now the country with the highest domestic sales of motorized vehicles in the world. Rising affluence, urban growth and changing consumerist lifestyle have led to a substantial rise in cars from 24 million in 2003 to 137 million in 2013, a rise of 5.7 times in 10 years. Beijing, the capital city is leading with 5.37 million cars, or about one for every 3.5 residents, which is comparable to New York (see Jiang 2014). Like other Chinese cities, Guiyang city has shared similar experience in recent years. In 2008, the city had about 380,000 motorized vehicles but in mid-2013 the figure went up to 690,000 units (Liao 2008; Baidu.Net 2014), a rise of 81.6 % in just five years. Despite restrictive measures taken to control private car possession and usage, deteriorating traffic conditions, air pollution and noise nuisance have raised pressing concerns which require a faster pace in implementing green transport to protect the urban environment. The Guiyang City Masterplan is a case in point.

Guiyang City covers 8,034 km^2 and comprises 10 districts (Nanming, Yunyan, Baiyuan, Huaxi, Wudang, Xiaohe, Qingchen, Xiuwen, Kaiyang and Xifeng) (Wang 2010). In spatial planning, much focus of the Masterplan aims at decentralization and control of urban sprawl. Accordingly, the multi-nuclei concept, known as "one core, three development belts and multi-clusters" is applied. Outside the main city core area, four key clusters have been designed to decentralize central functions. These are Shawen High-Tech Cluster, Xintian Cluster, Longbaodong Cluster and Huaxi Cluster, with a total area of 100 sq. km planned for 820,000 people. To prevent development projects from being overly concentrated, they are spatially not a contiguous entity but interspersed by nature reserves such as Shili Hetan, Wetland Park, Qianlingshan Nature Park (see Fig. 12.2).

By 2020, Guiyang's whole built-up area covers 300 sq. km for a target city population of 3.2 million while the core area will comprise of 200 sq. km planned for 2.38 million people. The three development corridors stretch in the north–south direction, following largely the physical terrains integrating nature areas (hills, waterbodies and forests) fit for future expansion in an ecologically compatible setting. Nature areas will act as an air filter, anti-pollution agent, climate moderator and aesthetic inducer (Li and Li 2013; Guiyang Daily 2013).

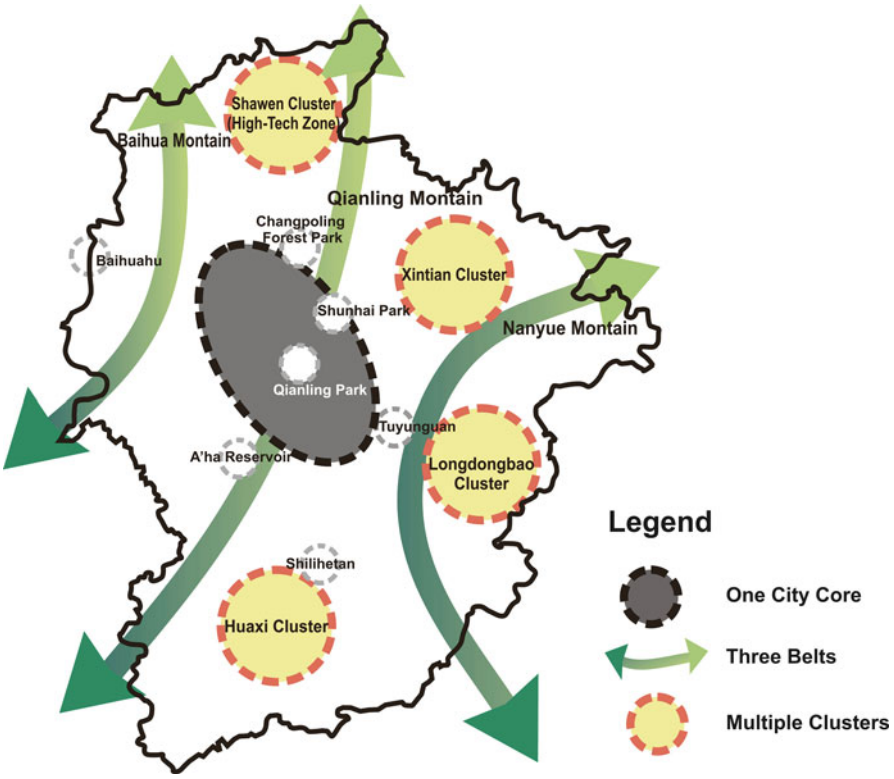


Fig. 12.2 Spatial master planning of Guiyang city (2009–2020) (Source: Adapted from Guiyang City Masterplan (2009–2020))

12.4.2 Promotion of Green Transport

For Guiyang, promoting green transport implies multiple objectives. With regards to use of environment-friendly motorized transport and non-motorized transport, the former involves use of low carbon energy sources (electric-, solar- and natural gas-powered), lower consumption of fuel by means of collectively used public transit (rail and road-based), and other modes than private cars. Getting more commuters to use transit not only helps to cut down fuel consumption, but also mitigate the levels of pollution and congestion. For non-motorized modes, they do not require fuel consumption and are basically relatively slow in motion such as cycling and walking.

The Guiyang Masterplan is strongly oriented towards public transit system, and during the masterplan period, the transport sector would be allocated an investment equivalent to 3–4 % of the city's GDP. This includes road surface development in the city area with a target set at 11.5 sq. m per capita by 2020. There will also be

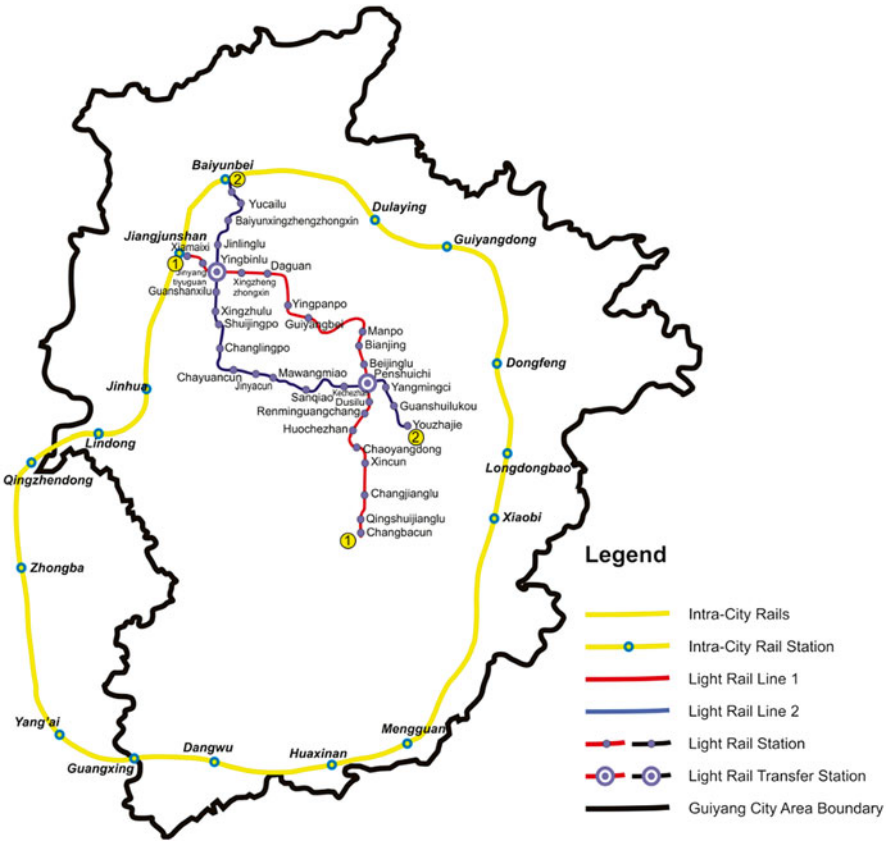


Fig. 12.3 Rail transit planning of Guiyang City (2009–2020) (Source: Adapted from Guiyang City Masterplan (2009–2020))

around the city ring-rail system with 16 stations. Within the city area, two light-rail lines will be provided from north to south (see Fig. 12.3). The figure shows the high population areas in the city centre will be served by light rail stations but they are not well integrated with the suburban circular rail network at this planning stage. Connections and integration between these two rail systems will have to be fulfilled by public bus services which are cheaper and easier to be provided.

By 2015, when the light rail is ready, it is anticipated that no less than 30 % of passenger trips would be made by public transit. By 2020, the Masterplan aims to raise this rate to 45 % whilst hoping to control car commuting trips under 25 % (Li and Li 2013). At this stage, it is uncertain what policy instruments have been contemplated by the Guiyang municipal government to achieve this set target. Till now, no market-based measures (car taxes, restrictions in car ownership), or socially desirable measures aimed at car ownership and use control have been officially announced to stimulate change in commuting behaviour.

In the promotion of cycling, actions have been to an extent undertaken. In early 2013, the first 2.5 m cycling track was open to cyclists along the tree-lined Jinyang South Road. This slow transport came rather late after the city had gradually abandoned bicycle from the 1990s when mechanized transport quickly replaced cycling, the main mode of street user then. The return of cycling has symbolized a renewed mindset adaptation linked to the new lifestyle of a fast moving city, in response to environmental and health awareness in the midst of a polluting and increasingly congested living environment (Li 2013).

According to Guiyang Masterplan 2009–2020, the city will provide five main cyclist tracks. In the touristic Guanshanhu District of Guiyang, a total of 60 km of cycling tracks will be provided. Other four lines are spread around the city, including along the green corridors, the old inner city zone and areas with high concentration of businesses and offices receiving large daily commuting workers and visitors. Cyclists will be served by 500 parking spots designed in close proximity to local attractions and services. Park and ride services are also designed to facilitate commuters to take up connecting public transit. In meeting the requirement for bicycle lanes, building setback from roads in many areas will be widened to make way for pedestrians and cyclists (Li 2013; Guiyang Daily 2013).

Nevertheless, Guiyang, as a young initiator in green transport, has a number of missing links in its Masterplan. First, its modernity-led urban renewal over the past two decades had basically ignored cycling as a mode of transport. From observations today, one hardly finds any cyclist in the highly urbanized zone, and cycling is seen as a risky undertaking.

The second feature in Guiyang is the lack of consideration for pedestrians as motorists do not respect much their presence in street crossings. Indeed, walking is an important and indispensable linking element in commuting patterns. In acknowledgement of the fact that Guiyang city has a large proportion of its land covered by hills and rugged terrains which make cycling frequently difficult, appropriate walking design and planning has good potential in minimizing conflicts with motorized transport. Walking acts as a connecting agent from home to rail or bus stations from where mechanized transport starts and vice versa. At this historical juncture of transport restructuring in Guiyang, it is relevant to trace a city of cyclists such as Copenhagen what they do to achieve sustainable green urbanism.

On the contrary, the issue of cyclist safety is the main concern these days in Chinese cities (Guangzhou Daily 2007). More serious consideration in facilities and safety measures will be needed if cyclists are seen as shared road users but not as a nuisance to traffic! Another slow moving mode of city traffic that needs to be given due consideration is walking.

Walking

When walking environment is comfortable and safe in an urban setting, not only it strengthens connectivity from home to a transit point, it promotes equally health, social equity and a cleaner environment. Indeed, Conducive physical walking

Fig. 12.4 Open pedestrian walkway in busy city centre, Guiyang (Source: Author)

conditions act as an inducer towards human social acceptance in hearts and minds functioning as cultural habits.

What is critically needed is a well-working inter-modality between the pedestrians and a good transport service within a safe and comfortable walking distance. In Guiyang today, the forbidding barriers could be a cluster of problems that deter pedestrians such as lack of physical and social spaces, lack of equipment and services in outdoor spaces, interference with motor vehicles, poor support to connect with other modes of transport and poor environmental features (Raubala 2007). Open and underground walkways for pedestrians are also often crowded and obstructed by petty traders (see photos in Figs. 12.4, 12.5, and 12.6). Once barriers are optimally overcome and the passage is made more attractive, pedestrian behaviour could be established and turned into a routine daily habit and practice, thus facilitating inter-modality mobility and contributing towards green urbanism being pursued.

12.5 Concluding Remarks

Economic priority model used to be adopted by the Chinese government under reforms to bolster economic performance and a yardstick in promoting government leaders. This was executed practically at the expense of environmental protection (Liu and Diamond 2008). Recently, in response to international appeals, rising

Fig. 12.5 Underground pedestrian walkway, Guiyang (entrance and exit point) (Source: http://pic.sogou.com/, accessed August 2014)

Fig. 12.6 Underground pedestrian walkway, Guiyang (with petty traders) (Source: Author)

domestic environmental degradation due to high rates of urbanization and corresponding pollutants, China has made a paradigm shift towards urban sustainable development as a development priority, in which green transport is one. Green transport is a relatively new concept to the Chinese administration which still lacks clear visions, targets and indicators to guide policy implementers and enforcement officers. A reform of China's administrative and institutional system is seen to be crucial to make the paradigm shift work better (Liu et al. 2014; Liu and Diamond 2008).

Sustainable transport involves basically a triangular relationship between economic, environmental and social pursuits which are intertwined and mutually dependent. This study investigates the implementality of Guiyang city's ambitious Masterplan (2009–2020) to transform the city into forest-cum green transport city while challenges are abound ahead of time. As a low-income city, Guiyang has to rely on the central government for substantial support in its heavily subsidized public transit programme and infrastructure development. Long-term subsidies to public road- and rail-based transit system would help achieve social equity and a greener environment. Other support devices include provision of incentives to cycling and pedestrian-related services, acting as traffic calmers to mitigate the pressing impact of a fast rising car traffic. Guiyang is also characterized by karst mountains, found interspersed through the city and its suburbs, which makes environmental sustainability a thorny issue as nature conservation is impeded by the need to dig sizeable tunnels to improve intra-city connectivity and traffic flow. Such dilemma is nevertheless compensated with hope equipped a well-intended plan aimed at green urbanism as a goal.

References

Baidu.Net (2014) Vehicle numbers in the main cities of Western China. http://tieba.baidu.com/p/2702288217. Accessed 20 May 2014

Berry BJL, Conkling EC, Ray DM (1992) The global economy: resource use, locational choice, and international trade. Prentice Hall, London

Buchholz RA (1993) Principles of environmental management: the greening of business. Prentice Hall, Eaglewood Cliffs

Comtois C (1990) Transport and territorial development in China 1949–85. Mod Asian Stud 24(4):777–818

European Commission (2004) Creating a world of sustainable cities: research for sustainable urban development and land use – UN-HABITAT and the EU. Office for Official Publications of the European Communities, Luxembourg. http://ec.europa.eu/research/environment/pdf. Accessed 25 Mar 2014

Gossling S (2013) Urban transport transitions: Copenhagen, city of cyclists. J Transp Geogr 33:196–206

Guangzhou Daily (2007) Why is riding bicycle unsafe in the cities. http://news.ddc.net.cn/newsview_10011.html, dated 11 Sept 2007. Accessed 20 May 2014

Guiyang Daily (2013) Building slow transport "green corridor" to make Guiyang "shine". http://gy.house.163.com/13/0516/13/8V0HOPDP024203BD.html, dated 16 May 2013. Accessed 3 Jan 2014

Han S-S (2010) Managing motorization in sustainable transport planning: the Singapore experience. J Transp Geogr 18:314–321
He DQ, Liu H, He K et al (2013) Energy use of, and CO_2 emissions from China's urban passenger transportation sector – carbon mitigation scenarios upon the transportation mode choices. Transp Res A 53:53–67
Hickman R, Hall P, Banister D (2013) Planning more for sustainable mobility. J Transp Geogr 33:210–219
Holden E, Linnerud K, Banister D (2013) Sustainable passenger transport: back to Bruntland. Transp Res A 54:67–77
Hutton B (2013) Sustainable transport. Routledge, Oxon
Jakovcevic A, Steg L (2013) Sustainable transportation in Argentina: values, beliefs, norms and car use reduction. Transp Res F 20:70–79
Jenks M, Burton E (1996) The compact city – a sustainable urban form? Spon Press, London
Jiang S-S (2014) The ranking of the 10 largest Chinese cities in motorized vehicles. Xinhua Net, dated 8 May. http://news.dahe.cn/2014/05-08/102826218.html. Accessed 20 May 2014
Land Transport Authority (2013) Land transport statistics in brief. LTA Singapore. http://www.lta.gov.sg/content/dam/ltaweb/corp/PublicationsResearch/files/FactsandFigures/Statistics%20in%20Brief%202014.pdf. Accessed 30 Aug 2014
Lautso K, Weneger M (2007) Integrated strategies for sustainable urban development. In: Marshall S, Banister D (eds) Land use and transport. Elsevier, Amsterdam, pp 153–175
Li K (2013) City slow system: green transport practice in Guiyang. http://www.gzcpc.com/2013/06/09/88803.html, Contemporary Pioneer Web, dated 9 June 2013. Accessed 2 Jan 2014
Li Y, DaCosta MN (2013) Transportation and income inequality in China: 1978–2007. Transp Res A 55:56–71
Li C-H, Li J (2013) Reply from the State Council on Guiyang City Masterplan (2009–2020). http://www.tcmap.com.cn/art/2013-3/233356.html. Accessed 12 Apr 2014
Liao Q (2008) Motorized vehicles in Guiyang City has exceeded 38000. http://gzdsb.gog.com.cn/system/2008/12/24/010438244.shtml. Accessed 20 May 2014
Liu J-Q, Diamond J (2008) Revolutionalizing China's environmental protection. Science 319(5859):37–38
Liu Z-J, Yu C-G (2012) Evolution of financial decentralization and its innovative methods. http://suxin.taoshumi.com/paper/economics/004/10020_2.html. Accessed 21 Mar 2014
Liu H-L, Zhou G-H, Wennersten R, Frostel B (2014) Analysis of sustainable urban development approaches in China. Habitat Int 41:24–32
Mackett RL (2013) Reducing car use in urban areas. Transp Sustain 3:211–230
Maler KG (1991) National accounts and environmental resources. Environ Resour Econ 1:1–16
Mikeska G, Tabor J (2009) Development beyond the central city: eco-infrastructure in Ulcinj, Montenegro. Urban Institute Center on International Development and Government working paper no. 2009–07
Pan H-X (2013) Implementing sustainable urban travel policies in China. Transp Sustain 3:43–76
Pucher J, Dill J, Handy S (2010) Infrastructure, programs, and policies to increase bicycling: an international review. Prev Med 50:S106–S125
Raubala K (2007) Promotion of walking: a complex interdisciplinary task. In: Marshall S, Banister D (eds) Land use and transport. Elsevier, Amsterdam, pp 293–311
Solow RM (1986) On the intergenerational allocation of natural resources. Scand J Econ 88:141–149
Toman MA (1994) Economics and "sustainability": balancing trade-offs and imperatives. Land Econ 70(4):399–413
Wang C (2010) Guiyang City Masterplan (2009–2020). Urban and Rural Planning Office of Guiyang City. http://gy.funlon.com/p/09099/36980_6.html. Accessed 10 Jan 2014
Wei JC, Xia W, Guo XM, Marinova D (2013) Urban transportation in Chinese cities: an efficiency assessment. Transp Res D 23:20–24

Wong T-C (2006) Achieving a sustainable urban form in Southeast Asia? An investigation of the Kuala Lumpur mega-urban region. In: Wong TC, Shaw BJ, Goh KC (eds) Challenging sustainability: urban development and change in Southeast Asia. Marshall Cavendish Academic, Singapore, pp 146–171

Wong T-C (2011) Eco-cities in China: pearls in the sea of degrading urban environments? In: Wong T-C, Yuen B (eds) Eco-city planning: policies, practice and design. Springer, Dordrecht, pp 131–150

Wong T-C (2013) The imperative to use manpower and economic considerations in population planning. Lianhe Zaobao (Singapore Chinese newspaper), 1 Mar 2013, p 22

Wong T-C, Yuen B (2011) Understanding the origins and evolution of eco-city development: an introduction. In: Wong T-C, Yuen B (eds) Eco-city planning: policies, practice and design. Springer, Dordrecht, pp 1–14

Wu FL (2012) The development of migrant villages under China's rapid urbanization: implications for poverty and slum policies. Economic & Social Research Council, Swindon

Zhao J (2013) The development of green sustainable transportation in China. Transp Sustain 3:99–117

Chapter 13
Location of Affordable Housing in Nanjing, China

Jia You, Hao Wu, and Sun Sheng Han

Abstract Classic location theory matches individuals' locational choices for durable housing in a competitive market context. Affordable housing is treated as a partial public good where the government has major influence on their physical and spatial attributes. This chapter identifies the location characteristics of affordable housing in the city of Nanjing, and explores the forces behind their locations. By mapping and analyzing all the affordable housing projects (2002–2011) along with associated policy documents, semi-structured interviews and project data, it is found that the location of affordable housing in Nanjing is an outcome of the local governments' effort to minimize land revenue loss in answering the central government's concern of social equity. Affordable housing locates in accordance with market principles with a twist from the existing space defined by administrative boundaries.

13.1 Introduction

Affordable housing in China may be defined as a form of subsidized housing that is facilitated by government as part of the social security system and the national/local housing management strategy. It aims to ease pressure of housing demand from lower income groups to promote social equity given the increasing income gap in Chinese cities. Affordable housing has been constructed nation-wide, e.g., over 4.4 million affordable housing units were completed in the period 2000–2009 (China Bureau of Statistics 2001–2010), making it a main contributor to the delivery of the 36 million social security housing units in China's 12th Five Year Plan. According

J. You (✉)
Department of Construction and Real Estate, The Southeast University,
No. 2 Sipailou, Xuanwu District, Nanjing, Jiangsu, China
e-mail: youjia_seu@163.com

H. Wu • S.S. Han
Faculty of Architecture, Building and Planning, The University of Melbourne,
Parkville, Victoria 3010, Australia
e-mail: haow@unimelb.edu.au; sshan@unimelb.edu.au

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_13

to the 2010 Guidelines to Promote the Development of Public Rental Housing, "security housing" comprises affordable housing, low-rent housing, houses with price/unit-size cap (*Liang Xian Fang*), and public rental housing. The important role that affordable housing provision plays in China's urban management framework is apparent.

The production of affordable housing is shaped by two fundamental forces prevailing in China's on-going economic transition. One is political. Affordable housing provision is taken by local officials as a political assignment from the central government. It's a job that needs to be done. The other is economic. The provision of affordable housing means a revenue loss as the land is allocated to affordable housing projects at subsidized prices. These two forces have created a unique context within which local officials work out a balance between their political and financial interests.

This chapter argues that the location of affordable housing is an outcome of local governments' efforts in minimizing land revenue loss at the same time meeting the expectations from upper level governments. By analyzing first-hand data collected from field reconnaissance and interviews, the following questions are addressed: What are the location characteristics of affordable housing projects in Nanjing? How does the location of affordable housing fit into the urban land market? Why affordable housing in Nanjing locate as such?

13.2 Theoretical Context

The social security function of affordable housing demands a location which is very different from a location that is purely driven by the market, popularized by the classic location theory of von Thünen, Burgess, Alonso, Hoyt and Mills. Among other factors, commute cost, income, employment, density, land use types, are key to the bid-rent theory (Alonso 1964). Besides the distance-rent pattern, lower income households tend to live closer to the city center than higher income households (Park et al. 1925). Similar land use, for example residential, tends to cluster at particular direction from the city center (Hoyt 1970). The classic theory, largely demand oriented, reveals the very nature of immobility faced by lower income households within certain spatial (regional) settings. As a social security, affordable housing is controlled by the government for a small profit margin thus reduces its competitiveness in the land market. By market principles, affordable housing tends to locate in remote sites as they lose in land bidding to competitors i.e. more competitive land use. However, the need on social equity in provision of such housing demands the locations to be close to jobs, transport and services. This brings back affordable housing from remote sites to inner cities, as in most cities the central locations are the places with better access to services and desirables. This implies the crucial role of policy and incentives in the location decisions of affordable housing.

Existing literature offers a continuous debate on where affordable housing projects should locate. So far opinions are set in between two extremes, namely remote

vs. central locations (Diamond 2009; Tiley and Hil 2010). The clear government objective to reduce the concentration of social housing by policies and regulations attests the undesirable location outcome which is characterized by continuous isolation of social housing occupiers from the surrounding community (Carter et al. 1998; Newman and Schnare 1997). This isolation is often associated with poverty and social problems such as high crime rate and poor education quality in poorer neighborhoods (Hirsch 1983; Meng et al. 2004; Rohe and Freeman 2001). It is generally agreed that government policy should discourage social segregation of low-income households.

Reasons of isolation in affordable housing and the role of the government vary and may be categorized from economic, historical and political perspectives. These may include innovative project finance, e.g., high reliance of local finance agency (Bright 2005), and quality partnering developer (Oakley 2008), e.g., ING's social housing development at Melbourne's Docklands. Income constraint is a basic factor. So is the lasting effect of historic decision. For example the current location preferences of social housing in some US cities may be a legacy of the creation of twentieth Century urban ghettos (Deluca et al. 2013). The literature shows limited evidence of detrimental effect of social housing on nearby property market values (Briggers et al. 1999; Galster et al. 1999; Goetz et al. 1996; Lyons and Loveridge 1993; Nguyen 2005; Santiago et al. 2001), the neighborhood "not-in-my-backyard" (NIMBY) attitude remains, and to become barriers to public housing policies (Finkel et al. 1996). Government election cycle and revenue interests also impact on location decision and pattern of social housing (Pietila 2010; Polikoff 2006; Abt Associate 2006). Local government may be unwilling to offer tax incentive for subsidized housing in qualified areas. Social housing in the US often seems to locate adjacent to urban slum in inner city area.

It is observed that affordable housing projects in Chinese cities are often built in urban fringe areas, but with little regularity in location choice. Literature shows that location theory is directly relevant in explaining land markets and patterns of residential location (Li 2003, 2011; Ding 2004; Han 2004; Wang 2009; Li et al. 2005). Meng et al. (2004) found that affordable housing projects in Beijing (1998–2002) are mostly built outside the 4th Ring Road. In Nanjing, affordable housing projects are found alongside the City Ring Road, which is the outer boundary of the city's built-up area (Guo et al. 2011). Affordable housing projects are found concentrated in remote areas of Shanghai, Wuhan and Guangzhou, where facilities are usually lacking (Zhang et al. 2008; Song 2011). The government, however, may use its control power to influence land prices. There are affordable housing projects situating in inner city locations where land prices are high. A number of affordable housing projects are found at the southern section of the 2nd Ring Road of Beijing (Shen and Feng 2012). In Guangzhou, a 200-unit affordable housing development (*Dong Jun Li Jing Yuan*) is located within the inner ring road.[1]

[1] Southcn.com (source: http://www.southcn.com/estate/zhuanti/jingjishiyong/200307310709.htm).

The literature suggests that although China's urban land market is largely driven by market forces, lower income housing markets are subject to substantial local level interventions, including development control and housing distribution (Huang 2004). In particular, municipal governments intervenes market formation, location characteristics, housing reform, and the formation of housing policies and their implementation.

Explanations on the location characteristics take the fringe location to task. Urban land scarcity, the tension between local development and farmland preservation have pushed affordable housing to fringe area where land is cheap though facilities are poorly provided (Xu and Liu 2012). Local governments rely heavily upon land sale revenue to support their political/economic agenda. This makes it necessary to reduce the loss of income due to affordable housing (Zhang and Feng 2009; Zheng and Zhang 2010; Liu and Xin 2013). Other characteristics, such as transportation, accessibility, environmental quality and availability of public facilities and amenities also affect the valuation of land which help explain location choices of affordable housing projects (Ren and Wang 2005; Zhang and Feng 2009; Yang et al. 2009; Wang et al. 2010).

Competitive location decision are facilitated in well-functioning land markets, which is influenced by supply–demand balance, infrastructure condition, government policy, and local government's administrative power with specific political/economic strategies. The lack of theory of affordable housing in China not conforming to the fringe location pattern leads one to wonder the explanatory power of the classic location theory of affordable housing, whether centrally located affordable housing projects are outliers, and why they are located in central locations.

13.3 Affordable Housing Projects in Nanjing

Nanjing is the capital city of Jiangsu Province and one of the major metropolitan regions located at the Yangtze River Delta (Fig. 13.1). Nanjing commenced large-scale affordable housing projects in 2002. According to the Chinese Real Estate Yearbook (various years), building commencement of affordable housing by area had risen from 0.2 million m^2 in 2002 to 1.615 million m^2 in 2003 and to 2.14 million m^2 in 2007. In 2010, over 4 trillion RMB were invested in affordable housing projects in Nanjing.

Given the lack of well recorded projects in the 1990s, this study focuses on all affordable housing projects[2] (61 in total) built during the period 2002–2012 in the eight key districts (viz. Baixia, Gulou, Qixia, Qinhuai, Xiaguan, Xuanwu, Yuhuatai, Jianye) of Nanjing city. Based on the years that the site selection decisions were made, four sub-groups are established: 12 projects in 2002, 14 projects in 2005, 12 projects in 2007, 12 projects in 2008, and 11 projects in 2010. In 2013, a change in

[2]A list of these affordable housing projects was obtained from the Nanjing Municipal Housing Department. All projects are geocoded using their street addresses and GIS.

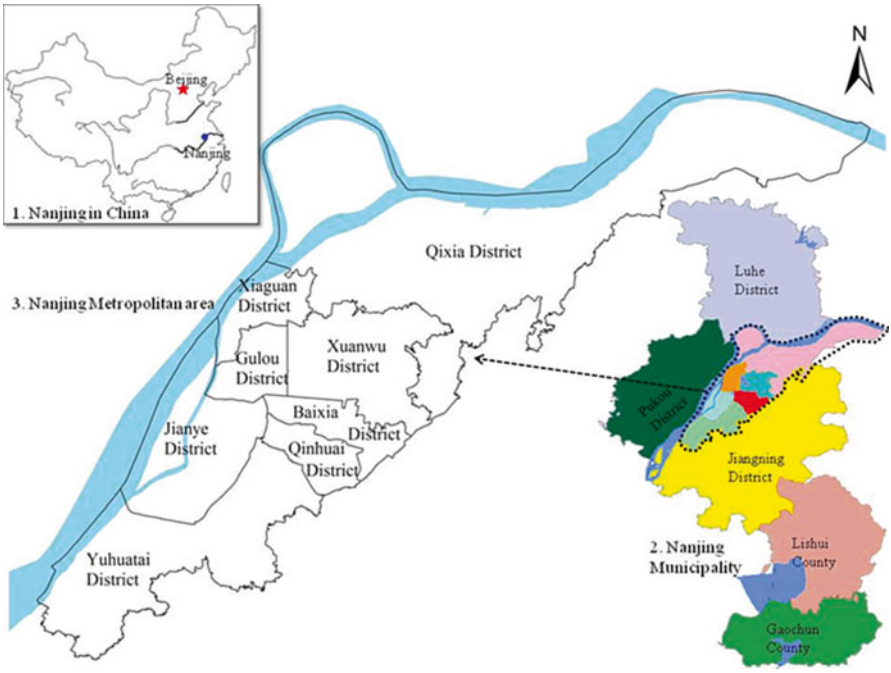


Fig. 13.1 Administrative boundaries – Nanjing, China (Source: prepared by author based on Google map captured on 10-04-2013 and map on http://en.wikipedia.org/wiki/Nanjing#mediaviewer/File:Subdivisions_of_Nanjing-China.png)

administrative districts was introduced, which led to the consolidation of the eight metropolitan districts into six. There is no variation to the metropolitan boundary though. The spatial distribution of the sample projects is shown in Fig. 13.2. In addition to secondhand information such as map layers of administrative/planning boundaries and government policy documents, data were collected through semi-structured interviews with key decision makers such as local government officials and developers, and through field reconnaissance conducted in 2010/2011.

Historical transaction data of land prices are often unavailable in Chinese cities. Three official sources are used to mirror residential land value and land acquisition cost in Nanjing: (1) the Location Classification of Nanjing Urban Housing Demolition-relocation (2003) which was the compensation standards applied to housing demolition-relocation within the eight key districts; (2) official benchmark value for residential land-use of Nanjing's River South region (Nanjing Bureau of Land Resources 2008); and (3) the Nanjing Compulsory Land Acquisition Compensation and Resettlement Regulations (2004) which was applicable to rural collectively-owned land being converted to urban state-owned land. The spatial distribution patterns of affordable housing units were identified using GIS mapping (Fig. 13.2). Content analysis was used to analyze the semi-structured interviews to identify factors and obtain insights on to the questions previously raised.

13.4 Spatial Distribution

Table 13.1 shows the affordable housing projects grouped by project commencement and by administrative district. Each district had at least one affordable housing project; however the distribution was uneven. Thirty four of the 61 projects were found in outer districts of Qixia and Yuhuatai while 11 were located in Xiaguan District (Fig. 13.2 and Table 13.1). In contrast, the inner Nanjing

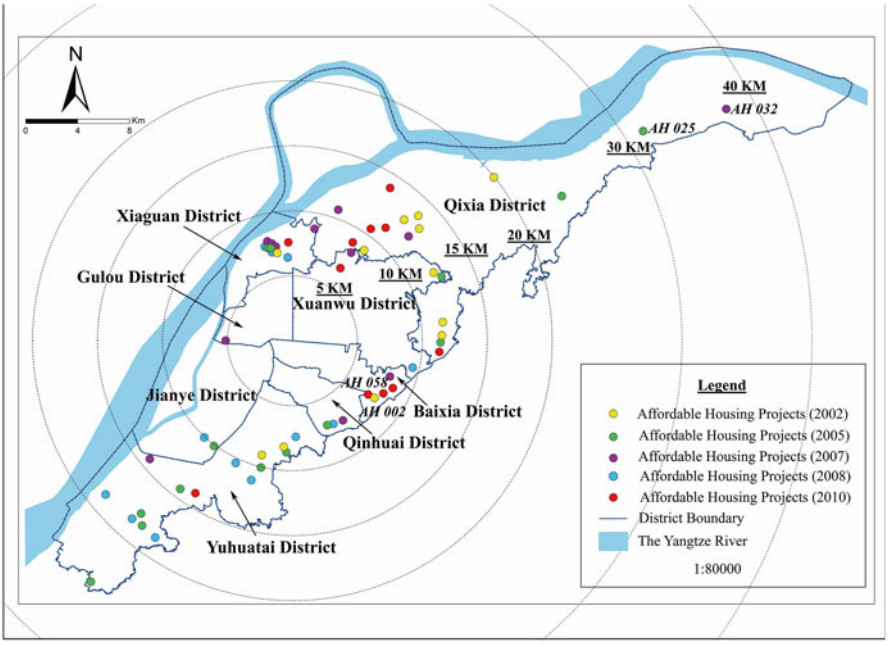


Fig. 13.2 Locations of affordable housing projects in Nanjing (Source: prepared by authors based on Google map captured on 10-04-2013)

Table 13.1 Affordable housing distribution in administrative districts

District	2002	2005	2007	2008	2010	Total
Gulou District	0	0	1	0	0	**1**
Xuanwu District	1	1	1	1	1	**5**
Baixia District	1	0	1	0	3	**5**
Qinhuai District	0	1	1	1	0	**3**
Xiaguan District	1	2	4	3	1	**11**
Jianye District	0	1	0	1	0	**2**
Yuhuatai District	2	6	1	6	1	**16**
Qixia District	7	3	3	0	5	**18**
Total	**12**	**14**	**12**	**12**	**11**	**61**

Source: Compiled by authors based on own data

district of Gulou District had only one project while Jianye and Qinhuai districts had two and three projects respectively. Xuanwu and Baixia districts each had five projects, located near district boundary of greater distance from the CBD. Between 2002 and 2010, the inner city had kept a constant number of affordable housing projects. The fact that Xiaguan District was a popular area for affordable housing projects was attributable to its history of being Nanjing's industrial center. This will be discussed further in the section on resettlement cost analysis.

In terms of distance to the CBD (i.e., Xinjiekou), most projects were found in the range of 5–40 km. 83.6 % of the projects were found in a belt of 5–15 km from the CBD. About 10 % of the projects were found in the range of 15–20 km from the CBD. No project was located within 5 km radius from Nanjing CBD.

There was no clear pattern identifiable from the time series data to show that the projects were located in more remote areas from the CBD. Neither observed was a clear relationship between project size and distance. Table 13.2 shows that in 2002 almost all projects except one were located within 15 km radius. There was a slight change of that pattern in 2005 where 64 % projects were located within the 15 km radius from CBD. The rest of the projects were located beyond 15 km from the CBD, with one of the projects (AH025) locating 32 km away from the CBD. In 2007, one project (AH032) was located 38 km from the CBD, but all the other 11 projects were found within the 15 km radius. In 2008, all projects were located within 20 km radius from the CBD, and 50 % were within 10 km radius. In 2010, all projects were within 5–15 km radius from the CBD. These characteristics of affordable housing location reflect the continuous cost vs. service concerns by local government. Issues such as economic growth, resettlement cost, access to infrastructure/transport, and outlier parcels are relevant considerations, which will be discussed in the later sections.

Table 13.2 Distance of affordable housing projects from Nanjing's CBD

Distance to CBD (km)	2002	2005	2007	2008	2010	Total
0–5	0	0	0	0	0	**0**
5.01–10	5	4	8	6	6	**29**
10.01–15	6	5	3	3	5	**22**
15.01–20	1	2	0	3	0	**6**
20.01–30	0	2	0	0	0	**2**
30.01–40	0	1	1	0	0	**2**
Total	**12**	**14**	**12**	**12**	**11**	**61**

Source: Compiled by author based on own data

13.5 Location and the Land Market

The land value in Nanjing is framed by the government graded land value zones. These zones define land values, compensation standards for urban properties, and compensation standards for collectively-owned land (e.g. non-urban land). The affordable housing projects are found in different value zones (Table 13.3).

None of the projects under this investigation locate in Grades 1, 2 and 3 zones which correspond to land parcels within 5 km radius from the CBD. There was one project located in the Grade 4 zone and four projects in the Grade 5 zone. A majority of the affordable housing projects were found in Grades 6, 7, and 8 zones. Fifteen projects were located in areas not included in the official valuation, mainly due to their land being held under collective ownership, or, land not yet feasible for residential development due to insufficient infrastructure. The price of land in these areas would not be higher than that in the lower grade zone (i.e., Grade 8). Indeed, the highest compensation rate for converting collectively-owned land to state-ownership was ¥113,000/mu (or ¥167/m^2). This was far below the grade 8 zone land value (¥2,800/m^2).

Overall a significant proportion (92 %) of affordable housing projects was located in lower grade value zones, which means land value below ¥6,000/m^2. 42.6 % of the projects were found in the grade 8 zone (¥2,800/m^2) or below. At the district level, projects were generally located in lower grade zones, i.e., grades 5–8. Over 55 % of the projects in the Qixia District were located in the grade 7 (¥4,000/m^2) zone. Xiaguan, Yuhuatai and Qixia districts had lower land values, where more projects were located in higher grade areas within these districts. Figure 13.3 provides a visual account of the observation.

The distance-based benchmark value was an indicative land value although it was not exactly the transaction value. Table 13.4 shows project locations by demolition benchmark prices. Eighty four percent of the projects were located in grade 4

Table 13.3 Affordable housing on state-owned land

Grade	Benchmark land price	2002	2005	2007	2008	2010	Total
Grade 1	RMB 20,600/m^2	0	0	0	0	0	**0**
Grade 2	RMB 14,700/m^2	0	0	0	0	0	**0**
Grade 3	RMB 11,800/m^2	0	0	0	0	0	**0**
Grade 4	RMB 10,400/m^2	0	0	1	0	0	**1**
Grade 5	RMB 7,400/m^2	1	0	1	1	1	**4**
Grade 6	RMB 6,000/m^2	0	3	4	3	2	**12**
Grade 7	RMB 4,000/m^2	7	2	3	3	3	**18**
Grade 8	RMB 2,800/m^2	0	5	1	4	1	**11**
Remaining area		4	4	2	1	4	**15**
Total		**12**	**14**	**12**	**12**	**11**	**61**

Source: Graded by benchmark land prices, compiled by authors

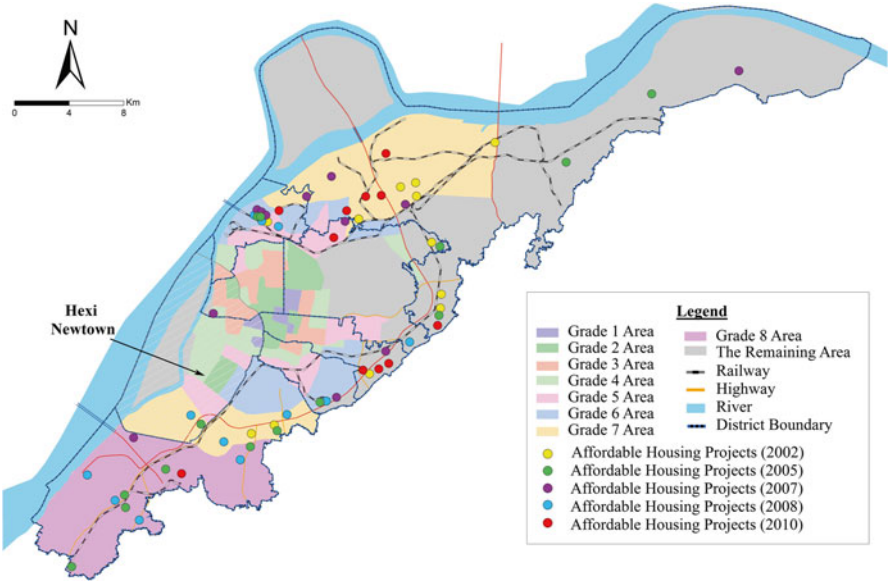


Fig. 13.3 Affordable housing locations on state-owned residential land (benchmark prices) (Source: drawn by author, based on Google map captured on 01-09-2011 and Nanjing Land Bureau 2008)

Table 13.4 Affordable housing on land with different demolition standards

Grade	Compensation benchmark	2002	2005	2007	2008	2010	Total
Grade 1	RMB 3,900/m^2	0	0	0	0	0	**0**
Grade 2	RMB 3,600/m^2	0	0	1	0	0	**1**
Grade 3	RMB 3,100/m^2	0	1	1	2	1	**5**
Grade 4	RMB 2,700/m^2	7	4	8	5	7	**31**
Grade 5	RMB 2,200/m^2	5	7	1	5	3	**21**
Grade 6	RMB 2,000/m^2	0	2	1	0	0	**3**
Total		**12**	**14**	**12**	**12**	**11**	**61**

Source: Compiled by authors, based on locations of projects and Nanjing Municipal Government (2003)

(¥2,700/m^2) and 5 (¥2,200/m^2) zones. A small number of projects were located in grades 2, 3 and 6 zones. No project was found in grade 1 zone. A similar pattern of project location, as shown in the analysis of state-owned land benchmark prices, is found at district level by demolition standard benchmark prices.

It was found that affordable housing projects tended to locate in cheaper urban areas and some were located in areas not even officially zoned as residential. Neither were the majority of these projects found at the cheapest locations (by land value zones). To a much less extent, affordable housing project was also found in a relatively central location. This suggests that affordable housing location in Nanjing as

explained by the classic location theory is relevant but inadequate, especially the use of land value schemes as the sole source to explain actual locations. The following section sheds light on the location factors.

13.6 Policy and Other Cost Considerations

13.6.1 Resettlement Policy

The interview results show that affordable housing in Nanjing during the study period was mainly built for resettlement purposes. For example 84.9 % of the 39,752 affordable housing units completed in 2002 and 78.4 % of the 33,059 units in 2005 were used to resettle the relocating residents. This left a remaining 15–20 % of the affordable housing stock to be sold to qualified lower-income residents who were not a part of the redevelopment project. In principle, each district government was responsible for the resettlement within its own administration,[3] unless the scale of the resettlement goes beyond its capacity. All relocating urban households from redevelopment projects were entitled to resettle in a location nearby the original residence. For major (and usually large scale) redevelopment, the municipal government would organize dedicated resettlement projects in the name of affordable housing to accommodate urbanites affected in multiple locations. These dedicated large-scale affordable housing developments were usually found in outer locations e.g. new towns.

Three types of resettlement projects were identified. The first type included 11 projects built for resettling the relocating households which were affected by large-scale developments (e.g., new towns and economic development zones). Majority of these affordable housing were built in peri-urban areas but there was an exception – the most centrally located project in Gulou district (see Fig. 13.2) was an example. The second type included eight projects which were built for resettlement of households affected by state compulsory acquisition projects (e.g., high-speed railway and industrial development). This explained the location of a number of projects which were close to transport lines or major industrial district in Xiaguan (see Figs. 13.2 and 13.3). The third type included three large-scale projects which were used for consolidating resettlement of various demolitions at multiple locations/districts. Among all the three project types, the location of resettlement-driven affordable housing was to address policy concerns about maintaining residents' social connection, providing high quality management, enhancing political stability, and minimizing dispute between local governments. Most of the concerns could be addressed at district levels. The only exception was the large-scale projects led directly by the municipal government as in this case multiple districts were involved.

[3]The Detailed Rules of Demolition, Relocation and Compensation for Compulsory Land Acquisition in Nanjing (item 5 of section 2).

13.6.2 Resettlement Cost

The cost for resettlement involved both financial expenses and time required, both of which varied according to existing land ownership and land-use. In terms of financial expenses, there was a large value gap between rural and urban sites (see Table 13.3). Interview data showed that it was not uncommon for housing projects to incur 50 % of its cost on land, while land cost in affordable housing projects was often below 30 % of the total cost. Having the lowest compensation rate, rural land conversion appeared to be the most attractive option. This was so even though the conversion of the collective- to state-ownership of land would require time (and thus possible delay of the project). Interview data revealed that most affordable housing projects in the urban fringe of Nanjing were situated on former farm land.

In urban areas, the land occupied by non-residential uses was preferred by developers. This was because of the potential time-saving by avoiding negotiation with existing residential tenants. Such negotiation, if included, was likely tough and lengthy which often led to high transaction costs and heavy project delay. Majority of the affordable housing projects were built on old industrial sites given lower negotiation cost and land values due to urban industry restructuring and relocation. For instance, Xiaguan district was an inner-city district historically specialized in heavy industries. Eight out of the eleven projects in the district (2002–2010) were built on former industrial sites occupied by state-owned enterprises. Negotiation cost and time efficiency were key motivations of these location decisions. Compared to adjacent districts, the affordable housing projects in Xiaguan district were larger in number yet smaller in scale. This was due to the configuration of former industrial sites.

13.6.3 Outlier Parcels

A market value of land is determined by a range of physical and social factors such as location, accessibility and local conditions of the site. Thus, outlier land parcels which do not attract the expected level of land price as projected by the bid-rent curve due to local conditions are in existence. In Nanjing, these outlier parcels were found next to large infrastructures. Because affordable housing sites were usually allocated at no cost thus would foregone a substantial income from potential sale of the site, local governments tried to minimize their potential loss of land revenue by locating affordable housing projects on less desirable sites. For example, railways and highways have negative externalities which could lower down the price of land alongside these linear infrastructures. Land parcels immediately next to these infrastructures are thus less desirable for commercial housing projects and potential sites for affordable housing projects. Indeed, 28 out of the 61 projects were located immediately next to main roads, highways, railways, the airport or other infrastructure and industrial areas (Fig. 13.3). By standing in between the noise generators

and commercial housing, these projects effectively acted as barrier to block noise and pollution. In 2010 the market price of a residential unit located opposite to an affordable housing project at the Hexi New Town area was ¥18,000/m^2, 6 times higher than the adjacent affordable housing unit.

13.6.4 Access to Infrastructure

Not all the planned residential areas were served by the existing pipelines, electricity network, sewers, and public transport. The areas with poor accessibility to infrastructure may be attractive to developers because of low land price. However, it would be impossible without building the new infrastructure before starting the affordable housing project in these areas. Given the fact that it was the government's responsibility to build the infrastructure, few affordable housing developments went beyond the areas with existing services. This explains why majority of the affordable housing were found within the 15 km radius from the CBD. For affordable housing extending to the green field, they were built in clusters in order to lower down the cost of infrastructure provision – the urbanization economy was at work! Figure 13.4 shows an example of clustered affordable housing development on former farm land with new urban infrastructure provided.

13.7 Summary and Conclusion

Affordable housing projects were built in all the eight key districts in Nanjing, spreading in a space from 5 km to 40 km radius from the CBD. Majority of the projects were found in locations 5–15 km from the CBD. There was only one project located in the most central district (i.e. Gulou District), but a couple were built in locations beyond 20 km from the CBD.

Multiple forces were at work in determining the location of affordable housing in Nanjing. First and foremost, the emerging land market provided a value framework within which the location of affordable housing was determined. The government schemes for land value and relocation compensation reflected a land value gradient with declining values moving away from the city centre. The increasing number of affordable housing projects found in locations farther away from the CBD was an indication that the bid-rent principle was at work. Further to the market mechanism, resettlement policy and other cost factors also shaped the location decisions. The policy requirement that relocating residents needed to be resettled within the same district created opportunities for affordable housing development in all districts including the central ones. Considerations on other cost factors, including relocation compensation, time for negotiation, site externalities and infrastructure provision provided further explanations to the location of affordable housing development in Nanjing.

Fig. 13.4 Cluster of affordable housing projects in Baixia District (Source: prepared by authors, based on Google map captured on 01-09-2011)

The location of affordable housing is an outcome of the market and policy forces which operated in a space defined by the administrative arrangement in Nanjing. Both market principles, for instance, the bid-rent function, cost minimization, and existing institutions (e.g., administrative and regulation framework, land ownership) are key factors in shaping the location patterns. This chapter sheds light on the interplay between the market and other institutional forces in affordable housing location. A proper understanding of the location factors is critical for innovative social housing policy and urban management in Chinese cities.

References

Abt Associates Inc. (2006) Are states using the low income housing tax credit to enable families with children to live in low poverty and racially integrated neighborhoods? Report prepared for the Poverty and Race Research Action Council and the National Fair Housing Alliance, Cambridge, MA

Alonso W (1964) Location and land use. Harvard University Press, Cambridge, MA

Briggers X, Darden JT, Aidala A (1999) In the wake of desegregation: early impacts of scattered-site public housing on neighborhoods in Yonkers, New York. J Am Plann Assoc 65(1):27–34

Bright K (2005) Low-income housing tax credits: helping meet the demand for affordable rental housing. AARP Public Policy Institute, Washington, DC
Carter WH, Schill MH, Wachter SM (1998) Polarization, public housing and racial minorities in US cities. Urban Stud 35(10):1889–1911
China Bureau of Statistics (2001–2010) Zhongguo fangdichan tongji nianjian [China real estate statistics yearbook]. zhongguo tongji chubanshe [China Statistics Press], Beijing
Deluca S, Garboden PME, Rosenblatt P (2013) Segregating shelter: how housing policies shape the residential locations of low-income minority families. Annu Am Acad Pol Soc Sci 647(1):268–299
Diamond M (2009) Affordable housing and conflict of competing goods: a policy dilemma (Chapter 1). In: Davidson NM, Malloy RP (eds) Affordable housing and public-private partnerships. Ashgate, Farnham
Ding C (2004) Urban spatial development in the land policy reform era: evidence from Beijing. Urban Stud 41(10):1889–1907
Finkel M, Climaco CG, Elwood PR, Feins JD, Locke G, Popkin SJ (1996) Learning from each other: new ideas for managing the section 8 certificate and voucher programs. Department of Housing and Urban Development, Washington, DC
Galster G, Pettit K, Tatian PA, Santiago AM, Newman SJ (1999) The impact of supportive housing on neighborhoods and neighbors in Denver. The Urban Institute, Washington, DC
Goetz EG, Lam HK, Heitlinger A (1996) There goes the neighborhood? The impact of subsidized multi-family housing on urban neighborhoods. University of Minnesota Centre for Urban and Regional Affairs, Minneapolis-St. Paul
Guo D, Li J, Wang Z (2011) Nanjingshi baozhangxing zhufang kongjian buju tezheng ji youhua celue yanjiu [Research on spatial distribution characteristics of indemnificatory housing in Nanjing and optimizing strategies]. Contemp City Res 3:83–88
Han SS (2004) Spatial structure of residential property-value distribution in Beijing and Jakarta. Environ Plan A 36(7):1259–1283
Hirsch AR (1983) Making the second ghetto: race and housing in Chicago, 1940–1960. Cambridge University Press, New York
Hoyt H (1970) One hundred years of land values in Chicago. Arno Press, New York
Huang Y (2004) Housing markets, government behaviors, and housing choice: a case study of three cities in China. Environ Plan A 36(1):45–68
Li LH (2003) Economic reform in the urban land system in China. J Contemp China 12(34):207–224
Li LH (2011) The dynamics of the Shanghai land market – an intra-city analysis. Cities 28(5):372–380
Li LH, Yao Y, Zhu C, Li X (2005) Managing Shanghai's urban land market – the dynamic of the Chinese transitional economy. J US-China Public Adm 2(8):24–40
Liu Z, Xin H (2013) Jiyu guihua guanli shijiao de baozhangxing zhufang kongjian xuanzhi yanjiu [Study on the spatial location selection of social housing from the perspective of urban planning management]. City Plan Rev 37(7):73–80
Lyons RF, Loveridge S (1993) An hedonic estimation of the effect of federally subsidized housing on nearby residential property values. University of Minnesota at Minneapolis-St. Paul, Department of Agricultural and Applied Economics, Minneapolis-St. Paul
Meng FY, Wong F, Hui ECM, Fung CC (2004) Economical housing provision in China (1998–2002): a case study of Beijing. Int J Strateg Prop Manag 8(2):87–104
Nanjing Land Bureau (2008) Nanjingshi jiangnan baqu zhuzhai yongdi jizhun dijia biao [Table of benchmark price on residential land within the Metropolitan Nanjing area]. http://www.mlr.gov.cn/tdsc/djxx/jzdj/201107/t20110721_906338.htm. Accessed 5 Sept 2014
Nanjing Municipal Government (2003) Nanjingshi chengshi fangwu chaiqian quwei jibie [Location classification of Nanjing urban housing demolition-relocation]. http://www.law-lib.com/law/law_view.asp?id=81995. Accessed 5 Sept 2014

Newman SJ, Schnare AB (1997) The failure of housing programs to deliver on neighborhood quality. Hous Policy Debate 8(4):703–741
Nguyen MT (2005) Does affordable housing detrimentally affect property values? A review of the literature. J Plan Lit 20(1):15–26
Oakley D (2008) Locational patterns of low-income housing tax credit developments. Urban Aff Rev 43(5):599–628
Park RE, Burgess EW, McKenzie RD (1925) The city. The University of Chicago Press, Chicago
Pietila A (2010) Not in my neighborhood: how bigotry shaped a great American city. Ivan R. Dee, Lanham
Polikoff A (2006) Waiting for Gautreaux: a story of segregation, housing, and the black ghetto. Northwestern University Press, Evanston
Ren H, Wang B (2005) Qianxi jingji zhiyong fang de xuanzhi [Analyzing of affordable housing locations]. West Forum 1:75–76
Rohe WM, Freeman L (2001) Assisted housing and residential segregation: the role of race and ethnicity in the sitting of assisted housing developments. J Am Plann Assoc 67(3):279–292
Santiago AM, Galster GC, Tatian P (2001) Assessing the property value impacts of the dispersed housing subsidy program in Denver. J Policy Anal Manage 20(1):65–88
Shen H, Feng C (2012) Jingji shiyong fang kongjian buju fenxi: yi Beijing weili [Study of Beijing affordable housing spatial distribution and evolution]. Urban Stud 19(6):111–116
Song W (2011) Dachengshi baozhangxing zhufang kongjian buju de shehui wenti yu zhili tujing [Social problems incurred from spatial distribution of indemnificatory housing in large cities and governing measures]. Urban Dev Res 18(8):103–108
Tiley I, Hil R (2010) Affordable housing: what role for local government? Aust J Reg Stud 16(2):267–277
Wang R (2009) The structure of Chinese urban land prices: estimates from benchmark land price data. J Real Estate Financ Econ 39(1):24–38
Wang D, Tang X, Jin X, Zhou Y (2010) Jiyu tudi chengben he juzhu pinzhi de baozhang zhufang xuanzhi yanjiu: yi Jiangsusheng Nanjingshi weili [Site selection of indemnificatory housing: a case study of Nanjing in Jiangsu Province]. Plan Stud 34(3):57–61
Xu D, Liu X (2012) Baozhangfang yongdi guihua cunzai wenti yingxiang yinsu fenxi [Analyzing of problems and factors impacted land planning of affordable housing]. Urban Issues 2:97–101
Yang J, Zhang S, Wang D (2009) Baozhangxing zhufang de xuanzhi celue yanjiu [Site selection strategies of middle and low income housing]. City Plan Rev 33(12):53–58
Zhang A, Feng C (2009) Chengshi jingji shiyong fang kaongjian buju yanjiu: yi Langfang zhuchengqu weili [The study of spatial distribution of urban affordable decent housing: a case study of the main urban zone of Langfang city]. Urban Dev Res 9:26–32
Zhang Z, Li J, Liu Y, Huang L (2008) Jingji shiyong fang kongjian fenbu dui juzhu kongjian fenyi de yingxiang: yi Wuhan weili [Effect of affordable housing location on spatial segregation: a case of Wuhan]. Urban Issues 157(7):96–101
Zheng S, Zhang Y (2010) Baozhangxing zhufang de kongjian xuanzhi: lilun jichu, guoji jingyan yu zhongguo xianshi [Location patterns of social indemnificatory housing: theories, international practices and the reality in China]. Mod Urban Res 9:18–22

Chapter 14
Rural Towns in China's Rapid Urbanization: A Case Study of Hubei Province

Li Zhang and Min Zhao

Abstract China's urban system includes official cities (Chengshi) and towns (Zhen). While there is a large literature on Chinese cities in both Chinese and English, the importance of rural towns in China's urbanization has not been fully recognized. This chapter is based on fieldwork in Hubei province where the authors conducted interviews and surveys about the development mechanisms of rural towns. This chapter looks into the industrialization process in rural towns and examines whether or not manufacturing is the exclusive factor that drives town development. It also explores how rural people become urbanized and why they have a strong desire to migrate into the rural towns. Finally this chapter probes into the mechanisms underlying the ebb and flow of rural migrant labourers into and out of urban areas. The findings reveal that rural workers had many obstacles against their migration and settlement in cities. These obstacles were main considerations that support a migrant worker's decision to return to his/her homeland, especially back to rural towns. The chapter concludes that rural towns in China serve a bridging role that connects villages with cities. Rural towns are the urbanization frontline and the primary point for public service provision to the rural people.

14.1 Introduction

Urbanization is a worldwide trend, particularly in developing countries (United Nations 2012). China, as a country with a huge population, has also experienced rapid urbanization from the beginning of the 1980s with the reform and more relaxed policies from the central government. According to census, during the 28 years from 1982 to 2010, the overall population increased by 337 million, from 1,004 million

L. Zhang (✉) • M. Zhao
Urban Planning Department, College of Architecture and Urban Planning, Tongji University, No. 1239, Siping Road, 200092 Shanghai, China
e-mail: Leonzsh@tongji.edu.cn; zhaomin@tongji.edu.cn

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_14

Table 14.1 City and town population in selected years in China, 1982–2010

		1982	1990	2000	2010
A	Total population (millions)	1,004	1,131	1,243	1,341
B	Urban population (B/A*100 %)	206 (20.6 %)	296 (26.2 %)	459 (36.9 %)	666 (49.7 %)
C	City population (C/B*100 %)	145 (70.4 %)	211 (71.3 %)	293 (63.8 %)	400 (60.3 %)
D	Town population (D/B*100 %)	61 (29.6 %)	85 (28.7 %)	166 (36.2 %)	266(39.7 %)
E	Number of towns	2,660	12,084	20,312	19,410
F	Average population in town proper	23,000	7,000	8,200	13,700

Source: NBSC 1984, 1992, 2002, 2012, 2011a
Note: The average population size in town proper was high in 1982 because the definition of official towns was loose in qualifying requirements before the mid-1980s

to 1,341 million (NBSC 2012).[1] During this period, the urban population increased by 460 million, from 206 million to 666 million. The level of China's urbanization increased from 20.6 to 49.7 % in the same period (Table 14.1).

China has a hierarchical government system that includes cities (Chengshi) and towns (Zhen or Xiaochengzhen) (Ma 2005). Town administration is the lowest level in the government hierarchy and deals with the countryside directly. Though the Chinese Constitution requires every administrative village to have a village council, the latter is not a unit of the government. Thus, the lowest level of government is town government. Statistically, people living in cities and towns are counted as urban population in the Chinese census.

Cities have played an important role in China's urbanization process. Since the early 1980s, many people have moved to cities leading to a remarkable growth of urban population. Between 1982 and 2010, China's urban population increased by 259 million, changing from 145 million to 404 million. The number of cities also grew from 244 to 657. The number of large cities, with more than 1 million people, jumped from 36 to more than 100.

Many rural towns are governed by counties; some are governed by districts or county-level cities. The latter usually have low population densities and huge amount of undeveloped land. Administratively, county-level cities are classified as cities because of their high level economic development and population concentration. The county-town, where the county government sits, is usually more developed and has a larger population than the other towns within the county. In this chapter, the other towns are referred to as general towns.

[1] The Chinese government conducted six census surveys in 1953, 1964, 1982, 1990, 2000, and 2010 with 100 % samples. The population data in 1987, 1995, and 2005 are of 10 % samples. The population data in normal years are of 1‰ samples. Therefore the data from censuses are the best. Statistical data at the end of 1970s were not used due to some confusion; we prefer to use data from 1982.

To qualify as an official town, towns with a total population of 20,000 people and above must have 2,000 or more residents who live in the town proper (zhengqu). Due to changes in the official definition of towns, the number of towns increased from 2,660 in 1982 to 12,084 in 1990 and then to 19,410 in 2010. The average population in each town proper also grew from 7,000 in 1990 to 13,700 in 2010.

Table 14.1 shows that population increase in towns contributed greatly to China's overall urban population growth. From 1982 to 2010, the population of China's cities increased by 255 million from 145 million to 400 million people and the town population increased by 205 million, from 61 million to 266 million people. The ratio of town population to the total urban population increased from 29.6 % in 1982 to 39.7 % in 2010. During this period, the increase in the population of towns accounted for 44.5 % of all urban population increase in China.

China's urban population and town population in 2000 and 2010 for 31 provinces/autonomous regions/municipalities are presented in Table 14.2. While the total urban population of all the provinces increased in absolute terms, there were huge differences among the provinces. For example, Tibet had its total urban population increased by only 0.17 million people, while Henan province had an increase of 14.83 million people. Variation in the growth of town population was also dramatic, ranging from a decrease of 0.36 million in Tianjin to an increase of 11.83 million in Hebei. Apart from Tianjin, Guangdong, Beijing, Liaoning and Shanghai, the contribution of town population to total urban population in all other provinces was 29 % or more. Fifteen provinces had 60 % and over of their total urban population growth contributed by the growth of town population. These figures reveal clearly that rural towns played an important role in China's urbanization.

14.2 Literature Review

A seminal article about rural towns in China was written by a famous Chinese sociologist Fei Xiaotong in 1983 (Fei 2004). In that article, Fei pointed out that rural towns were an important part of Chinese urbanization and deserved policy attention. Since then, there has been an on-going debate on policies relating to the development of rural towns. Ma and Fan (1993) studied the development of towns in Jiangsu province and concluded that rural towns formed a second track of "urbanization from below", which complemented the city-based track of "urbanization from above." Zheng and Chen (2000) had the view that small towns were bridges between the countryside and cities. They identified problems in small towns, such as inefficient land use, high cost of infrastructure and public services, and advocated that priority for development should be given to large cities. Zhao (2001) proposed that larger cities would be able to attract population from small towns if they promoted coordinated urban–rural development policies. Au and Henderson (2006) modeled and estimated net urban agglomeration economies for cities and argued that many Chinese cities were too small. They believed that cities could be larger and grew faster if migration control was relaxed; and faster urbanization would

Table 14.2 Total urban and town population in 2000 and 2010, by province

	2000		2010		Change		Growth ratio of town pop. change to urban pop. change (%)	GDP growth 2000–2010 (%)
Provinces/autonomous regions/municipalities	Urban population (in 10,000)	Town population (in 10,000)	Urban population (in 10,000)	Town population (in 10,000)	Urban population (in 10,000)	Town population (in 10,000)		
Hunan	1,740	690	2,845	1,571	1,106	881	80	342
Hebei	1,756	606	3,158	1,719	1,402	1,113	79	323
Jiangxi	1,119	567	1,950	1,200	831	633	76	348
Yunnan	990	525	1,596	963	606	438	72	284
Henan	2,139	758	3,622	1,789	1,483	1,031	69	345
Hubei	2,409	750	2,845	1,052	436	301	69	340
Tibet	51	29	68	41	17	12	68	353
Shanxi	1,137	446	1,706	822	569	376	66	368
Guangxi	1,235	615	1,842	1,007	607	391	64	343
Guizhou	845	408	1,174	620	329	212	64	320
Sichuan	2,231	1,010	3,234	1,643	1,003	633	63	355
Anhui	1,577	733	2,558	1,339	981	606	62	328
Qinghai	156	56	252	115	96	59	61	359
Shanxi	1,143	423	1,716	775	573	352	61	325

Chongqing	1,010	350	1,530	661	520	312	60	365
Gansu	602	208	919	393	317	185	58	302
Shandong	3,433	1,224	4,762	1,926	1,329	701	53	379
Hainan	307	139	431	198	123	59	48	326
Heilong-jiang	1,867	594	2,132	720	265	126	47	316
Xinjiang	625	198	934	326	309	129	42	285
Inner Mongolia	996	429	1,372	571	376	142	38	523
Zhejiang	2,236	925	3,355	1,316	1,119	391	35	357
Jiangsu	3,086	1,192	4,737	1,721	1,651	528	32	383
Ningxia	178	58	302	96	124	38	31	334
Fujian	1,431	648	2,106	851	676	203	30	352
Jilin	1,331	406	1,465	445	134	39	29	363
Shanghai	1,449	177	2,056	291	607	115	19	325
Liaoning	2,297	451	2,719	517	422	65	15	355
Beijing	1,052	103	1,686	130	634	27	4	328
Guangdong	4,743	1,717	6,903	1,664	2,160	−53	−2	361
Tianjin	709	178	1,028	142	319	−36	−11	449

Data source: NBSC (2002, 2011a, b)

contribute to faster economic growth. Zhao et al. (2002) went further and declared that a national urbanization policy emphasizing on small towns was a dead political utopian policy.

Feng (2001) reviewed the studies on rural towns written before 2000 and pointed out that these studies centered mainly on economic development, urban planning and construction of Township and Village Enterprises (TVEs). In contrast, Xu and Zhang (2004) discovered that research on rural towns since the 1990s had focused primarily on their industrial accumulation, locations, spatial structuring and path dependence.

There are also some articles summarizing the town development processes, social development, human settlements and institutional innovation from the founding of the People's Republic of China (PRC) to the recent economic reform period. Wu and Fang (2009) reviewed 60 years of development history of rural towns in China and found that rural towns had helped shape urbanization and they continued to play an important role in China's rapid urbanization.

While these are all useful studies, most efforts focus on the advantages and disadvantages of town-oriented policies based on individual case studies in more developed regions of the country. There is a shortage of empirical research grounded in valid field work on the role of rural towns in China's rapid urbanization since the 1980s in less developed regions of China, such as Hubei province. This study hopes to fill the gap.

This chapter starts with an analysis of the general features of town development in China. It then seeks to explain why town population continued to increase rapidly even without the strong support of manufacturing industries. Thus, the research questions are: what are the factors that have promoted the increase of town populations and industrial development? What role do rural towns play in China's rapid urbanization?

14.3 Data

To help answer the research questions, a questionnaire survey was conducted in May 2010, using a sample of 55 towns in Hubei province (Fig. 14.1). The survey took two steps. First, a pilot survey was conducted in five towns where 20 residents were selected from the town proper as respondents, and 20 farmers were also chosen from 10 sample villages.[2] The questionnaire was revised and finalized on the basis of the pilot study. In the second phase, the revised questionnaire was used in 55 rural towns, involving 110 villages and more than 200 enterprises. A total of

[2]The response rate was 100 %. A replacement respondent was used if a selected interviewee refused to participate.

Fig. 14.1 The distribution of the sample towns in Hubei Province (Source: compiled by the authors)

1,500 questionnaire forms were directly distributed to the interviewees and 1,387 were returned – the response rate was 92.5 %.

The 55 towns were selected from the 741 towns in Hubei province representing a variety of locations, industrial activities, levels of economic development, population sizes, and income revenues. The sample represented 7.7 % of the total number of towns. The economic and social features of the rural towns sampled for the survey are summarized below:

- More wealthy towns with industrial outputs of 1 billion US dollars per year or with fiscal revenue gains of 10 million US dollars per year, and poorer towns where industrial activities were minimal or with fiscal revenue of no more than 1 million US dollars per year;
- Large towns covering a territory of 500 km^2 or more or with 10,000 people or more in the town proper, and small towns no bigger than 50 km^2 or with 3,000 people or less in the town proper;
- Towns in forest areas;
- Towns close to the border of neighboring provinces;
- Towns with historical sites and/or attractive landscapes and/or regional markets; and
- Towns within metropolitan areas.

14.4 Demography and Economy

14.4.1 Population Growth in the Sample Towns

The survey results demonstrate that the population in most of the town proper areas increased from 2004 to 2010, with the average annual growth rate being 9.2 %. In Songhe, the greatest increase was almost 40 % per year. The town proper population increased more than 10 % per year in 17 towns, and only seven towns had population declines in their town proper areas (Table 14.3). In comparison to national and provincial data, the sample towns in this study grew faster than the national and provincial averages, i.e., 4.8 % and 3.4 % from 2000 to 2010 respectively.

14.4.2 Emigration in Rich Towns

In theory, rural towns with relatively strong industries should provide more jobs for the locals. However, the survey results showed that 80 % of the richer towns defined by their GDP at US$160 million or more in 2010 had 8.6–29.4 % of their labourers moving out from these towns (Table 14.4). This caused labour shortage and hiring difficulties for local enterprises. The high emigration rate indicated that industrialization would not necessarily help retain the rural surplus labour in their hometowns.

14.4.3 The Secondary Industry: Not the Only Driving Force

Most of the key provincial towns in the 55 samples had many manufacturing and commercial enterprises. But there were few enterprises with large output values or large employment intake. Fuchi Town in Yongxin County is an example. The town had 58,000 residents, but 1,100 registered enterprises. Another example is Yuekou Town in Tianmen County, which had 93 registered industrial enterprises, but on average had less than 100 jobs in each. The limited employment opportunities could not absorb the 78,000 strong local workers. As a result, more than 50,000 labourers migrated out of Yuekou Town to seek jobs in other areas.

14.4.4 The Tertiary Sector: More Job Opportunities

Most of the tertiary activities in the rural towns were associated with basic living necessities or agricultural products; they had done little to advance the local economy. Even for the most developed trading towns, such as Menglou Town located at

Table 14.3 Town proper population in the sample towns, 2004 and 2010

Name of towns	Population in 2004 (in 10,000)	Population in 2010 (in 10,000)	Population change (in 10,000)	Yearly population change (%)
Songhe	0.22	2.30	2.08	39.8
Yanji	0.28	2.00	1.72	32.4
Anyang	0.11	0.70	0.59	30.3
Changgang	0.21	0.89	0.68	22.9
Huangtan	0.40	1.40	1.00	19.6
Longquan	0.44	1.50	1.06	19.1
Wuzu	0.12	0.40	0.28	18.8
Shizi	0.21	0.70	0.49	18.8
Honghuatao	0.27	0.85	0.58	17.8
Honggang	0.39	1.10	0.71	16.0
Zhaijiawan	0.56	1.57	1.01	15.9
Xiaochi	2.75	7.00	4.25	14.3
Yesanguan	0.75	1.75	1.00	12.9
Shicheng	0.46	1.00	0.54	11.7
Sandouping	0.19	0.40	0.21	11.2
Fengkou	2.18	4.50	2.32	10.9
Pengchang	2.87	5.80	2.93	10.6
Longfeng	0.79	1.50	0.71	9.6
Hongshan	1.85	3.50	1.65	9.5
Chengui	1.24	2.28	1.04	9.1
Zelin	1.50	2.58	1.08	8.1
Jiugongshan	0.30	0.45	0.15	6.0
Lvcongbo	0.08	0.12	0.04	6.0
Hengche	1.16	1.69	0.53	5.5
Songbo	2.10	2.98	0.88	5.1
Fengdian	0.22	0.30	0.08	4.5
Suohe	0.29	0.38	0.09	3.9
Zhicheng	2.30	3.00	0.70	3.9
Luoshan	0.63	0.80	0.17	3.5
Fuchi	2.07	2.50	0.43	2.7
Menglou	1.50	1.80	0.30	2.6
Nanhuatang	0.82	0.98	0.16	2.6
Huandiqiao	2.29	2.60	0.31	1.8
Huji	6.40	6.80	0.40	0.9
Kedian	0.23	0.21	−0.02	−1.3
Shangjin	1.20	1.01	−0.19	−2.4
Baini	2.16	1.80	−0.36	−2.6
Anju	1.17	0.85	−0.32	−4.5
Yuekou	4.98	3.60	−1.38	−4.5
Xiongkou	1.99	1.25	−0.74	−6.4
Letianxi	0.78	0.45	−0.33	−7.6
Total	50.45	77.29	26.84	9.2

Source: The data of 2010 are from Hubei survey report. The data of 2004 are from NBSC 2004. Data of 14 towns have been adjusted, which makes comparison difficult

Table 14.4 Emigration in rich towns in 2010

Name of towns	Ratio of out-migrating labourers to local residents (%)	Name of towns	Ratio of out-migrating labourers to local residents (%)	Name of towns	Ratio of out-migrating labourers to local residents (%)
Diashan	5.0	Yuekou	34.3	Zelin	11.3
Huandiqiao	29.4	Kedian	28.9	Huji	15.8
Fuchi	8.6	Chengui	13.1	Xingou	27.1
Zhicheng	22.0	Longquan	20.2	Hongshan	12.4
Taipingdian	17.5	Songhe	19.3	Pengchang	5.0

Source: The data are from Hubei survey report. Compiled by the authors

the border between Hubei and Henan, and Xiaochi Town bordering Jiangxi province, their business was run mostly by individuals, especially by ethnic minority people. There was no large trading enterprise zone or modern market. According to the survey, Xiaochi Town sold more than 25 million kilogram of fruit and vegetables to Jiujiang City of Jiangxi province a year. Although the trade was done in piecemeal directly by farmers and individuals, it mounted to a remarkable total value of about US$6 million a year.

The poorly developed trade sector did not lead to a strong local economy. The logistics industry, generally considered an important part of the economy with potential demand from the countryside, was still being developed mostly by individuals or small enterprises. The logistics sector which can promote exchange of goods and services is held behind by less developed local economies and lack of qualified human resources in rural towns.

Other tertiary activities, such as technology, research and development rarely develop in rural towns. An exception may be the tourism industry, which is newly emerging as a possibility for some rural towns. But tourism development requires substantial upfront investment and expertise. Among the towns surveyed, tourism was found to be already a key industry in some towns, but this industry has continued to lag behind without a sustainable takeoff.

In rural towns, the tertiary sector generally developed at a very low productivity level, and its contribution to the local economy was far less than that of secondary industry. Nevertheless, services were the main employment provider, particularly in individual businesses, accounting for 61.8 % of TVEs employment. Thus, jobs in the tertiary sector are likely to be the key driver for people settling in the town proper.

14.5 Why Rural People Migrate

The survey results show that rural people migrated to towns for jobs, especially for manufacturing jobs, but more importantly also for better access to public facilities, better living conditions and opportunities for a better education for children.

14.5.1 The Intentions to Move into Rural Towns

About one quarter of the respondents (307 out of the 1,387) reported that they had changed their place of residence, and nearly half (578) said that they intended to migrate. Rural residents who had relocated from villages to rural towns represented 50.2 % of the migrant population in town. Among those who wanted to move out, nearly 70 % said they intended to move to a town; some 38.5 % of these intended to migrate to their county town and 31.3 % to other towns. Particularly, more than 40 % of the residents who lived in other towns wished to move to the county towns.

14.5.2 Low Labour Productivity in the Countryside

There were about 3.3 million hectares of arable land in Hubei province in 2010. The per capita cultivated area increased from approximately 800 m^2 in 1982 to 3,700 m^2 in 2010. This increase was mainly attributable to out-migration, as there were fewer agricultural labourers as more and more surplus rural workforce shifted out.

The amount of arable land per capita and the degree to which agriculture had been modernized varied among the surveyed towns. Overall, the majority of the towns had very small scale farming with cultivated area of less than 700 m^2 per capita. Changgang Town had exceptionally high per capita arable land of about 15,000 m^2. Only 10 towns have used modern and intensive farming methods; but modern agriculture as measured by scale and use of machinery was being developed. Presently, the average labour input for rice, wheat and corn farming was 6.93 labour days/acre in China (and 7.65 in Hubei province), as against a very low input of 0.5 day/acre in the United States (NBSC 2009). The same gap is true between China and the USA in the production of peanuts and rapeseed, flue-cured tobacco, sugar cane, apples and vegetables. Both the macro-level data and the survey findings suggest that there is huge potential in Hubei province to raise its agricultural productivity and to release its surplus labour.

14.5.3 Living in the Countryside and Working in the Towns

Chinese towns usually administer an area of about 100–400 km^2 except in Xinjiang, Tibet, Qinghai and Inner Mongolia where the administrative areas are much larger. In Hubei province and most parts of the coastal and central China, the radius of a town is usually no more than 10 km. This is a manageable commuting distance for people to live at any corner of a town and work in the town proper area, provided that proper infrastructure is available. Farmers could man their farms and at non-peak farming seasons took part-time work in the town proper. In this situation, farmers had no intention to migrate permanently to the town proper. Indeed, most rural

residents had motorcycles and/or cars so that a 10-km commuting distance was easily manageable. The survey results confirmed the above observation in 45 of the 55 sample towns.

14.5.4 Better Public Services in the Town Proper

The survey found that most of the people who migrated to the town proper areas were relatively wealthy farmers. Some villagers who lived far away from the town proper were also willing to relocate in order to get better access to schools for their children. It was in fact the better living environment in the town proper area, characterized by better public services, facilities, and good schools which had attracted rural people to move to the towns. Our study also showed that most of the sampled towns did not have a strong industrial base, and industries were more commonly found in the villages. Clearly, people's residential choice was strongly linked to population centres and their desire for better public services.

14.6 The Returning Migrants

Migration could benefit local economic development because migrant workers could transfer their earnings back to their families in hometowns (Li 2001). Returning migrants from urban areas may also bring home advanced technologies and experiences; some of them may even start new businesses to their hometowns.

The 2010 census reported 261 million informal migrants living in cities and towns across China, among whom 115 million or 44 % had relocated with their families from the countryside to cities and towns (NBSC 2012). Can these migrants adapt to city life and be accepted as new residents? There were barriers in cities that arose from different customs between the cities and the countryside, which made it hard for newcomers. Not all migrant workers could live and work well in cities for a long time. The survey in Hubei province showed that the returning migrants played an important role in the population growth of rural towns.

14.6.1 Cost of Living

According to our survey, the average housing price in town proper was the equivalent of about US$180/m^2. In contrast, housing prices were well above $2,000/m^2 in Hubei cities. Even in the city suburbs, the cost of living was much higher than in the rural towns, which was estimated at US$75 per month, excluding housing. The survey showed that the average income of migrant workers was about US$300 per

month, which was not sufficient for them to settle in cities even if the housing cost was not considered.

14.6.2 Traditional Culture and Family Responsibilities

Most rural workers moved to cities alone, without spouses and children, due to the high living costs. Their family responsibilities would take away much of their monthly income, and have led them to practice a commonly observed consumption pattern similar to their hometowns. They use their income to improve the living standard of the family members, including building or purchasing houses. More than half of the local households' income came from employment earnings from other places (Li 2001).

14.6.3 Economic Restructuring and the Aging of Labourers

About 80 % of China's migrant workers were found in the coastal regions (TUHUST 2010). The remaining 20 % went to cities in their own provinces, including 4 % worked in local rural towns (TUHUST 2010). The increasing cost of living in the developed regions was pushing up the wages rapidly. According to data published by the Ministry of Human Resources and Social Security, migrant workers in cities on national average, earned US$113 in 2003 (RSEIB of NBSC 2004), US$155 in 2006 (RSEIB of NBSC 2007), and US$336 in 2010 (NBSC 2011b) monthly.

More recently, as labour-intensive industries in the more developed high wage areas in China were gradually losing their competitiveness, they started to relocate to lower cost areas. On the other hand, some low-end manufacturing in developed regions began to transform themselves towards more technology- and capital-intensive industries. Relocation of labour-intensive industry and the upgrading of local industry forced many migrant workers to change the cities where they worked.

The first generation labourers who migrated in the 1980s and 1990s are now over 50 years old and are unable to continue hard physical work. Moreover, with a low education level, they find it difficult to continue working in other urban sectors. Consequently, many older workers choose to return to home permanently, and our survey confirms this trend.

14.6.4 Residency and Social Welfare

In most cases, migrant residents are not eligible for urban *hukou* in the cities, particularly the mega-cities, where they work. Without an urban *hukou*, they are not eligible for social welfare and many services. Although there have been a series of

reforms in *hukou* registration and welfare provision (Zhang 2011), the disparities in educational services for children, medical care, unemployment benefits and other social welfares or benefits have remained between provinces and regions.

The inter-regional social security system has many institutional barriers preventing migrant workers from getting social welfare as urban residents. Although many provinces have rectified the welfare differences between agricultural households and non-agricultural households and have established new residence permitting systems, the new systems have not overcome the defects of the old registration system. Even worse, the changes have added more differences between locals and non-locals. The differences between the registration system and related social welfare system make it difficult for migrant workers to settle permanently in the cities they work. Hence they have to return to their rural homes.

14.7 Discussion and Conclusion

In general, the solution to problems created by China's urbanization lies in cities. However, the reality of China's developing economy and society makes it unrealistic to expect that all rural migrant workers will eventually settle in the cities where they work. This is impossible at least in the near future. In Shanghai, for example, infrastructure constructions and public service provision are based on a total population of 20 million by 2020. However, Shanghai's population already reached 23.02 million in 2010 (NBSC 2012). Many obvious signs of infrastructure overload in Shanghai have shown over the past years, such as overcrowding in kindergartens, schools and hospitals and the inadequate supply of affordable housing. Since Shanghai is one of the most developed megalopolis in China, this dilemma illustrates the difficulties that other cities can only anticipate sometime in the future.

To accelerate urbanization and to improve its quality during this specific developmental stage in China, a focus on the cities is good, but attention to the countryside and rural towns is also necessary (Zhang 2012). Institutional innovations and policy reforms will probably help steer about half or one-third of the 115 million rural migrant workers returning to their hometowns. They may live, work and even start business in their hometowns, and by doing this they will lessen the pressure on cities and metropolitan areas to a large degree. The social problems of population aging, family separation and inferior education emerging in rural areas in recent decades could be partially resolved by this approach. The survey found that a few rural towns had relatively good quality industries. But due to the lack of good local public services, a number of rural residents and town residents were determined to migrate to cities or county towns in order to give their children a better education and a better living environment. The questionnaire survey results have clearly revealed that most town residents were not satisfied with the public facilities in their rural towns. In the opinion of survey respondents, only eight of the 55 towns surveyed could afford the cost for adding more household facilities. The undeveloped

economy and poor public facilities blocked rural towns from playing a helpful role in China's urbanization.

Overall, China's urbanization level will still be increasing. Most metropolitan areas, especially in central and western China, still require heavy investment in infrastructure and industry. They have limited capacity to direct their resources to towns and villages. Hence, rural towns in general are unable to serve the role of main spatial carriers for urbanization in the future. Nevertheless, the role of rural towns in facilitating China's urbanization process cannot be ignored.

Rural towns are bridges that link villages to cities and also a holding reservoir for surplus labour from the countryside. As organizing centres of the rural economy, rural towns are the service centres for agriculture and the rural population. For cities, rural towns offer good ecological environment and land resources. If well guided and constructed, rural towns could not only attract rural people to migrate into, but also appeal to urban residents who want to escape from the crowds, congestion and pollution to settle in.

Finally, a certain percentage of rural migrant workers may return from cities. The returning migrants will be a potential resource for the future development of rural towns.

Although rural towns play an important role in China's urbanization, they also face many difficulties. The traditional view is that industrialization is the main driving force in town development. However, the survey in Hubei Province shows that the driving force of town development includes not only industrialization, but also demand for public services including housing, education and improved living conditions.

China's rural–urban transition (Zhang 2009), which serves the countryside, agriculture, rural people's quality of life, and protects the natural environment, relies upon innovative policies for rural town development. There is also a need for better leadership and systematic improvement of facilities and services in rural towns. Governments need to adopt institutional innovations to ensure fiscal support and continuous improvement of the living conditions in rural towns so that they are attractive to both urban and rural migrants. National and provincial policy innovations are required in order for rural towns to lessen the pressure of rural–urban migration to metropolitan areas, and provide solutions to the education and aging problems in rural areas.

Acknowledgements We wish to thank the work team of Tongji University and Huazhong University of Science and Technology for their contributions in the study of Strategic Plan of Urbanization and Urban Development for Hubei Province, and Richard LeGates and Zhu Jieming, both visiting professors at Tongji University, for their comments on earlier drafts of this chapter. We also thank for the grant provided by NSFC (51208362), Science and Technology Ministry (No. 2012BAJ22B03) and Tongji University.

References

Au C, Henderson J (2006) Are Chinese cities too small? Rev Econ Stud 73(3):549–576
Fei X (2004) The aim for enriching the people (the report for Chinese country investigation). Shanghai People's Press, Shanghai
Feng J (2001) Review on the research of the small cities and towns development in China since the 1980s. Urban Plan Forum 133(3):28–34
Li Q (2001) Studies on the remittance of Chinese migrant workers. Sociol Res 4:64–76
Ma L (2005) Urban administrative restructuring, changing scale relations and local economic development. China Polit Geogr 24:477–497
Ma L, Fan C (1993) Urbanization from below: the growth of towns in Jiangsu, China. Urban Stud 31(10):1625–1645
National Bureau of Statistics of China (NBSC) (1984) Tabulation of the 1982 population census of the People's Republic of China. China Statistics Press, China
NBSC (1992) Tabulation of the (1990) population census of the People's Republic of China. China Statistics Press, China
NBSC (2002) Tabulation of the (2000) population census of the People's Republic of China. China Statistics Press, China
NBSC (2004) China township statistics yearbook. China Statistics Press, China
NBSC (2009) Investigation data collection of cost benefit for national primary products. China Statistics Press, China
NBSC (2011a) China statistical yearbook. China Statistics Press, China
NBSC (2011b) Rural migrant workers report in 2011. Official report by PRC
NBSC (2012) Tabulation of the (2010) Population Census of the People's Republic of China. China Statistics Press, China
RSEIB of NBSC (2007) Continuing increase of rural migrant workers in 2006. World Surv Res 4:7
Rural Social and Economic Investigation Branch (RSEIB) of NBSC (2004) 110 million rural migrant workers in 2003. World Surv Res 4:11
TUHUST (Tongji University and Huazhong University of Science & Technology) (2010) The strategic plan of urbanization and urban development for Hubei province. Research report, Shanghai
United Nations (2012) World urbanization prospects: the 2011 revision. Report, New York
Wu K, Fang C (2009) The development process and basic pattern of China's small towns since 1949 and its recent new situation. Econ Geogr 29(10):1605–1611
Xu S, Zhang X (2004) Review on the research of the small cities and towns in China since the 1990s. Urban Plan Forum 151(3):79–83
Zhang L (2009) Transformation of population structure and the second transition of urbanization in China. Urban Plan Rev 33(10):35–44
Zhang L (2011) A discussion on the definition of urban/rural population in the Chinese urbanization process. Urban Plan Forum 194(2):77–85
Zhang L (2012) Small towns but grand strategies – a study on the development of small towns in provinces with net out-migration. Urban Plan Forum 199(1):23–32
Zhao Y (2001) The institutional change, small town development and urbanization in China. Urban Plan Rev 25(8):47–57
Zhao X, Zhou Y, Chao G (2002) On the difficulty and practical mistakes in the small town priority strategy. Urban Plan Rev 26(10):36–40
Zheng J, Chen G (2000) Comment on urbanization policy. Planners 16(5):90–95

Part III
Management Approach

Chapter 15
The Diversified Models and Outcomes of Applying the Urban-Rural Land Trading Policy in China

Yumin Ye and Bo Qin

Abstract In China, a new urban-rural land trading policy known as Zengjian Guagou (i.e., "bundling up addition with reduction" – abbreviated as BAR hereafter), which was officially enacted by the Ministry of Land and Resources in 2006, had profound implications on urban and rural land use pattern. The endorsement of this policy represented a bold move in exploring new institutional mechanisms for land-use right transfer between urban and rural in China. Since then nearly one million villages have applied the policy. However, due to differences of local governance, implementation, reimbursement, consideration of residents' willingness, etc., the outcomes of applying the policy are quite diversified. After introducing the background of the land trading policy (BAR), the paper focuses on the discussion of three different models in applying this policy, their implementation mechanism, and diversified outcomes in different regions of China. The last section proposes policy suggestions for improving the BAR policy at the macro- and meso-levels.

15.1 Background

15.1.1 Prominent Supply–Demand Contradiction of Urban Construction Land

Industrialization and urbanization are the two major strategies adopted in China for its future transformation, and urban construction land is the spatial foundation that accommodates profoundly these two processes (Hsing 2012; CDRF 2010). China is in the midst of rapid urbanization, with the urbanization level growing at an average annual rate of more than one percentage point over the last two decades. This means

Y. Ye • B. Qin (✉)
Department of Urban Planning and Management, Renmin University of China, Beijing 100872, China
e-mail: yymzcy@vip.sina.com; qinbo@vip.sina.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_15

more than ten million people migrate from rural to urban areas every year and become permanent residents (NBSC 2011). Rapid increase in the demand of construction land comes along with high speed urbanization.

However, according to the second National Land Survey, China's arable land per capita is only 0.101 ha (1.53 mu), less than 50 % of that of the global average. Citing a most recent statement from the Central Committee of Chinese Communist Party highlights again China's concern about maintaining a sustainable supply of arable land:

> Considering the current quantity and quality of arable land, as well as other factors such as growing population and demand for urban development, arable land preservation in China calls for urgent concern. The severe situation of little arable land per capita, overall low quality and insufficient backup resources still remains unchanged. (CCCCP 2014)

The concern calls for stronger policies to preserve arable land, which will limit by consequence the supply of urban construction land. Due to limitations of good land resources in China, the new urbanization strategy poses a sharp conflict with the strict arable land preservation system. In January 2014, the Central Conference on Rural Work stipulated that "the bottom line for arable land should be still set at 1.8 billion mu (1.2 million square kilometres), which must be strictly preserved. Meanwhile, the current arable land should maintain stable" (CCCCP 2014). In maintaining the stable amount of arable land, the BAR policy aims to contain excessive conversion of rural lands for urban construction and development, and at the same time goes for higher level intensification of rural built-up area to save farmland..

15.1.2 Absence of an Efficient Market for Land Trade

Theoretically an efficient market is the prerequisite for efficient resource allocation. An urban-rural integrated land market would be an essential means to realize efficient allocation of land resources. However, currently land resources cannot be traded between rural and urban area in China (Zhu and Prosterman 2007). As a result, the huge economic potential of rural land cannot be fulfilled. This is a major obstacle in optimizing efficient allocation of rural and urban land resources. Therefore, establishing an urban-rural integrated land trade market becomes the key for efficient land resource allocation.

The 3rd plenary session of the 18th CPC Central Committee has appealed "to establish a market-oriented resource allocation system that deepens economic reform", and has proposed that "a unified market for urban and rural construction land should be established". The BAR policy is a form of land-development-right transfer, as well as a crucial part of an urban-rural integrated land market.

15.1.3 Rural Areas in Need of Supports from Cities

The urban-rural dichotomy presents itself as a prominent challenge in China's socio-economic development. The poor foundation of China's agriculture, its backwardness in the countryside and the difficulties of its farmers to increase their income contribute to a constantly widening gap between urban and rural areas. Only if the urban areas help the rural areas improve their living and working environment and establish mechanisms to achieve a sustainable development, can the gap be narrowed (Ye and LeGates 2013).

The BAR policy provides an important funding channel for such support (Hu et al. 2009). On the one hand, reclamation of rural land improves rural production and living conditions, contributes to modern agriculture, and lifts the place out of backwardness. On the other hand, the policy provides financial resource from development-right transfer, which can be an initiating funding for modernization in the rural area contributing to long-term development. What is more, the policy creates an opportunity for the remote rural areas to share the development outcomes with urban areas, thus benefiting the rural folks.

15.2 Diversified Models of Applying the Policy and Resultant Outcomes

15.2.1 Commonalities and Differences of Applying the Policy

There are diversified models in applying the urban-rural land BAR policy. These models have certain characteristics in common as local governments have similar needs for intensive land development/redevelopment. Generally speaking, they share three major characteristics.

1. **Concentrated rural residential pattern.** The policy to control and reduce land used for rural construction leads to concentrated residential development pattern at two levels. Firstly, villagers are concentrated. Homestead land per household is reduced and concentrated in planned residential zones. Secondly, villages are concentrated. Natural villages are to be gradually eliminated, while new rural communities are to be planned and built. As a result of concentrated rural residence, new rural communities use 40–60 % less land per capita than before (Jiao 2011).
2. **Development-right transfer for construction land.** The development-right of reclaimed construction land, resulting from application of the policy, is transferred to urban areas through trade of land quota. The development-right is traded in and integrated urban-rural land market or quasi-market for urban development.

3. **Government reimbursement to farmers.** Residential construction in rural areas requires large amount of manpower, money and other resources. Government reimbursement is an important means in motivating farmers to build new houses and/or apartments in concentrated residential communities. It is also a way for cost-sharing in residential construction. Therefore, government reimbursement is necessary and prevalent in applying the policy.

Generally speaking, there are three major differences among the local governments in applying the BAR policy. This is due to the fact that local governments have different understanding and approaches to urban-rural planning. These differences are the key factors that lead to diverse living conditions in rural communities across cities and regions.

1. **Different construction standards of new rural residential communities.** For one thing, the housing types in new communities are different. According to different construction land quota reclaimed, the new housing types could be apartment buildings, small town-houses or standard detached houses. For another, the public infrastructures are different. In some communities infrastructures are comprehensive and complete, while some others are incomplete or even absent.
2. **Different public service standards in new rural residential communities.** Different communities provide rural residents with different public services. Some have barely any; others have certain services with gaps between urban and rural areas; still others provide similar standards of public services including employment training, social security, etc. in cities and the countryside.
3. **Different implementation mechanisms.** There are huge differences in the implementation mechanism when the BAR policy is applied. First, the developer of the new communities can be either the local government or a private firm. Second, pricing can be determined by either the local government or the market. Third, farmers can have full participation, partial participation or zero participation in policy making, which determines the amount of benefits they get and whether there is a forced demolition. Fourth, the government can compensate in different forms, e.g., housing, equivalent cash or a mix of cash and housing.

15.2.2 Different Models

The essence of the urban-rural land BAR policy is the transfer of land development-right, or to be specific, the trade of the development-right of urban and rural construction land (Ye et al. 2013). There are two crucial issues regarding the transfer of right: the changes brought to rural working and living conditions due to the reduction of construction land, and the compensation to villagers for the transfer of development-right.

Despite the huge variation in planning and implementing the BAR policy among local governments, the outcome can still be categorized. The following models are summarized on the basis of whether working and living conditions in the rural

Table 15.1 The models of applying the urban-rural land BAR policy

	Working and life improvement	No working and life improvement
Supportive mechanism	Systematic approach	
No supportive mechanism	New village construction	Unjust land acquisition

communities are improved, and whether a supportive mechanism is established to promote sustainable urban-rural development. As seen from Table 15.1, there are three models in applying the scheme at local government level; each model is further elaborated below:

1. **Systematic model**

The systematic model aims to solve the profound problems in current urban-rural development while promoting coordinated urban-rural development. It employs the urban-rural land BAR policy with a series of institutional reforms, with the objectives to: (a) achieve great success in breaking the ice of urban-rural dichotomy; (b) establish a new urban-rural relationship promoting joint efforts between rural and urban counterparts to share achievements together; and (c) offer rural residents an opportunity to share the facilities of more developed urban area. In Chengdu, for instance, the series of institutional reforms include the following tasks:

(a) Formulation of a comprehensive and coordinated urban-rural development plan. This plan identifies spatial needs for the growth of employment, income, and infrastructure in both urban and rural areas and makes arrangement accordingly. In Chengdu, the plan considers job creation, growth of farmers' income, improvement of the rural built-environment, and urban-rural land BAR policy;
(b) Identification of rural land-use right and land title registration. In 2011, 96 % of rural lands in Chengdu were identified to their proper owners by a registration system. This task makes it possible for land to be traded in rural Chengdu;
(c) Promotion of public participation. In the cities which follow the systematic model, e.g. Chengdu, Suzhou, Jiaxing, public participation mechanism has been well established. In the plan-making process for coordinated urban-rural development, public opinions have been widely collected. A wide range of topics such as the feasibility of proposed projects, fair compensation for relocation, architecture style of new rural villages, choice of construction company, spatial distribution of public facilities, are included in the consultation process;
(d) Establishment of a formal rural land market. All the land-use rights related to the BAR policy are to be traded in the market. It is the market that decides transaction price, not local governments. The latter is to ensure that rural property owners will be compensated fairly;
(e) Provision of rural public services according to urban standard. For a long time, rural public services have lagged far behind urban public services due to the dual urban-rural system. Providing better rural public services is a key measure to satisfy rural villagers' need and thus to make room for rural institutional reforms;

(f) Creation of employment training programs and social security scheme. Till 2012, Chengdu achieved integration between the urban and rural social security systems. All residents in Chengdu enjoy the same social security scheme, regardless of their residence being urban or rural. Employment training programs are also needed badly in order to help farmers find jobs in manufacturing and service industries;
(g) Facilitation of capital investment to rural industries, such as modern agriculture and eco-tourism. This will help increase the income of rural villagers;
(h) Reform of the existing *hukou* system. Since 2006, Chengdu has abandoned the traditional dual urban-rural *hukou* management system. The city has established a new *hukou* system based on employment and social security status, which facilitates free migration from rural to urban areas in Chengdu.

After a series of institutional reforms in Chengdu, the gaps between urban and rural household income and public services have been narrowed down, and a sustainable trend of coordinated urban-rural development has emerged. This process was characterized as "empowering rights and building-up capacity" by the Chengdu people, i.e. empowering the property right, development-right, mobility right to rural villagers and building up their competitive capacity in market economy.

The systematic model in applying the BAR policy has achieved its objectives in both preserving arable land and providing more land for urban development. It has also improved rural built environment, narrowed down the urban-rural income gap, facilitated urban-rural migration, and established a sustainable way towards coordinate urban and rural development.

The key of the systematic model lies in its "systematicness". However, due to the diversity across regions in China, many local governments did not use the systematic model. By focusing only on urban development and economic growth, they deliberately chose parts of the model to follow, thus leaving problems unresolved in rural areas. The following two models are such examples.

2. **New village construction model**

New village construction model applies the urban-rural land BAR policy to assemble land for construction of rural housing in a compact form. Rural public services are improved by the funding obtained from land-use right transfer/trade to some extent (Abramson and Qi 2011). This model is different from the systematic model in the following manner:

(a) The development plan focuses more on physical dimensions such as land development and public facility construction. It lacks consideration of employment, social security, and migration;
(b) There is a lack of an open and transparent rural land market. Land acquisitions and trade are largely controlled by local governments, which often undervalue rural land and lead to unjust compensation in land acquisitions;
(c) Most of the cities that make use of this model do not have clearly identified and registered property right holders, the lack of which has restricted free trade of rural land-use deals; and

(d) *Hukou* transfer from rural to urban area is not carried out. This has restricted the capacity of rural villagers to improve their income.

The new village construction model has been adopted in some populous provinces to preserve arable land and provide urban construction land, and improve rural residential built environment. However, its limitation is that it cannot break up the dual urban-rural system, and cannot narrow down the urban-rural gap in the long run to achieve the sustainable urban-rural development.

3. **Unjust land acquisition model**

Unjust land acquisition model applies the urban-rural land BAR policy in a top-down government-dominated approach whereby the interests of rural villages are not respected and protected. The main features include:

(a) A land-use plan has been made for preserving arable land and providing more land for urban development. More attention is paid on rural residential development and getting more land use quota for urban and industrial development, but less effort dedicated on preparing rural public facilities, public service delivery, and institutional arrangements on employment, social security and migration issues;
(b) The model is dominated by local government. Market mechanism is seldom applied in the land trade and development process;
(c) The compensation in land acquisition is unjust. Rural villagers who lose their land cannot benefit from urban and industrial development. Some even have to borrow money to have a shelter to settle in after the relocation;
(d) New public facilities and public services in rural area cannot be provided in a timely and adequate manner, as the focus of this model lies in urban area;
(e) Lack of employment training programs and other policies to promote agricultural development. There is no other institutional reform such as the *hukou* reform in the systematic model.

The unjust land acquisition model is in operation in some populous and middle/western provinces. The model only achieves the basic target of preserving arable land and providing more urban construction land, but fails in improving rural built environment and villagers' life. In many places where this model is adopted, the gaps between urban-rural household income and public services have even been widened.

15.2.3 Unhealthy New Village Construction and Outcomes

The major differences in applying the urban-rural land BAR policy have led to different outcomes of new village construction. As a result, not all have produced positive results towards achieving coordinated urban-rural development which is set to bring about new villages with fundamental changes by improving the working and

living conditions in rural areas, reshaping the traditional rural social structure, and facilitating urban-rural interactions. As said, both the new village construction model and unjust land acquisition model have adopted an unhealthy approach and thus cannot break up the urban-rural dichotomy. Such unhealthy models have deprived the farmers of their future development right and hinder coordinated urban-rural development, as shown in Fig. 15.1, and their negative effects are further explained below.

1. **Rural depression**

Unhealthy new village construction approach does not solve the existing rural problems. First of all, it does not seek to provide adequate rural infrastructure necessary for modern production which has seen farmers ending up to continue to use traditional and lowly productive ways in farming. Secondly, it does not provide social welfare effectively as most revenues gained from development-right transfer/trade go to the government and developers. This has resulted in farmers being deprived of social welfare, and hence still exposed to socio-economic risks. Thirdly, it does not increase rural villagers' income. As such, the rural economy does not

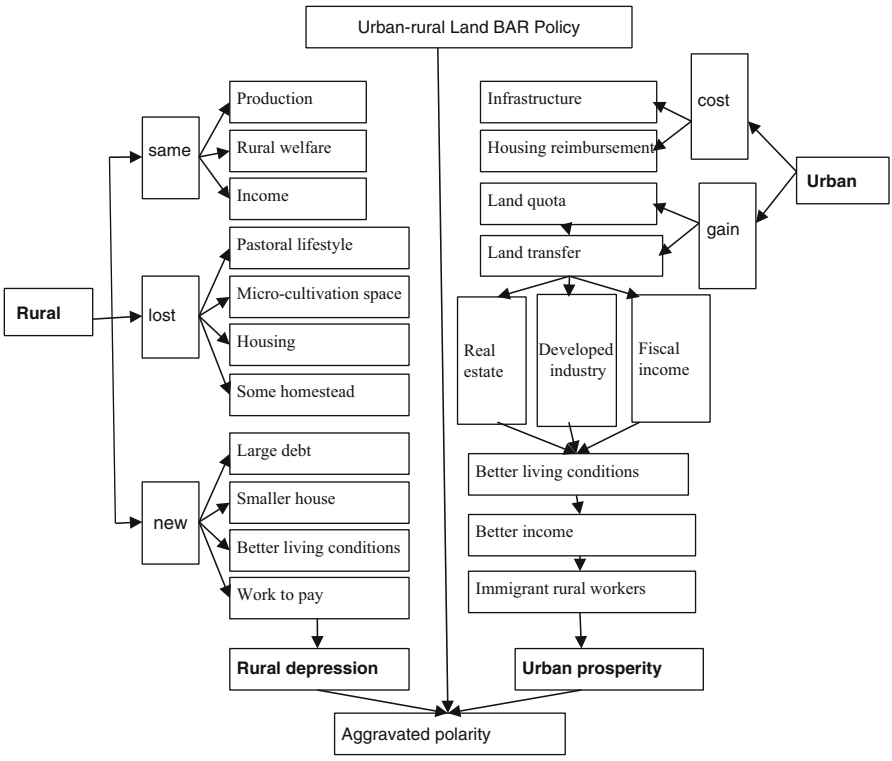


Fig. 15.1 The outcomes of unhealthy new village construction

lead to sustainable development, and rural income stagnates, lagging further behind the urban income levels. This has worsened urban-rural dichotomy.

Another negative effect is the loss of integration of residence-cum-farming in traditional rural areas. Now, the newly constructed houses are often far away from the agricultural fields, and the houses have also limited storage space for production tools. After losing their homestead and private land space and moving into apartments or compact houses in the new settlement, they can no longer do small-scale cultivation and livestock raising. Their income is hence reduced. For traditional pastoral farmers raising livestock, their lifestyle is ruined. They have to bear the burden of rising living cost. For instance, in newly constructed villages, farmers need to pay for the use of facilities and utilities, instead of using the traditional way to get water supply and heating.

After all, the long-term economic burden is heavy to farmers. First, enforcement of the BAR policy requires farmers to pay for most part of the construction cost. This takes away their lifelong savings and aggravates rural poverty. For many, the daunting construction costs give rise to debts and add social disturbance to the rural community. Some have to resort to loans, which is often inaccessible in rural areas. Even more, some farmers have to abandon farm work and seek employment in cities, which drains further the labour force of the rural community. Therefore, unhealthy new village construction will lead to poverty and depression in rural areas. It can undermine the traditional rural lifestyle, creating heavy economic burdens, and depriving farmers of their future development right.

2. **Widening urban-rural gap**

Unhealthy new village construction is urban-biased which offers extremely good benefits with extremely low costs to urban areas. In terms of costs, investment from urban areas includes rural infrastructure and housing compensation for farmers. In terms of benefits, urban areas gain extra construction land quotas for real estate development. Extra land comes with low cost that contributes to further urban development as well as burgeoning real estate market. Revenues of land transfer enable local governments to offer favourable conditions for enterprises, thereby promoting development of urban industries. With urban prosperity and rural depression, unhealthy new village construction re-exploits the rural area, widens urban-rural gap, and further intensifies the urban-rural disparity.

15.2.4 Healthy New Rural Construction and Outcomes

Healthy new rural construction depends on market mechanism to unfold. A series of systems and rules are adopted to benefit all parties in the BAR projects, preventing exploitation of rural areas, and contributing to coordinated urban-rural development, as shown in Fig. 15.2. There are four specific contributions that healthy new rural construction can make, as indicated below.

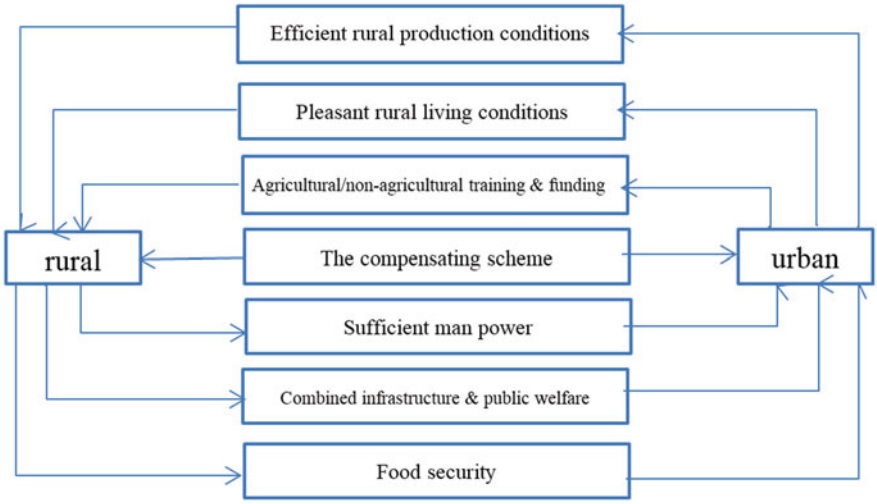


Fig. 15.2 The outcomes of healthy new rural construction

1. **Improved rural production.** It assembles spare rural construction land, and vigorously improves the local production conditions. With appropriate technologies, reclaimed construction land can be turned into stable and highly productive farmland. Thus it improves the overall quality of agricultural land and facilitates the development of modern agriculture. Improved production conditions lay a foundation for farmers to raise their incomes and serve modern agriculture with higher efficiency.
2. **Improved living condition.** It uses a comprehensive planning approach. A compact residential pattern is achieved by removing and combining small villages, which makes it possible to build rural infrastructure and public facilities. Using scientific planning layout, complete infrastructure, convenient and comfortable rural housing will greatly improve the rural living conditions, and make it feasible for the improvement of the public services in rural areas.
3. **Technical training and funding**. It provides technical training and funding for both agricultural and non-agricultural workers, thereby enabling the rural areas to achieve sustainable development. Agricultural training helps improve productivity and hence boosts villagers' income. Non-agricultural training not only provides constant labour force to non-agricultural development in rural areas, but also opens a channel for surplus rural labour force to migrate to the cities. The funding support improves farmers' income, consolidates the industrial foundation, and prevents rural depression.
4. **Mutually beneficial urban-rural relationship.** It improves rural production and living conditions as well as the technical and funding support which is mutually beneficial to urban and rural sectors. Efficient agriculture guarantees food security, laying a solid foundation for urban development. Pleasant rural living conditions narrow the urban-rural gap in public facilities and services. Non-agricultural training provides competent workers for urban industries. Successful

rural enterprises contribute to regional competitiveness. Eventually, the support from urban to rural areas helps establish the sustainable coordinated urban-rural development.

Healthy new rural construction is the key content in applying the urban-rural land BAR policy, which involves comprehensive and systematic institutional reforms. The cities which adopt the systematic approach often obtain notable achievements. It is the right pathway for China to achieve coordinated urban-rural development in the future (Ye and Legates 2013; Ye et al. 2013).

15.3 Challenges and Policy Suggestions

15.3.1 Future Challenges

Understandably, any defective practice in applying the urban-rural land BAR policy can result from defective institutional guidance. From the institutional point of view, implementation of the policy could be regarded as a project management system, with the following goals: (a) not to reduce the amount of arable land, but to improve the land quality; (b) not to increase the total area of construction land. Therefore, land resource management bureau has designed a standard and strict management evaluation system. In 2009, Regulation for Urban-rural Land BAR Policy Scheme (MLRC 2008) was issued by the Ministry of Land and Resources. In the Regulation, a project-style management system is established, deployed, and implemented by the Ministry at the central, provincial, municipal and county levels and other government departments. Management and surveillance regarding demolition and construction in urban and rural areas, construction land quota allocation, and land title registration etc. are also administered according to the system.

As a whole, the urban-rural land BAR policy should be conceived as a system concerning all rural development issues, rather than agricultural land preservation alone. Single-indicator evaluation of the policy guided by land resource management ministry/bureaus cannot fulfill the purposes of the policy. Despite the Regulation and the subsequent series of policies enacted by the Ministry of Land and Resources, evaluation of farmers' willingness, quota trade revenue allocation and other social indicators are not clearly stated. This leads to a massive practical problem in the implementation of the BAR policy and can therefore further aggravate the urban-rural disparity.

15.3.2 Policy Suggestions

It was noted in the 3rd plenary session of the 18th CPC Central Committee that "urban-rural dichotomy is the primary obstacle to coordinated urban-rural development". In the new era, the urban-rural land BAR policy could be adopted to

eliminate the dichotomy, to create an equitable and coordinated development mechanism and to allow the free flow of urban and rural factors, hence achieving the goal of sustainable urban-rural development. At both the macro level and meso-level, the following suggestions are proposed for improving the policy. At the macro-level, the urban-rural land BAR policy should improve planning control and scientific evaluation standard by:

1. **Including the policy as part of the new urbanization plan.** With the urgency to protect arable land, the policy has become an important source of access to construction land for urbanization. It should be coordinated with land-use planning, and with urbanization planning in terms of scope, scale, spatial allocation and time frame. Its role in using additional urban construction land should be case-specific. As a matter of principle, the total area of arable land is not reduced, while that of construction land is not increased. Urban-rural integration can move forward systematically, achieving the goals of new urbanization.
2. **Launching a scientific evaluation system.** As stated above, a people-oriented systematic approach of applying the policy helps prevent unhealthy new village construction, therefore facilitating urban-rural integration. Within a people-oriented evaluation system, not only the size and quality of the newly reclaimed arable areas, but also farmers' satisfaction and other indicators, such as new village construction standards, public service standards etc., need to be added into the evaluation system. Exploitation in the name of applying urban-rural land BAR policy should be prevented in institutional design.

At the meso-level, the urban-rural land BAR policy should establish a fair and scientific mechanism by:

1. **Clarifying rural land and property rights and implementing land title registration.** Clarified rural land and property right is the foundation for rural land resource to enter market circulation. The goal is to achieve comprehensive property right and title registration of rural lands and buildings. By issuing land title certificates and setting up a modern rural ownership system that is "clear in ownership, clarified on rights and responsibilities, strict regarding protection, free flow in trade", farmers' can be fully motivated, and rural productivity can be further liberalized. Meanwhile, ambiguous property rights and related conflicts have created problems affecting the guarantee of farmers' capital revenue and preventing land from being put to good use.
2. **Consolidating public participation and fully respecting farmers' willingness.** The BAR policy consolidates rural construction land, especially rural homestead land. Therefore, only effective public participation could guarantee smooth progress and rural stability. Public and transparent hearings and debates should be open up for opinions from grassroots organizations and farmers. Major issues such as project planning and relocation agreement should pass through a village level democratic practice so that farmers are motivated to participate and express their opinions. Eventually, new villages should be built according to farmers' expectations, so as to protect their rights.

3. **Establishing larger-scale rural land market and facilitating rural capital flow.** Currently rural land rights are traded at the county level. It is necessary to establish a rural land market which allows land to be traded in a larger geographic scale, that is, at prefecture or even provincial and national levels. This will provide an institutional revenue to raise more income. Meanwhile, a larger-scale rural land market will gradually take the place of government in terms of resource allocation, providing a practical pathway to market-oriented land BAR projects. In this process, the market will eventually play the decisive role in resource allocation, while the government will play the supervisor's role by focusing on urban-rural land policies and planning issues. As a result, land resources will be efficiently allocated, facilitating the progress of coordinated urban-rural development.
4. **Constructing new rural communities according to urban standards, and facilitating equitable basic public services.** Rural villages will be more densely populated with the BAR policy, making it possible to construct higher standard communities. Therefore, basic public facilities such as civil service centres, healthcare stations, senior caring centres, culture centres etc. should be constructed according to urban standards, providing basic public services in a better living environment with health care, cultural and education facilities. With improved living conditions, the urban-rural dichotomy can be effectively minimized or even eliminated.
5. **Vigorously promoting employment training and providing equitable social security.** Liberalization of rural productivity not only depends on effective circulation of land resources, but also relies on constantly improving the quality of labour force. Therefore, taking initiative in promoting rural employment training, opening urban-rural vocational training channels, providing vast space of non-agricultural employment for farmers are the important means to guarantee sustainable rural development with the BAR policy. Farmers will benefit from equitable social security and welfare that the BAR policy would bring.
6. **Relocating before demolition and fully compensating farmers' right.** When applying the BAR policy, relocating the farmers before demolition is an important token of respect for their right. It not only protects the farmers from being homeless, but also serves as an opportunity for villagers to participate and contribute towards the effective control over the BAR projects, and to build the new rural communities.

15.4 Concluding Remarks

Urban-rural land BAR policy is a must choice in order to preserve valuable arable land in China. The country faces severe challenge of a huge population and limited good quality land resources, and has to maintain 1.8 billion mu of arable land to safeguard future food supply. In applying the urban-rural land BAR policy, the local governments have deployed three different models, namely the systematic model,

new village construction model, and unjust land acquisition model. The systematic model improves rural built environment, promotes employment and free migration, and provides better public services in rural areas. It thus breaks up the traditional urban-rural dichotomy and establishes a sustainable pathway for coordinated urban-rural development. The new village construction model concentrates on rural residential and industrial land use development, improves rural built environment, but lacks comprehensive institutional arrangements to narrow down urban-rural gaps. It cannot address the urban-rural dichotomy problem. The unjust land acquisition model is rarely used. It applies the policy in a wrong way, which has deprived rural villagers of their development-right, widened urban-rural gaps, and strengthened the urban-rural dichotomy.

Urban-rural land BAR policy is an institutional innovation. As mentioned, if properly applied it could lead to significant achievements, such as preserving arable land, promoting compact land use pattern, improving rural built environment, benefiting rural villagers far away from cities, and establishing and upgrading land property market in China. It is necessary to make the urban-rural land BAR policy a more perfect instrument in the long run. Policy suggestions include adjusting its evaluation system, introducing more market-oriented mechanism, and strengthening its rules and regulations, so as to make the BAR policy an effective toolkit for the new urbanization in China.

References

Abramson D, Qi Y (2011) Urban-rural integration in the earthquake zone: Sichuan's post-disaster reconstruction and the expansion of the Chengdu metropole. Pac Aff 84(3):495–523

Central Committee of Chinese Communist Party (CCCCP) (2014) A decision on rural development 2014. www.xinhuanet.com. Accessed Jan 2014 (in Chinese)

China Development Research Foundation (2010) China development report – new urbanization in China for a people-centered strategy. People's Publishing House, Beijing (in Chinese)

Hsing Y (2012) The great urban transformation: politics of land and property in China. Oxford University Press, Oxford/Toronto

Hu B, Xue H, Zeng J, He M (2009) Learning from the Chengdu urban-rural integrated plan compilation. Planners 25(8):26–30 (in Chinese)

Jiao Y (2011) Coordinated urban-rural development and the transition of planning management: a case study of Chengdu, China. In: Proceedings of the fifth annual international association for China planning conference, Beijing

Ministry of Land and Resources of China (MLRC) (2008) Management measures of urban-rural construction land increase-decrease linking policy (file no. 138). www.mlr.gov.cn. Accessed Jan 2014 (in Chinese)

National Bureau of Statistics of China (NBSC) (2011) Communique of the National Bureau of Statistics of People's Republic of China on major figures of the 2010 population census (in Chinese)

Ye Y, LeGates R (2013) Coordinating urban and rural development in China: learning from Chengdu. Elgar Press, Cheltenham

Ye Y, LeGates R, Qin B (2013) Coordinated urban-rural development planning in China: the Chengdu model. J Am Plan Assoc 79(2):125–137

Zhu K, Prosterman R (2007) Securing land rights for Chinese farmers: a leap forward for stability and growth. Cato Institute, Washington, DC

Chapter 16
A New Pathway to Urbanization in China? The Land Trading Policy and Practice in Yandu Xincun, Xianghe County, Hebei Province

Sun Sheng Han and Qianli Wei

Abstract This chapter examines a new land policy known as *Zengjian Guagou* (i.e., "bundling up addition with reduction" – abbreviated as BAR hereafter) which has been gradually developed and implemented since the year 2000. The main research questions include how is BAR implemented? Who are the main stakeholders associated with its implementation? And what is the impact of BAR on the in-situ urbanization in terms of employment and lifestyle change? These questions were addressed by analyzing Yandu Xincun, a village in Hebei Province as a case study. Data were collected through field observations and key informant interviews. Findings demonstrated that the policy contributed to significant urban expansion at the expense of arable land quality; its implementation resulted in both positive and negative changes to the built environment and residents' lifestyle; BAR promoted rural non-agricultural employment and led to a coming-back flow of emigrant workers.

16.1 Introduction

Since economic reform was initiated in 1978, China has been urbanizing at a very rapid pace. The overall level of China's urbanization increased significantly from 20 % in 1979 to 51.3 % in 2011 (Song and Li 2012). In hierarchical and spatial terms, large cities especially those located in the east coast have served as main

S.S. Han (✉)
Faculty of Architecture, Building and Planning, The University of Melbourne, Parkville, Victoria 3010, Australia
e-mail: sshan@unimelb.edu.au

Q. Wei
Beijing Urban Development Institute, No. 45 Fuxingmengnei Avenue, 100801 Beijing, China
e-mail: weiqianli66@163.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_16

magnets of rural–urban migration, despite the continuous ideological and policy intensions to control the growth of large cities and to encourage the development of smaller ones (Han and Wong 1994, 1998; Zhang and Han 2009). This large-city dominated urbanization process was complemented by unique drivers in different time periods. In the 1980s, for example, rural urbanization on the basis of development of small towns characterized the Chinese urbanization as a new model (Kwok et al. 1990). A large amount of surplus agriculture labourers was transformed to non-agriculture employees in town and village enterprises, or, TVEs (Zhu 2000; Long et al. 2010). In the 1990s, Chinese urbanization was based on urban land expansion in the forms of development zones and other large projects in peri-urban areas. Indeed, a 'zone fever' was observed, though rapid urbanization of land may or may not be associated with rapid urban population growth (Wang 2003; Zhang and Song 2003; Yang et al. 2012; Liu et al. 2012).

This chapter shows that the *Zengjian Guagou* policy, or, BAR (i.e., bundling up addition with reduction), is a new driver in Chinese urbanization in the past decade. BAR was conceived in the beginning of the twenty-first century, as a response to the alarming loss of arable land. The 11th Five-Year Plan declared that 120 million hectares arable land was the minimum (also known as a 'red line' amount in arable land protection) in order for China to meet the national food security need (MLR 2006). By balancing the addition of urban land with the reduction of land from rural housing, BAR was expected to help protect arable land, along with other socioeconomic goals[1] (MLR 2008). Since 2006, this policy has been applied in 24 provinces to address the contradiction between land shortage for urban construction and land waste in rural housing. According to the policy, consolidation of existing rural settlements would create the opportunity to reclaim land from rural settlements and to turn these parcels into farm use. This would further generate an opportunity to convert the same amount of farm land into urban use, thus to meet the need for urban expansion but without reducing the overall amount of arable land. In recognizing the revenue potential created in the process, local governments have been actively carrying out village consolidation projects and building new high-density rural communities (Ren and Zhou 2013). The policy also envisages that farmers will benefit from village consolidation because they will live in a new high-density rural community with improved public infrastructure and services.

There are limited empirical studies on the role of village consolidation in promoting integrated rural–urban development from perspectives of both government and local community. This chapter examines the BAR policy and its implementation by addressing the following three questions.

- How is *Zengjian Guagou*, or, BAR, implemented?
- Who are the main stakeholders associated with the implementation of the BAR policy?
- What is the impact of BAR on the in-situ urbanization in terms of employment and lifestyle changes?

[1] These other goals include protection of peasants' interest in land rights change, improvement of rural living conditions, and promotion of integrated rural–urban development (MLR 2008).

The chapter is organized into seven sections. Following the introductory section is a literature review about the main drivers of China's urbanization in the 1980s and the 1990s. Section 16.3 discusses research methodology. Section 16.4 introduces the BAR policy endorsed by the central and provincial governments. Section 16.5 explores the implementation process and the main stakeholders. Section 16.6 assesses the impacts of BAR on the local economy, urbanization and residents' way of life. Section 16.7 discusses the findings and concludes.

16.2 Literature Review

The United Nations (1993: 2) defined urbanization as a process which included at least four components: (a) the expansion of urban areas; (b) the growth of population in urban areas; (c) an increase in the numbers of people engaged in non-agricultural activities; and (d) the distinctive environment which enables urban way of life. Components (a) and (b) have an explicit urban focus, while (c) and (d) are other forms of urbanization which may happen in non-urban locations. China is a remarkable case to illustrate the city-focused and non-city focused urbanizations.

The development of town and village enterprise (TVE) was well recognized as a major driving force of a non-city focused urbanization in the 1980s. TVEs were reservoirs for keeping rural labour surplus from flooding into cities (Han 2004). They provided large numbers of non-agriculture employment and promoted in-situ urbanization (Kwok et al. 1990). Zhu's (1999: 55) case study in Fujian Province affirmed the significant workforce absorption capacity of the TVEs. He further argued that TVEs made greater contribution to the transformation of employment structure than the state-sector industries did, and that TVEs promoted growth of secondary and tertiary sectors in the countryside.

As to the "urban way of life" component, observations about TVE's contribution varied from region to region. Feng (2012: 12–17) found, through his study in southern Jiangsu Province, that most of the revenues earned by collectively-owned TVEs were invested to build infrastructure and public facilities, such as market, shopping centre, recreational centre and community health clinics. These projects changed the rural landscape and villagers' consumption mode and values to some extent. But in Fujian region, Zhu (1999) argued that development of the private-owned TVEs simply facilitated transformation of rural area into quasi-urban area because the rural landscape did not change substantially. Furthermore, Luo (1997) argued that there were little signs of real urbanized landscape and urban way of life in most coastal regions. In less developed central and western regions, villagers remained to have limited access to public services and infrastructure. The reason behind this undesirable outcome was that encouraging the development of TVEs was regarded as a way to shirk government responsibility for providing public service and facilities through preventing villagers from entering into large cities (Sun 2003; Zhu 2000).

In the 1990s, the establishment of various types of development zones (e.g. industrial parks, high-tech zones) became a primary driving force of China's urbanization (Deng and Huang 2004; Wang 2003). The development zones facilitated drastic urban population growth due to interprovincial rural–urban migration (Wang 2003: 70; Zhang and Song 2003; Yang et al. 2012), expansion of urban area and improvement of urban physical environment (Zhang 2001; Wang et al. 2004). Empirical studies affirmed that, from 1990 to 2000, rural–urban migrants who moved from inland to developed regions reached ten million annually (Lu et al. 2006). Lucas and Robert (2004) demonstrated that fast growing urban areas were more attractive to rural–urban migrants. However, urban expansion did not necessarily lead to significant population growth everywhere. In Yangtze River Delta, Zhang (2001) and Wang et al. (2004) found that impressive environment of new districts/cities was created for attracting manufacturing and service enterprises, which created intensive labour demand and promoted considerable urban population growth. In contrast, a case study of Hebi City in Henan Province showed that the newly built urban centre failed to increase employment and voluntarily relocated residents (Liu et al. 2012) because of its inland location and backward regional economy.

Several studies suggested that the "zone fever" did not contribute to sustainable urbanization or improvement of the "urban way of life". Studies elsewhere showed that the large-scale conversion from arable land to construction land damaged the land surface and biodiversity (Villarreal et al. 2013). Furthermore, Tao and Cao (2008) observed that there was a rent-seeking behaviour in local governments' land trading practice. As such, the best land was developed for attracting investment rather than servicing local residents (Feng 2012: 37–38). Local villager's income level was reduced significantly because they were forced to relocate without reasonable compensation. Luo (2008) further explored why the farmers failed to gain adequate compensation and to share the added-value to land through her case study in Chengdu region. She argued that famers were the most disadvantaged group during the land expropriation process. The town government acted as land brokers and had a stronger say (ibid). Meanwhile, village committee, a grass-root agency, worked as a branch unit of the town government rather than representing the local people.

Since 2000, there has been an increased awareness of the interlocking problems of environmental costs (Xu 2007), urban sprawl and severe loss of arable land (Long et al. 2010). Indeed, the last decade of the twentieth century witnessed an increase of the urban land by 817,000 ha; many cities increased their land areas by up to 80 % (Han 2010: 780). In parallel with rapid urban expansion was loss of arable land which had already been a concern since 1949, with 10 million *mu* disappearing annually; in 1992, 20 million *mu* arable land was gone (Han and He 1999: 257). In this context, the feasibility of in-situ urbanization in rural area has been re-explored (Xu 2007; Liu 2012). That discussion is timely as labour-intensive industry has been transferring from the developed eastern region to central and western regions, and back-to-hometown migration from coastal cities such as Guangzhou and Shenzhen were also observed (Feng 2012). Policy-wise, the policy of bundling up urban land addition with land savings was introduced, and local governments were

active in carrying out village consolidation and building new high-density rural communities. Ren and Zhou (2013) claimed that there were positive influences of the policy on driving intensive land use and urban expansion as well as providing monetary support for building new projects in rural communities. They also argued that disagreement about revenue sharing among stakeholders was a concern. The issues were associated with the role of local governments as both policy implementer and beneficiary. However, there are limited empirical studies on the policy outcome from the perspective of processes, stakeholders, and impacts. Therefore, it is necessary to explore whether or not BAR has contributed to the in-situ urbanization in practice.

16.3 Research Design

This research used a case study approach by focusing on Yandu Xincun in Xianghe County of Hebei Province. Xianghe is located between Beijing and Tianjin with a land area of 458 km^2 and a population of 457,000. In recent years, Xianghe began to receive outflows of service and manufacturing industries from Beijing. The emergent regional markets and the boom of real estate market sped up the local urbanization process. From 2000 to 2010, the migrant population increased 4.5 times; they included both migrant workers who worked locally and people who found residence there but worked in Beijing (XLPB 2013). As a result, the urbanization level increased from 48 % in 2008 to 57.3 % in 2010.

Since 2008, Xianghe applied BAR in its new rural community building program. More than 159 villages were planned to be consolidated into 20 new rural communities (XPG 2008). In 2010, Xianghe successfully obtained 2,333 ha land quota, which was the largest in Hebei Province (Economic Observer 2011). Nevertheless, the strong intention of local government to chase up urban land quota also raised serious issues. In May 2011, Xinhua News (2011) reported illegal arable land appropriation occurred in several villages of Xianghe. These included illegal land trading, unreasonable compensation and "false reclamation". In the report, a local worker complained about the poor soil quality after land was returned to farming. The media report drew immediate attention from the Ministry of Land and Resource of China, and the land quota approval in Hebei Province was suspended for an audit (Economic Observer 2011). Xianghe Land and Resource Bureau was also requested to publish details about the use of the land quota on its official website. Two month later, Hebei Provincial Land Resource Department resumed BAR Projects (ibid) as a response to private developers who threatened to quite from the local housing projects. Local government felt a strong financial stress and was concerned about losing the opportunities of revenue making from land sale.

Yandu Xincun is one of the 20 newly planned rural communities. It is close to No. 103 National Road, bounded by Tianjin in the South and Beijing in the North. This project involved demolition of five nearby villages, namely Yijie, Dongzhuang, Erjie, Sijie and Houzhuang, and relocation of all villagers to the Yandu Xincun.

Originally, the five villages have an area of 93 ha and 1,214 households in total. However, after intensive development, all relocated families can be arranged in the new community that covers only 17.3 ha.

Data were collected via semi-structured interviews, unclassified policy documents, and field observations. Semi-structured interview is effective to reveal unique stories and multiple perspectives via in-depth dialogue with participants (Creswell 2007), and was used as the main method for gathering data. Thirteen key informants were selected from three sources: county government, village committee, and households. The interviews were conducted one-to-one using a list of open-ended questions; and each interview lasted around 40 min. Two officers (coded as G1 and G2) from the Xianghe Land and Resource Bureau and Xianghe Land Planning Bureau were included respectively; they were asked about the implementation of BAR, land quota trading process and land use planning principles. Another two informants (coded as VC1 and VC2) were heads of village committees; they were asked about the role of BAR as well as the implementation processes. Nine local residents were selected from the rural households, representing farmers in different gender, age, education and income groups. The above four factors were major determinants to influence farmer's willingness to be relocated (Guo et al. 2013). Generally, villager informants were classified into three groups: young, middle aged and senior adults, which were coded as VY1-3, VM1-3 and VO1-3 respectively. They were asked about their living and working experiences during the change.

Unclassified documents were also collected, including regulations relating to BAR, the Master Plan of Xianghe, working report of local government, journal articles, newspaper and statistical yearbooks. The documents were collected from official website of the Ministry of Land and Resource of China and local departments under its administration, open access library and Xianghe Land Planning Bureau.

The field surveys were conducted two times at the focus villages in order to observe changes in the physical environment. The first survey gained a general picture of land-use on the site and its surrounding area. The second survey focused on the Yandu Xincun community. Physical environment and human activities were observed.

Quantitative data were analyzed via descriptive statistics and charts. Content analysis was used to discuss qualitative data obtained through semi-structured interviews. After transcribing verbal opinions and grouping them into different themes, the similarity of data was highlighted in order to clearly describe a phenomenon. Finally, discussion was made accordingly in order to assess the policy implementation process, main stakeholders and impact of the policy on farmer's employment and urban way of life.

16.4 The '*Zengjian Guagou*' Policy or BAR

Since 2000, *Zengjian Guagou* or BAR, has become a driver of China's urbanization. The idea of bundling up addition of urban land with savings from peasant housing sites was first seen in a policy guideline endorsed by the State Council in mid-2000

(CSC 2000). This policy guideline stipulated that dispersed peasant housing construction would be disallowed, and peasants would be encouraged to purchase housing in towns, or, to build in compact settlements according to a plan. The land that would be saved from the above could be used as new additions for town expansion (ibid). In 2004, another policy decision by the State Council made it clear about bundling up the addition and reduction (CSC 2004). Experimental provinces and cities were selected in 2006 for implementation of the rural–urban integration policies.

In 2008, the Ministry of Land and Resource of China issued '*The Measures for the Administration of the Trial Work of Zengjian Gugou'* (hereinafter called "the Measures") (MLR 2008). Article 2 of the Measures provides clear definition about BAR, i.e., *Zeng* (or 'addition') refers to the increase of urban land, while *Jian* (or 'reduction') refers to the decrease of land used for rural housing. By relocating peasants to high or medium density residential clusters, it is possible to convert rural housing land blocks into arable land. A land area which is equal to the reclaimed land is allowed for the use of urban expansion.

Figure 16.1 shows that BAR serves as a new pathway of urbanization in China. As widely predicted, the Chinese urbanization will continue to rise, thus will add further pressure on land supply. Through consolidation of rural housing land use, higher density settlements will be created; this will release some land parcels from existing housing use. These parcels can then be reclaimed for agricultural use, thus adding to the national arable land bank. The addition of land to the national arable land bank means that the same amount of land can be converted to urban use without reducing the total arable land available. This additional land for urban use is

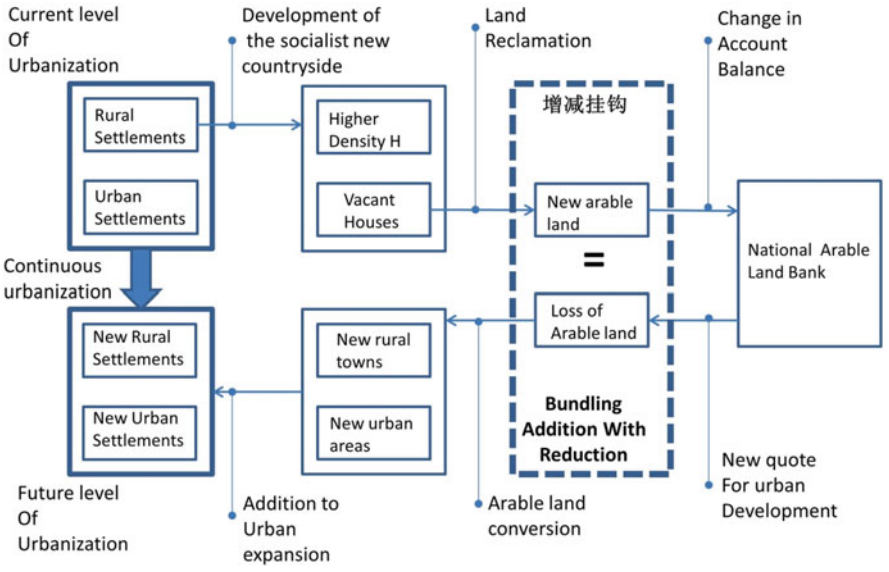


Fig. 16.1 BAR – a new pathway of urbanization in China (Source: Conceptualized by authors)

managed by a land use quota that bundles up addition with reduction, and contributes to meeting the need of land supply associated with the future urbanization level.

The Measure also made it clear that the main purpose of BAR was to protect arable land, protect peasants' interest in land rights change and improve rural living conditions (Article 3, MLR 2008). To strengthen the enforcement, the state government empowered the local farmers by legitimating their rights of participation (MLR 2008, Article 17). In 2010, the State Council further issued a *'Notice on Strict Regulation of the Urban–rural Construction Land-use Pilot to Conscientiously Implement Rural Land Reform Work'* (CSC 2010), in which "*protecting ecological environment,…and guarantee national food security..*" was highlighted (Article 11).

The Hebei Provincial Government (2011) issued a '*Notice on Strict Regulation of the Urban–rural Construction Land-use Pilot to Conscientiously Implement Rural Land Reform Work*' to stipulate guidance on the implementation of BAR at local level. Two points are worth noting. First, all land revenue generated from BAR project should be used for development of the rural area (Article 2(5)). Secondly, the freed construction land should be firstly reclaimed and then be allowed to transfer to potential urban land user via a quota trading process (Article 2(4)).

16.5 Policy Implementation and Main Stakeholders

Six phases were identified in the implementation process. They were quota allocation and project plan; funding preparation; relocation mobilization and agreement; settlement housing construction and household relocation; demolition of old rural houses and land reclamation; construction of commercial projects. According to the Measure, all projects should be implemented phase by phase within 3 years. Each phase needed to include five tasks: (1) obtaining quota, (2) raising funds, (3) signing relocation agreement, (4) relocating sitting tenants, and (5) reclaiming land. After completion of land reclamation, a part of the land quota should be returned to the national government. This would lead to the next phase of project implementation and the above five tasks would be repeated until the total land quota is returned. In practice, as shown in this section, the project was implemented with three major deviations: (1) omission of the reclamation step, (2) lack of clear indication whether or not land quota was returned before commencement of a new phase, (3) delayed project time frame to be longer than 3 years. By August 2013, the Yandu Xincun project initiated in 2008 was not completed.

Quota Allocation and Project Planning The Ministry of Land and Resources of China allocated land use quota to Hebei Provincial Department of Land and Resource according to BAR. Part of the quota was assigned to municipal land use bureau. To obtain the land use quota, Xianghe Land and Resource Bureau (XLRB) was asked to submit an application in early 2008 and attach a BAR project plan for the whole county (G1).

The project plan was prepared by XLRB based on the Xianghe's Master Plan. By adopting a new land planning strategy called 'floating balance', the newly freed rural housing land in the project area was used as urban land rather than reclaimed for farm use. In order to maintain the total volume of arable land unchanged across the whole county, the same amount of rural housing land near the planned Agriculture Zone was reclaimed into arable land (G2).

One informant revealed that XLRB was under pressure to secure more quotas for urban expansion as that "the quota is not enough to address shortage of construction land. Xianghe government has been actively attracting investment. However, when investors have intention to establish project in Xianghe, we cannot provide construction land to accommodate the project. What can we do? More than 2,000 counties across China are all fighting for these limited quotas" (G1).

Funding Preparation XLRB was responsible for project financing. Real estate developers were seen as the main funding source. As a way to promote the place, XLRB made use of the propaganda to show that "government creates good investment environment for both developers and residents" (G1). Incentives were also given, e.g. reduction of surcharge for land transfer by 30 %. The potential earning from land development attracted several developers who showed interest to participate in the project. A local developer called Longsheng Real Estate Company was selected as project investor, who paid for the compensation, demolition, and construction (G1).

Relocation Mobilization and Agreement Anping township government was assigned to relocate the sitting tenants. Considering financial stress, the relocation was carried out in phases. Phase I was planned for 2008, involving the relocation of 241 households in Yijie village. This included 816 people among whom 312 were Muslims (VC1). Phase II was planned for 2009 involving the relocation of Dongzhuang village. A total of 104 households with 387 people would be relocated (VC2). Government officials from Anping met with the village heads and actively promoted the project (VC1, VC2) in order to persuade local residents to move into the new apartments.

Heads of both villages were convinced that the project could bring substantial benefits to their fellow villagers (VC1, VC2). They informed all villagers about the relocation process and asked them to select representatives who met with the village committees regularly to hear about the policy and to feedback on relocation compensation, building design and public facilities. All feedbacks were reported back to the town government. In addition, the village committees negotiated with the developer the share of development profits. One informant commented that:

> Initially, most villagers worried about their future life. I reported this situation to the town government and worked with the developer for a solution. After negotiation, the Village Committee signed an agreement with the developer to co-develop our land and to use 30% of the revenue[2] for villagers. As part of the benefit, villagers are exempted from charges for

[2] An attempt was made to clarify how the revenue was defined. We were told that this would be the profit from the project mainly derived from the sales of the apartments.

heating and property management for ten years. In addition, the Village Committee bought pension and basic medical insurance for the villagers (VC1).

Through bargaining and negotiation, majority of the villagers agreed to relocate. The relocation and compensation agreement of Phase I and Phase II project were signed in March 2008 and April 2009 respectively (VC1, VC2). The compensation package included a rate of RMB 3,000/m^2 for principal rooms and RMB 1,000/m^2 for wing rooms. The yard was paid at RMB 300/m^2. On average, every household got RMB 200,000 cash in hand on top of ownership of a 100 m^2 brand new apartment.

Building New Rural House and Relocating Household The building work of Phase I started in March 2008 (VC1). Four 6-storey buildings were built, with a construction area of 2.6 ha in total. The project was completed in December of the same year. At the end of 2008, 216 households moved into new dwellings.

Phase II construction started in April 2009 and finished in December of the same year (VC2). Two 6-storey buildings were built with building area of 1 ha. One hundred and two (102) households moved to the new apartments at the end of 2009.

In comparison to the relocation plan made in the previous phase, there were 25 and 2 households short in relocation in phases I and II respectively. Some of these households left the village and migrated to other cities to do business. The village informants mentioned that many of those emigrants were Muslims but they were unable to provide further details about the number of households who emigrated and/or the number of Muslim families left the village. The rest of the households were those who did not accept the relocation package, and were reluctant to relocate. They were called the 'nail households' by the Village Committee and Anping Government.

Demolishing Old Rural Houses and Converting Rural Land into Urban Land The developer demolished the old houses after households moved into Yandu Xincun. Then the town government reported back to XLRB the hectares of land saved (G1). Instead of reclaiming the land into farm land, the freed land from rural housing was converted into construction site and sold publicly in the market. As a matter of fact, the developer was guaranteed by XLRB for a share of the newly freed land for commercial projects as 'they funded the Yandu Xincun project, so we should sell them part of the quota and allow them to have their commercial development for profit' (G1).

Construction of Commercial Project After converting the freed land from rural housing into urban use, the project developer started to build commercial high-rise housing (Called Yandu Xincheng) in early 2009. According to field observation, twelve 18-storey buildings were built (Fig. 16.2). The finished houses were sold out at an average price of RMB 6,300/m^2, which doubled the price at Yandu Xincun.

Fig. 16.2 Yandu Xincheng

16.6 Impact of the BAR Project on Jobs and Lifestyle

16.6.1 Impact on Employment

One key informant explained that the land use changes not only enabled local resident access to convenient commercial services but also created non-agricultural jobs (G2). Through field investigation, it was found that many medium and small businesses, such as mini-market, grocery shops, photo and computer studios, clothing manufacturing company, musical instruments company and packaging technology corporation, had already been established.

The local villagers informed that residents took the new opportunities in different ways. Generally, all nine informants had already moved away from farming work after receiving their relocation compensation (VY1-3, VM1-3, VO1-3). For older villagers, most of them chose to retire and to enjoy a relaxed life because they felt that they had adequate financial resources for their future (VO2). Only one informant actively reemployed as a full-time gardener. For the middle-aged group, while the male informant had a mixed income before relocation, the woman had a single income source from agricultural activity (VM1). Now, they all actively engaged in full-time non-agricultural jobs as earnings from these jobs would ease future financial burdens. However, it was easier for male than female villagers to find jobs. For young people who had never worked in farms, the relocation compensation helped them to start up non-agricultural jobs. One informant, a restaurant

owner, invested one third of his relocation compensation to renovate his restaurant (VY3). Another informant who emigrated to Beijing returned to his hometown after a careful recalculation of the pros and cons associated with his job-home location. His previous experience in Beijing involved a high living cost, which took up most of his income and thus left little for him to enjoy an urban lifestyle. Nevertheless, his working experience in Beijing helped him secure a job. With his relocation compensation he was no longer worried about high cost on rent and commuting.

16.6.2 Impact on Urban Way of Life

Changes were observed in both the built environment and villagers' lifestyle. These are apparent in the provision of transportation, public service infrastructures, housing condition and community facility, and by consumption mode, leisure activity and social network.

The BAR project helped urbanize the place by building new connecting roads and improving bus services in the rural communities. The Anping (Xianghe) – Tongzhou (Beijing) light rail, which is in the master plan, will further connect local villagers to places in the county and also in the Beijing region. Within a 2 km radius from Yandu Xincun, there were more services such as shops, hospitals, schools, and post office. The streetscape also changed substantially (Fig. 16.3). Before the village consolidation, the unpaved road, open-air rubbish dump and stinky toilet constituted a typical rural landscape. The new community was tidy and clean. All households were equipped with piped natural gas, 24-h electricity supply, central heating in winter and cable TV. The interview results showed that people were generally satisfied with the improved housing conditions. However, several informants complained about poor quality sewerage system, which was believed a consequence of inadequate investment by the developer – leading to the use of shoddy designs and materials (VO). Sewer overflow occurred frequently, especially in time when there was heavy rain. Another problem was the small public open space in Yandu Xincun. Several informants complained that they had no space available for them to hold events. They admired the big open space in the nearby commercial residential community built by the same developer.

In terms of lifestyle, the biggest change was observed among young people. For example, VY3 spent more than one third of his salary on social and leisure activity because he had no financial pressure on buying or renting an apartment (VY2). The three middle-aged informants spent more on modern household goods but there was no change in leisure activities (VM2). There were mixed findings among three older informants. Two with good health condition preferred spending money on travelling and enjoyed a range of leisure activities (VO3). One informant who suffered from poor health had no budget on leisure activities.

Furthermore, after relocating to the new community, villagers generally had their social network broadened because of increased opportunities in work and the influx of migrants in nearby communities. Those villagers returned from cities where they

Fig. 16.3 Villagers' housing: old vs new. (**a**) Village housing before BAR project. (**b**) Yandu Xincun

worked as migrant workers enjoyed the close and familiar social network. This is in contrast to the previous situation in which they suffered from discrimination when worked elsewhere (VY2). Even better, they were admired and respected by their fellow villagers after return because of the previous working experience in big cities. However, two informants expressed their dissatisfaction on weaker sense of community. In the past, the households often did farming work together and helped each other build houses (VM1 and VO1). But after relocation, there were few community activities to bring people together. In addition, the Muslim informant complained about demolition of the original mosque in Yijie Village. Previously, local people often met there to worship. But in the relocation project, the mosque was demolished without a replacement. After some strong petition efforts by the villagers, the town government decided to rebuild the mosque in a convenient site not far from the new community.

16.7 Summary and Conclusion

Several observations can be summarized. First, there was an official process of BAR implementation but the actual process did not necessarily conform to the official steps. It is interesting to note that deviation occurred in a critical stage when part of

the quota should but was not returned to the upper level government before local authorities commencing the next phase of the process. The case study project lingered despite there was a three-year time line for project implementation. Second, there were multiple stakeholders in the process. Main parties included the county government, town and village administrations, developers, and villagers. The county government was keen to obtain quotas, and to use the quota as means to attract and retain investors. Town and village administrations were responsible for residents' relocation thus negotiations between villagers and the developer. The developer was profit driven, as shown in its reluctance towards provision of open spaces and its use of shoddy designs in building the sewage system. The villagers were concerned mainly about compensation, which was linked to their future well being after losing their land. Third, the impact of BAR on urbanization was obvious. Land use quota enabled the construction of new apartment clusters. This was accompanied by increased number of non-agricultural employment in commercial and manufacturing sectors. The provision of services and infrastructure was also improved in the process. After peasants left agriculture and lived in an urban setting, they spent more on travel and other entertainment activities with their cash compensation, demonstrating a dramatic change from their traditionally peasant lifestyle.

BAR represented a new pathway of urbanization in China by supplying additional land to accommodate the continuous urban expansion, providing non-agricultural employment opportunities to villagers, and urbanizing the villagers' lifestyle. At the same time, however, this new pathway was associated with problems of poor quality reclaimed arable land,[3] lack of open space for community activities, and a potential divide between the newly urbanized villagers who lived in the low quality resettlement apartments and those who lived in the higher quality commercial housing cluster. Despite the general acceptance of compensation, there were villagers who were unhappy about the settlements and decided not to relocate. Although none of the 'nail household' was interviewed due to political sensitivity, it was an obvious fact that they were in existence. These problems raise the question as whether or not the new pathway of urbanization will lead to sustainable development socioeconomically and environmentally, which merits further research in future endeavour.

References

Creswell J (2007) Qualitative inquiry and research design. Sage, Thousand Oaks
CSC (2000) Opinions on promoting development of small towns Zhongfa. No. 11 (in Chinese)
CSC (2004) Decision on deepening the reform and intensifying the land management Guofa. No. 28 (in Chinese)

[3] A recent article in Nature warned that despite China was successful in maintaining its 'red line' amount of arable land, '[s]ome 3 million hectares of high-quality arable land and some 1 million hectares of paddy land have been built on or converted to urban use in just over a decade. More than 3 million hectares have been contaminated with pollution.' (Kong 2014: 7)

CSC (2010) Notice on strict regulation of the urban–rural construction land-use pilot to conscientiously implement rural land reform work Guofa. No. 47 (in Chinese)
Deng F, Huang Y (2004) Uneven land reform and urban sprawl in China: the case of Beijing. Prog Plan 61:211–236
Economic Observer (2011) Follow-up report on Xianghe land issues. 29 Aug 2011. http://www.eeo.com.cn/2011/0829/209910.shtml. Accessed 13 Oct 2013
Feng J (2012) Countryside restructuring: mode and innovation. Commercial Press, Beijing (in Chinese)
Guo AQ, Qin L, Liu QQ (2013) Discussion about rural residential land intensive standard based on farmer's willingness in Hebei province. Resour Dev Mark 29(3):248–252 (in Chinese)
Han SS (2004) Agricultural surplus labor transfer. In: Hsieh CM, Lu M (eds) Changing China: a geographical appraisal. Westview Press, Boulder, pp 65–81
Han SS (2010) Urban expansion in contemporary China: what can we learn from a small town? Land Use Policy 27:780–787
Han SS, He CX (1999) Diminishing farmland and urban development in China. GeoJournal 49(3):257–267
Han SS, Wong ST (1994) The Influence of reform and pre-reform policies and Chinese urban growth in the 1980's. Urban Geogr 15(6):537–564
Han SS, Wong ST (1998) Revolution, space and urbanization, the ideological foundation of Chinese urban development. Asian Profile 26(2):91–120
Hebei Provincial Government (2011) Notice on strict regulation of the urban–rural construction land-use pilot to conscientiously implement rural land reform work. Jizheng (2011) No. 39
Kong X (2014) China must protect high-quality arable land. Nature 506 (06 Feb 2014):7. doi:10.1038/506007a
Kwok YWR, Parish W, Xu XQ, Yeh AGO (eds) (1990) Chinese urban reform: what model now? M E Sharp, London
Liu YX (2012) Study on in-situ rural urbanization under the condition of rural economic transition. Unpublished PhD thesis in Chinese. Minzu University of China, Beijing
Liu Y, Yin G, Ma LC (2012) Local state and administrative urbanization in post-reform China: a case study of Hebi City, Henan Province. Cities 29(2):107–117
Long H, Li Y, Liu X, Chen Y (2010) Building new countryside in China: a geographical perspective. Land Use Policy 27(2):457–470
Lu XH, Zhu SF, Zhang ZH (2006) The empirical analysis on migration scale of rural population between urban and rural areas in China. Chin Rural Econ 1:35–41 (in Chinese)
Lucas JR, Robert E (2004) Life earnings and rural–urban migration. J Polit Econ 112(1):S29–S59
Luo L (1997) Study on promoting urban way of life and China's urbanization in rural area Jiangsu. Soc Sci 3:170–172 (in Chinese)
Luo R (2008) Study on issues about sustainable livelihood of landless peasants in the process of Chinese urbanization. Unpublished PhD thesis in Chinese. South-western University of Finance and Economics, Chengdu
MLR (Ministry of Land and Resources) (2006) Arable land protection. http://www.mlr.gov.cn/zt/2006tudiri/5.htm Accessed 16 Aug 2014 (in Chinese)
MLR (Ministry of Land and Resources) (2008) Measures for the administration of the trial work of Zengjian Guagou. MLR No. 138 (in Chinese)
Ren P, Zhou JM (2013) The evolution and research tendency in the institution of Zengjian Guagou. Chin Agric Sci Bull 29(5):97–102
Song Y, Li J (2012) The road of urbanization with Chinese characteristics: exploration and Vista people's tribune. Frontiers 2012–14
Sun H (2003) Study on China's urbanization path. Unpublished PhD thesis in Chinese. Party School of Central Committee of China, Beijing
Tao R, Cao GZ (2008) The unmatched "space urbanization" and "population urbanization" and the response of policy combination. Reform 10:83–88
United Nations (1993) State of urbanization in Asian and Pacific. United Nations, New York

Villarreal ML, Norman LM, Boykin KG, Wallace CA (2013) Biodiversity losses and conservation trade-offs: assessing future urban growth scenarios for a North American trade corridor. Int J Biodivers Sci Ecosyst Serv Manag 9(2):90–103. doi:10.1080/21513732.2013.770800

Wang DM (2003) A study on urbanization of China. Unpublished PhD thesis in Chinese. Shandong Agriculture University, Taian

Wang HW, Yuan ZJ, Hou AM (2004) Study on the model of the development zone of the urbanization. Areal Res Dev 23(2):10–13

Xinhua News (2011) Large-scale land enclosure in Xianghe. 18 May 2011 http://www.chinanews.com/fz/2011/05-18/3050610.shtml. Accessed 13 Oct 2013

XLPB (Xianghe Land Planning Bureau) (2013) Information compilation for Xianghe master plan (2011–2030). Unofficially Published Government Document

XPG (Xianghe People's Government) (2008) Government work report in 2008. http://csmcity.com/zlzx/info.php?id=1983. Accessed 13 Oct 2013

Xu JY (2007) Rural–urban integration – a path to building socialist new countryside. J Party Sch CPC Chang Munic Comm 102(1):38–40 (in Chinese)

Yang S, Wang M, Wang C (2012) Revisiting and rethinking regional urbanization in Changjiang River Delta, China. Chin Geogr Sci 22(5):617–625

Zhang H (2001) Development zone promoting urbanization mode – case study of Yangtz Delta. Urban Plan Forum 2001(6):65–69

Zhang L, Han SS (2009) Regional disparities in China's urbanization: an examination of trends 1982–2007. Int Dev Plan Rev 31(4):355–376

Zhang KH, Song S (2003) Rural–urban migration and urbanization in China: evidence from time-series and cross-section analyses. China Econ Rev 14:386–400. doi:10.1016/j.chieco.2003.09.018

Zhu Y (1999) New paths to urbanization in China: seeking more balanced patterns. Nova Science, Commack

Zhu Y (2000) In situ urbanization in rural China: case studies from Fujian province. Dev Change 31(2):413–434

Chapter 17
Managing Urban Informalities in China: Beijing Municipality's Style of Governance Towards Its Urban Villages

Ran Liu

Abstract Since the 1980s, rapid urban growth has witnessed large tracts of rural and suburban lands being expropriated and transformed into modern commercial and residential estates. At the same time, informal housing has been developed disparately in suburban areas as a main reception niche for low-income migrant tenants who have no local residency status. Many local urban villagers use informal housing to get rental income and to compensate their losses from farm revenues. This chapter examines the features of the institutional backdrop of China's city governance in managing its urban informalities using Beijing as a case study. Indicators used include planning standards, rules and regulations on space use, residency permits and other enforcement measures. The paper questions the evolving urbanism policies and non-compromising practices that give low tolerance to the slum-like housing accommodating the needs of low-skilled migrants who serve the urbanizing economies but receive little or no housing assistance from public authorities. The paper elaborates the socio-political origins and operational mechanisms of urban informalities in China and, serving as a reference, compares them with other management styles towards slum areas in Latin America and India.

17.1 Introduction

The 6th National Census conducted in 2010 reported a rising proportion of migrants in Beijing's total population from 18.9 % in 2000 to 35.9 % in 2010, increasing by 4.5 million. The Census also noted the non-registered permanent residents[1] in

[1] This chapter focuses on the non-registered permanent residents, who have left their originally registered permanent residence and stayed more than 6 months in the host cities. The statistical data of population censuses and 1 % National Population Survey are used to measure the inflow of non-registered permanent residents.

R. Liu (✉)
College of Resource Environment and Tourism,
Capital Normal University, Beijing 100048, China
e-mail: liu.ran.space@hotmail.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_17

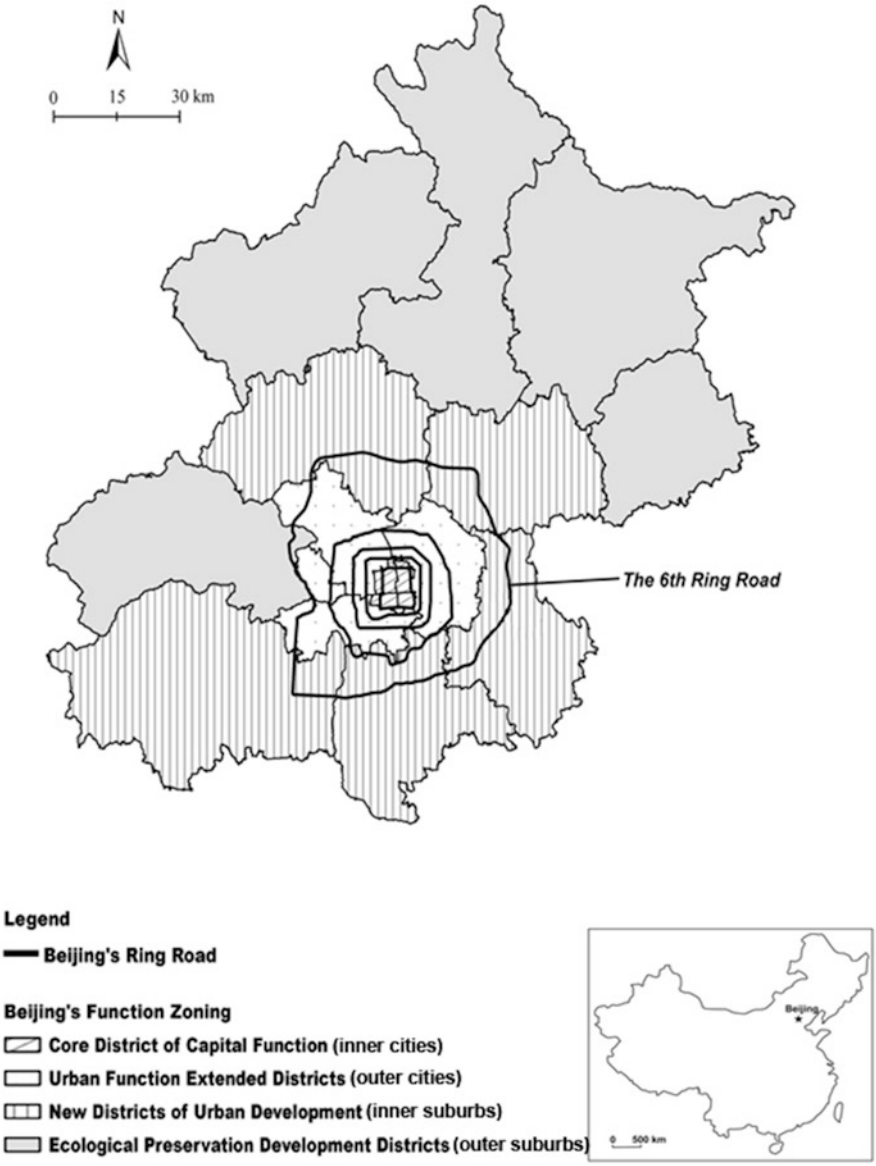


Fig. 17.1 The map of Beijing municipality

Beijing reached seven million in 2010, most of whom spatially congregated in the outer cities, i.e. the Urban Function Extended Districts[2] (see Fig. 17.1). These

[2] Beijing Municipality is composed of 14 districts and 2 counties: (a) the Core District of Capital Function, i.e. inner cities, including Dongcheng and Xicheng Districts (previously Dongcheng, Xicheng, Chongwen and Xuanwu); (b) the Urban Function Extended Districts, i.e. outer cities,

Table 17.1 Migrant population changes in Beijing, 1990–2010

Functional zones in Beijing	District/county	Portion of Beijing's total migrants (%)		
		1990 population census	2000 population census	2010 population census
Core district of capital function (inner cities)	Dongcheng, Xicheng, Chongwen and Xuanwu	26	17	8
Urban function extended districts (outer cities)	Haidian	17	20	18
	Chaoyang	26	22	22
	Fengtai	10	17	12
	Shijingshan	4	5	3
	Sub-total	57	64	55
New districts of urban development (inner suburbs)	Tongzhou	2	3	6
	Shunyi	2	3	4
	Fangshan	3	2	3
	Daxing	4	4	9
	Changping	3	4	12
	Sub-total	14	16	34
Ecological preservation development districts (outer suburbs)	Huairou	1	1	2
	Pinggu	0.4	1	1
	Mentougou	3	2	3
	Miyun	0.1	0.4	1
	Yanqing	0.4	0.2	1
	Sub-total	4.9	4.6	8

suburban zones, like Chaoyang and Haidian Districts, witness the urban informalities in the form of slum-like and overcrowded rental housing, accommodating 21.5 % and 17.8 % of Beijing's total migrants respectively. Table 17.1 gives a clear picture of the migrants' mobility in the past two decades in Beijing. From 1990 to 2000, the Urban Function Extended Districts located in outer cities (e.g. Haidian and Fengtai Districts in particular) had witnessed a greater increase in migrants than the other zones. Between 2000 and 2010, the portion of total migrants living in Urban Function Extended Districts had declined slightly. New Districts of Urban Development, situated at the inner suburbs, have become a new magnet for migrants. Several inner suburban districts located at the outer 6th Ring Road – Changping, Daxing, and Tongzhou Districts alongside Badaling and Beijing-Tianjin Expressways – have seen a substantial increase in the share of total migrants by districts (see Beijing 6th Census Office 2011). The rise of the share in the inner suburban districts, together with a decline in outer cities, has manifested an

including Haidian, Chaoyang, Fengtai and Shijingshan Districts; (c) the New Districts of Urban Development, i.e. inner suburbs, including Tongzhou, Shunyi, Fangshan, Daxing and Changping Districts; and (d) the Ecological Preservation Development Districts, i.e. outer suburbs, including Huairou, Pinggu, Mentougou, Miyun and Yanqing.

outward residential mobility of the migrants in Beijing in the 2000s. What is more impressive is that the migrants have fled from the Core District of Capital Function (within the 2nd Ring Road) since the 1990s. In 1990, one quarter of migrants lived in the inner city; in 2000, this number declined to 16.5 %, and then in 2010, to merely 7.7 %.

Such an outward mobility of the migrants was the product of the city-making movements in the past two decades in Beijing during which rising rental and redevelopment of older quarters in the city had driven low-income workers further away to the suburbs (Liu 2014). On the one hand, the demolition of a mass of informal urban villages has uprooted these low-rental areas that are the main affordable choices for low-wage migrants. On the other hand, the redevelopment has inevitably driven rentals up and thus expelled the poor and low income earners from these areas under reconstruction. Slum urbanism, which involves as much as 60 % of the total urban residents in Sub-Saharan Africa, for example, is by no means acceptable to the Chinese authorities, which see city planning as a rational process and tool to achieve slum-free status and city-branding goals. Urban informalities are perceived as 'irrationality' and thus rejected in the Chinese system through rigid regulation of the physical forms of the city (see Pieterse 2011; Wu et al. 2013, 2014).

In controlling the migrant explosion and managing urban informalities, the city space reproduction process in transitional Beijing has been characterized by an asymmetrical power distribution, imposing social exclusion and housing inequalities against lowly educated, unskilled and low-wage migrant workers. With migrants and urban villages increasing dramatically in most suburban cities, local governments use *hukou* and urban planning regulations to control their numbers. The expulsion of migrant tenants is accompanied by a series of State-sponsored upgrading projects claimed officially as 'good for the public'. The miserable city life of rural migrants merely tells a partial story of urban informalities.

During this transitional urbanization stage, urban informalities are related to the 'rights to the city' in two aspects (Lefebvre 1996). Firstly, it is the local peasants' loss of farmland, as a result of which their rural *hukou* is converted to urban *hukou*, and they have to negotiate for their rightful compensation. From now on, they have to face new problems and adapt to a new city life where informal services have often become their most common option (Liu et al. 2012). The other is the 'right to the city' for migrant workers who do have the rights to work in the city but are largely deprived of a legal residency right attached to local welfare and benefits. These two peripheral groups are key actors in the urban informalization process, with the local land-losing peasants as homeowners engaged in an informal rented housing market, and migrant workers as their tenants (Fainstein 1996). Though local peasants receive monetary compensation or resettlement assistance, their resettlement sites are usually other villages further away, or smaller cities nearby with limited infrastructure and services (Liu et al. 2013).

This chapter intends to elaborate the way in which the Chinese primary cities manage urban informalities, taking Beijing as a case study. To cope with the migrant explosion and urban sprawl, the Beijing Municipality took up residency controls against low-wage migrant workers in two of its urban villages, namely the 'Shunyi

Model' and the 'Daxing Model'[3] (see News.qq 2011; View.news.qq 2010). Specific regulatory measures undertaken by the Municipality will be discussed, following a review of the State's ambitions aimed at achieving a modern, highly-competitive, and slum-free city. This chapter is composed of three sections: (a) an analysis of the distinction between the urban informalities found in Beijing, and those of the primary cities in Latin America and India; (b) Beijing Municipality's slum controlling measures, including the specific planning standards, rules and regulations regarding its urban and rural land/space use, residency permits, and other enforcement measures; and (c) the political-economic analysis of the controls on informality to highlight the housing rights debates behind the demolition events.[4] In reviewing and surveying Beijing's style of governance in managing its urban informalities, and making a comparison with primary cities in Latin America and India, this chapter tries to reveal the nature of China's exclusion policies against migrant workers and the city-branding movements and displacement aimed at establishing a slum-free city.

17.2 Role and Features of Beijing's Urban Informalities in Its State-Led Urbanization Path

17.2.1 Urban Villages in China's Transitional Urbanization Stage

China's urbanization strategy is quite different from that of Brazil and India, in that rural migrants are faced with more barriers to inclusion when migrating to Chinese primary cities like Beijing, Shanghai and Guangzhou. A look into the management of urban informalities in the Chinese primary cities would shed light on the ethical and practical dilemma behind the residency controls, informality demolitions, and displacement of low-income residents in the cities' upgrading and imaging processes. Figure 17.2 displays the profile of Chinese urban informalities, which have surfaced in suburban villages to shelter, serve, and employ the unskilled and low-wage migrants. These overcrowded, under-serviced and shanty dwellings, mostly located in the suburbs and termed 'urban villages' or 'chengzhongcun', are

[3] 'Shunyi Model' and 'Daxing Model' adopted in Beijing are a new approach in 2010 to regulate the in-flow of unskilled and low-wage migrant workers. Since the late 2000s, Shunyi and Daxing Districts have built higher end industries that require higher skilled workforce to run and higher end housing. These approaches have slowed down low-wage migrant growth in Shunyi and Daxing districts. Consequently, some small businesses that provided jobs for unskilled migrants were shut down; migrant workers in the low-end services were given a 3-month temporary residency card.

[4] Tangjialing Village, once Beijing's largest and most developed low-cost housing area located between the 4th and 5th Ring Road, was uprooted in 2010, causing a mass dislocation of its 30,000 migrant tenants (see Shu 2010). Lian (2010) made a survey of these migrant tenants sheltered in Beijing's urban villages, and created a neologism 'Ant Tribe' to describe them, who had few rights to low-cost housing in Beijing.

Fig. 17.2 Profiles of urban village – Huashiying village in the CBD areas of Chaoyang District, Beijing, China (Source: Author in February–April 2011)

slum-like tenement areas inhabited by migrants in big cities in China. The village housing inhabited by migrant tenants is leased out informally or illegitimately. The migrants acquire their living space principally through illegal processes in these village housing areas. At the heart of the notion of the 'informality' of migrants' settlements is the 'illegality' of property rights over land among migrant workers (Wu et al. 2013). The illegal development of informal migrant settlements – urban villages – has been a major form of expansion of neighbourhood informality in the suburbs of major Chinese cities. These urban villages are not squatter settlements, but are constructed by local village-based co-operatives with the participation of local village committee and peasants as shareholders of collectively owned residential land. Migrants are merely tenants in the informal settlements.

The capital city of Beijing was chosen as a case study as it has undergone drastic changes in its pursuit of a modern and slum-free globalizing city and is also a big magnet to 7.7 million migrants. As the political and economic centre of transitional China, it is highly representative of the centre-led policy-making processes. There is no official report about the exact number of the migrant population living in Beijing's 'urban villages', but the figure is likely colossal (see Song et al. 2008; Zheng et al. 2009). Figure 17.3 shows the spatial distribution of Beijing's urban villages within the city's urban zone (*chengshi zhongxinqu*) in 2006 before the launch of 'City Beautiful Movement' and mass demolition.

17.2.2 Differences Between China's Urban Informalities and Latin America and India

From the international perspective, low-income groups in different countries are treated with varied 'rights to the city' and benefit packages. Consequently, their respective urbanization dynamics have presented different forms of urban informality and different governance styles resulting in different physical forms and socio-spatial relations. By and large, the governance practices of Beijing Municipality

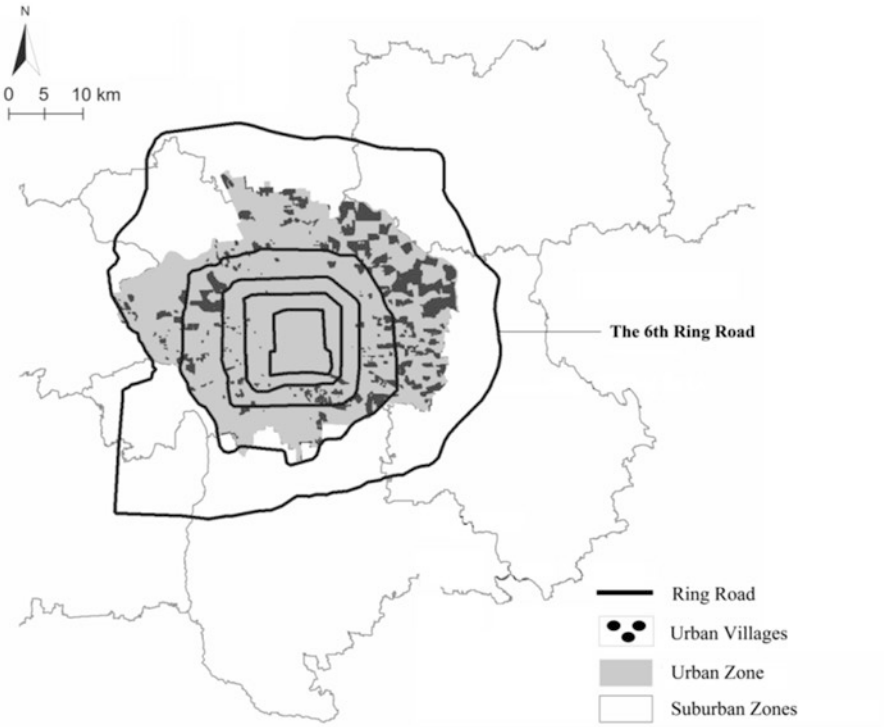


Fig. 17.3 Beijing's urban villages within the urban zone in 2006 (Source: Data from Beijing Municipal Bureau of Land and Resources 2006)

towards its urban informalities differ from that of Brazil and India in management due primarily to China's dualistic land/housing system. First, China's inequitable *hukou* system has given rise to a distorted and non-transferable welfare system between rural and urban residents. Resorting to informal urban villages for basic shelter, low-income rural migrants have to be constantly on the move as a result of city renewals, expansions and their precarious tenancy.

The second dualism has originated within cities in the form of rural-urban divide in land use development. This unique Chinese character began in the late 1950s when China built 'People's Communes' and extended municipal boundaries far beyond the city's built-up areas to include farmlands and peasants. It was an attempt to set up an orthodox Marxist urban administration where the rural and urban settings were jointly managed by a single municipal government. Ideologically, such a set-up aimed to minimize the 'contradictions' between the rural and urban interests. Urban reforms after the 1980s saw rapid urbanization taking place that required more farmlands. In Beijing's case, those farms already acquired by public authorities yet pending redevelopment have been used by peasants to construct illegitimately rental housing to supplement their incomes.

The rural-urban dualisms, however, have exerted negative effects on low-income groups' access to affordable housing (see Fan 2008; Li et al. 2010; Huang 2012; Tao 2009, 2011). The *hukou* system and control measures aimed at limiting the number of migrants are the reins preventing rural migrants from settling down in the host cities. Being long-deprived of housing rights and confronted with housing unaffordability and inaccessibility,[5] the low-wage non-*hukou* population resort to slum-like rented housing, which surfaced mainly in suburban villages as affordable choices despite the fact that they had a high risk of being uprooted. Earlier in 2005, there were 346 urban villages within the urban zone in Beijing (see Fig. 17.3). During the period 2005–2010, 240 urban villages were demolished. Since 2010, another 50 large urban villages were uprooted, and over one million low-wage migrant tenants were dispersed and driven into a state of flux and uncertainty (House.focus 2011). After several years of large-scale clearing-up, the low-wage migrant tenants have been more and more cornered to the inner-suburban areas several kilometres beyond Beijing's 5th Ring Road (Liu et al. 2013). Migrant workers' housing difficulties and their involuntary mobilities are the consequence of Beijing Municipality's governance of control and modernization towards its non-*hukou* population and urban informalities.

China's urbanization path is different from that of other developing economies like Brazil and India. The rationale of China's treating urban informalities may be interpreted in two aspects. As said, one is the interest relations in the land transaction markets to enhance land values including some operations in the black market. The second is a policy matter using specific governmental management measures to regulate and uproot and replace self-built low-cost constructions in the suburban villages to achieve improved city imaging. On the contrary, the Brazilian and Indian cases have shown alternative methods after years of trials and errors in dealing with persistent slum dwellers. Instead, they have chosen the improvement in infrastructural services and awarding of land titles to consolidate the informal residence of low-income migrants in their primary cities (Pugh 2000; De Soto 2000). Something fundamentally different between China and Brazil in handling informal dwellers lies with the voting rights. The Indian and Brazilian squatters have exploited their voting rights to bargain with their host city governments for basic services or a legal title to the property. In China, being perceived as 'irrational', 'underproductive' or 'illegal' by the Chinese authorities, low-wage migrants' living space and housing rights have been compromised in favour of city image branding. Beijing Municipality's style of governance towards its urban villages is further elaborated below.

[5] In the past three decades, the non-*hukou* population had little access to the government-funded low-income housing in the host cities. Since 2011, central government has initiated a 'Great Leap Forward' of low-income housing construction to make up for the shortfall in supply. A fund of 18 billion yuan was allocated to the regions to fund 'public rented housing' schemes and other forms of low-income housing. But it did not mention much about solving the housing problems for the precariously employed and low-wage migrant workers (BJD 2011; Xinhua 2011, 2012; Huang 2012).

Note: In 2011, 1 US dollar was equivalent to 6.46 Chinese yuan.

17.3 Beijing's City Image Branding and Governance to Its Urban Informalities

The rural-urban duality has given rise to socio-economic conflicts in China, following urban reforms. Since the mid-1980s, land losing peasants use self-built houses to cater to the strong demand of migrant workers seeking low-rental housing (see Liu et al. 2012). This 'Villager-Migrant Informal Coalition' could be interpreted as a spontaneous choice in the actions of disadvantaged groups by providing 'semi-urbanized' residency against the rigid control policies by a strong State. In implementing a paradigm of a highly State-led urbanization campaign, the Beijing Municipality's slum-controlling measures include: (a) management of its urban and rural space use by means of land codes; (b) planning standards and housing construction codes; (c) the residency permits enforced mainly on unskilled and low-wage migrant workers; and (d) other enforcement measures associated with displacement, compensation, and resettlement issues following demolitions. These regulatory instruments are explained in greater details below.

17.3.1 Management on the Use of Suburban Space

Beijing is the city which has imposed the strictest regulations on migrants in China. The last three decades have witnessed a tightening of migrant governance in employment as well as rental housing. In the 1990s, to restrict the migrant population from entering the knowledge-oriented sectors with decent or well-paid positions (e.g. finance, insurance, post office, real estate, advertisement, information & counselling services, travel agency, et al., see Beijing Labour and Social Security Bureau 1999), employment exclusions were enforced on migrant workers who became more welcome in unskilled, low-end, dirty, and low-wage positions such as trash cleaners, body movers, gardeners, et al. Besides, an employment ration of migrant workers was allotted to the districts and counties in Beijing to supervise and control the migrant exposition. The migrants would be expelled from Beijing if they did not hold an employment certificate or temporary residency card. Since 2001, the employment restrictions on rural migrants have been relaxed and social services (e.g. kids' education, medicare, endowment insurance) have become increasingly accessible to migrant workers. As a result of the relief of regulatory measures, local governments in Beijing have begun to feel powerless in taking control of the migrant explosion since the early 2000s. Governance over rental housing areas is thus viewed as a new sphere of effective actions taken to control migrant growth. Beijing's urban village areas have become a target of regulations to guarantee social securities and uproot underproductive sectors in the capital city.

As against the boom in the rental housing markets in the suburban zones, the sale of rural land is forbidden in China because rural productive land and peasants' houses are still seen by the State as the source of collective wealth and social security

for the village community and thus untradeable according the land codes (Wang and Murie 1999). The dichotomy of rural and urban real estate market is most distinctively characterized in that rural land and housing are collectively owned by village members but not transferable, whereas the urban land and housing are state owned but eligible as a tradable object in the real estate market. By the prevailing land code, only after rural land and housing are expropriated by governments and have become state-owned, can the suburban land and housing be allowed to be traded as urban land (see Standing Committee 1998, 2004). All lands therein are the city's lands whose land use zonings are subject to the overall land use planning control and norms. It is forbidden to lease or sell the rural housing of suburbs to urban residents or migrants. Rental housing market in the suburban areas is illegal, and no resettlement is offered for displaced tenants following renewals.

There are multiple reasons for implementing such strict regulations on rural land uses and housing transactions. Apart from using rural land to safeguard 'food security and supply', rural land conversion to urban use involves a vast transaction of value in the urbanization process, and this is crucial as it is in the interest of the State to put the land under centralized control. Local governments have relied increasingly on earnings from low-cost expropriation of rural land and high-profit land sales, to support the development of urban infrastructure and commercial areas since the 1994 tax division reforms (see Liu et al. 2012). In the name of public interest, the use of suburban zones for migrants' housing needs has been labeled as 'informal', 'illegal', 'irrational', or 'under-productive', which are detrimental to the developmental goal to be a world-class modern and globalizing city. The great importance of land leasing to developmental urbanism in transitional Beijing explains why land-use regulation and slum clearance have become a highly speculative part of China's urban economy, and as a result the social function of the city and property is neglected today. It tells us why permanent squatting is not permitted in China's primary cities. Housing subsidies and other forms of social spending on the newcomers continue to lag, as it is hard to change China's land-based public financing and *hukou*-based public spending systems (Huang 2012).

The different land politics reveal the reason why there is a distinction between the urban informalities of Beijing and primary cities in other developing countries like Latin America and India, not only in terms of geographical landscapes, but also governance measures. The strength of sanction and governance differs in their respective legal domains and thus produces the different profiles of their respective informal settlements. Latin America and India witness the spectacular spatial concentration of urban poverty in the primary cities as a result of weak land development control. On the contrary, under a strong control of development rights of both urban and rural lands, the party-state system in China is quite effective in leveraging formal requirements and informal responses. The local states in China have the limited tolerance towards informalities, allowing their provisional existence in the transitional stage and demolishing them finally to build up a modern city image. The strong control on land-uses, land development rights and migrant explosion is the main governance style applied to the informalities in China.

Table 17.2 displays a comparison of governance styles applied to urban informalities in the Chinese primary cities and those in Latin America and India. Firstly,

Table 17.2 Formation and governance of the urban informalities: China, Latin America and India

	China	Latin America, India
High-speed urbanization	Since the 1980s when the *hukou* system was gradually loosened up and market forces were introduced	Latin America: during the 1950s–1980s
		India: urbanization during the 1950s–1970s but slowing down in the 1980s
Settlement of rural migrants in the urban informalities	Migrants are discouraged from settling down in the primary cities: public housing is inaccessible; squatting is forbidden; a floating life in urban informalities as a result of social exclusion (Fan 2011)	Almost no constraints on mobility, and migrants are entitled to have a vote and settle down within primary cities
		Migrants often squat on vacant land, building their own shelter and therefore escaping the captive rental market
		Slums shelter the majority of migrants, and informal sectors absorb unskilled workers
	Migrant rent cell-rooms let out by local urban residents or village landlords	Migrants have voting rights in the host cities and thus claim a legal title to the property and basic services from local authorities, sometimes through housing movements supported by political alliances (Sheinbaum 2007)
	Migrants live in dilapidated housing and under-serviced conditions and have to pay rent	
	Migrant have few chances to access land tenure	
	Migrants have very little participation in local community affairs	
	Easily uprooted for lack of residency rights with neither compensation nor resettlement assistance	*In situ* slum improvement is possible; resettlement housing offered in some cases

(continued)

Table 17.2 (continued)

	China	Latin America, India
Governance towards urban informalities	Long-term acquiescence to the existence of urban informalities before being planned as land reinvestment projects	Tolerating irregular settlements, eventually providing them with basic public services and legalizing these illegal properties
	A governmental cooperation with the local village landlords to supervise the floating population	The gradual democratization of urban housing laws, to ensure a stable flow of housing credits to rural migrants, to protect them against illegal evictions, to facilitate their participation in housing process, and to provide basic services in areas of urban informality (see Castillo 2000)
	Quite little governmental financial support to update living conditions	Since the 2000s, the Indian government has made efforts to evict the poor from the central city and push them to degraded areas on the periphery to present the primary city as a global city, to be the 'next Shanghai' (Kundu 2004; Ananya 2012)
	Always ends with demolitions, with cash compensation and resettlement available for local village landlords[a], while migrants are simply dispersed	
	A trial to rebuild urban informalities into the village's collectively-managed rental business for easier governance of urban villages (Sina 2014)	

Source: From fieldwork materials collected during Beijing February–April 2011. Other sources from Alpana (2003), Kumar and Aggarwal (2003), Fan (2011), Peters and Skop (2007), Rojas (2002), Gorell (1990) and Turner (1967)

Notes: [a]The bench mark for rural housing compensation was defined by the local governments. Local landlords claim cash compensation according to old housing areas, locational traits, and construction costs. Since the early 2010s, Beijing Municipality tended to give a fairer compensation based on the market price as shown in the case of Dawangjing Village

the squatting is forbidden and illegal constructions always end with the demolitions in China. The squatters having voting right in Latin America and India can ask the host city governments for basic services and land titles. Secondly, China's low-wage migrants, as tenants rather than squatters, have to pay rent. In contrast, the squatter residents of India and Latin America might have built their own shelter and therefore escaped the captive rental market, and they might gain a legal title to the property.

17.3.2 Control Measures

Located at the peripheral zones and near traffic nodal points for easy commuting and access to jobs, the urban villages are characterized by their substandard housing, informal businesses, highly competitive petty services, and insanitary amenities. They are doomed to demolition as the city expands and removal is well justifiable on the grounds of 'informality' and 'illegality' (Liu and Liang 1997; Liu et al. 2012). By and large, the urban villages located at the suburban zones have gone out of control for years and become a big headache for local governments. The poor governance in rural housing areas includes a vast pool of workshops, dormitories, and floating population living there, which is the result of years of bad management of the rural-urban fringes. In the long term, the village collective has played a role in the supervision of the floating population and service provisions for them. The village's governance towards the floating population includes the following aspects:

- Urging migrant tenants to officially register as temporary residence card holders (see the Regulations on the Registration of the Migrants' Household Status in Beijing, initiated in 1985 and revised in 1998);
- Promoting propaganda among migrants to prevent gas poisoning, fire, and crime;
- Helping birth-control organizations to provide counselling and services in conception control;
- Assisting the police in maintaining social security in the urban informalities; and
- Helping Beijing's Floating Population and Rental Housing Management Committee (established in 2007 in Beijing) to supervise and collect information about migrant workers.

Since the 1980s, the specific governance practices towards urban villages have varied with the developmental goal of Beijing city in each of its growth stages. In the 1980s and 1990s, as portrayed in existing empirical studies, the urban village in Beijing was once a niche for migrants to organize their own production, management and welfare system, including setting up their own educational facilities (Jeong 2000, 2002; Liu and Liang 1997). During this period, migrants could even organize protests against the clearing-up campaign, as shown in the case of Zhejiang Village (Jeong 2000).

From the late 1990s, harsher residency controls were enforced on the lower-end migrant workers and illegal village constructions, when more actions were taken to achieve targets such as 'smart growth', 'compact cities', 'liveable cities' and 'city branding' for world-class industrial centres (e.g. zhongguancun IT centre) and impending mega-events like the 2008 Olympic Games in Beijing. Urban villages which had been governed and cleared up in this stage were mostly located around the Olympic stadiums.

Since the late 2000s, Beijing Municipality has initiated a new round of urban village demolitions, including in 2009 the two experimental projects known as Beiwu Village and Dawangjing Village, and 50 other villages in Beijing's suburban zones. The experiment on village demolition was an attempt to solve problems with compensation and reemployment following land expropriation, which have long confronted the local landlords in urban village areas. The housing needs of migrant tenants, however, were neglected in these village demolition projects. The affected village tenants involved unskilled-, semi-skilled, and low-wage migrant workers employed in activities such as house renovation, building material making, wholesale distribution, logistics, warehouse watchmen, and others. Many affected are casual workers, self-employed street vendors, or petty shopkeepers who have neither insurance nor labour protection. They are among those most easily removed from the upgrading projects.

Studies conducted by He and Wu (2007) and Zhang (2011) have indicated that although landlords might have received higher compensation claims thanks to policy reforms and their negotiation skills, low-wage migrant tenants are still not the real beneficiaries. After all, benefits are basically shared by stakeholders (developers, landlords and tenants) on the basis of one's legalized residential status, transferable land value, and landlord-tenant relations in the urban informalities in which 'growth of wealth' is generated. Naturally, the present population management system and formalized property institution in urban China have excluded migrant tenants from the mainstream society and negotiation process as land space users.

What is more obviously observed in recent years is that the Beijing municipal government has attempted to compensate local peasants a larger share of benefits when their farms are expropriated for urban use. Increasingly, local rural landlords are transformed into active stakeholders, invited to be involved in land reinvestment projects with guidance by the public authorities. At the same time, however, new restrictive measures are being enforced to control migrant inflow in the suburban districts such as Chaoyang, Daxing and Shunyi. The new regulations issued since the late 2000s include:

- Restricting the growth of lower-end under-productive sectors (including informal economies in the urban villages);
- Dismantling illegal constructions (see Table 17.3);
- Regulating the use of basements for leasing purposes;
- Restricting rural collective lands to be used for rural housing;
- Setting up a checking system to control migrant inflow to each suburban district; and
- Popularizing the new governance models, like the 'Shunyi Model' and the 'Daxing Model'.

Table 17.3 Illegality of rural housing in urban village areas

Illegal items	Violation of laws
Location choices and building plan (application for the Permission of Construction Project Plan) are unapproved by the city planning departments	City and Countryside Planning Law of the People's Republic of China, Items 31, 32 & 64 (issued in 2007)
New constructions, upgrading, continuation, and rebuilding are unreported to township government for the Permission of Rural Construction Planning	As above
The continuation of rural housing exceeds one floor; the collectively-built rural housing exceeds two floors	Construction Standards of Beijing's Aseismatic Design of Rural Housing (issued in 2008)
Overcrowding in rural housing areas	Temporary Regulations on Beijing's Living Space between Housing Constructions (revised in 1998)
Self-built constructions are invalidated by examinations from planning and approval departments	The Guides for Beijing's Village Planning, Construction and Management (issued in 2010)
Selling or leasing of rural housing to personal or economic entities outside the village	Land Administrative Law of the People's Republic of China, Item 62 (issued in 1998 and 2004);
	Guides for Tightening the Management of Rural Residential Lands (issued in 2004 by Ministry of Land and Resources)

Source: Compiled by author

In the process, several urban villages have been upgraded to public rental housing, whose clientele is reserved for highly-skilled migrant workers with a decent and stable job in the nearby high-tech industrial parks. In consequence, unskilled and low-wage migrant tenants were simply dispersed, following village demolitions, and they have been found to have already reproduced their informalities in more remote areas.

17.4 Conclusion: 'Right to the City' of Migrants Compromised in Beijing's Governance System

In recent years, the informal urban villages in Beijing, Shanghai, Guangzhou and Shenzhen have been cleared up and formalized to become commercial areas or high-tech industrial parks, to curb sprawl and intensify land use. In building the growth poles of wealth creation and technological innovations through the reinvestment of mega suburban regions, tougher enforcement has been applied on urban informalities to pave a road towards rational and orderly growth in big cities. However, social injustices with socio-spatial consequences have been forced upon peripheral groups

living in urban informalities – lacking legal support, the village tenants are excluded from public housing schemes, and are victims of speculative redevelopment projects in areas of urban informality. Their experience of displacement, re-housing and adaptation to their floating and unsettled residency status following renewals, forms a sharp contrast to local city-based peasant landlords who manage to claim higher and higher compensation when their urban village plots are expropriated in recent years. By and large, Beijing's existing governance style towards its urban villages has revealed that rural migrants enjoy merely the rights to work in the city but few legal residency rights attached to local welfare and benefits.

Such land and housing politics in the Chinese urban informalities have their origins in two existing dualisms in population management and land/housing system in the transitional suburban China. The first dualism is the dualistic *hukou* system which has contributed to a distorted welfare system between rural and urban residents, and the creation of informal urban villages which provide cheap shelters to the socially excluded low-income migrants. The second dualism is the rural-urban divide in the land use development which has created its urban informalities including the construction of illegal rented housing by local rural landlords within municipal zones. Clearly, Beijing's new experiment on village demolitions initiated since the late 2000s has tried to solve the latter dualism issue to create 'more governable spaces' (Wu et al. 2013). But this has failed to tackle the high demand for 'unregulated living and working space' from low-wage and defenceless migrant workers, eventually causing 'the replication of informality in more remote rural villages or in other urban neighbourhoods' (ibid). The marginalized status of migrant tenants has become a key challenge to achieving 'social harmony' in Beijing's current village housing governance system.

A sharp decline in low-rental housing supplies in urban neighbourhoods has raised housing demand in the urban informalities, where dozens of villages have been cleared up for commercial uses or mega-projects. At the same time, however, more regulations were superimposed on unskilled migrant workers clustering in underproductive sectors in the suburban areas. These regulations aimed at urban villages are not merely a form of regulated governance, but also serve the local State's ambitions to upgrade its urban spaces for the sake of city branding.

Lately, urban expansion has seen its limit due to resource-environmental problems such as excessive consumption of water, land, and energy, urban sprawl, and the resultant pollution, that call for growth control in Chinese primary cities, including their suburbs. The restraint policy has also an impact on the remaining urban villages and other low-rent housing areas. Harsher control has been put forward to downsize unskilled migrant workers, affecting their 'right to the city' in suburban districts in Beijing. The 'power' and 'space' relations in the suburban villages of Beijing today have shown a diversity of economic forces represented by antagonistic interest groups over the sharing of growth benefits and claim for equitable justice. Through controls and regulations on the suburban formal and informal spaces, the Beijing government is determined to find a more effective governance over major productive factors in the city such as 'land', 'investment', 'technique' and 'labour'. In the existing growth pattern, migrant workers are entitled to little 'power'

to claim their living 'space' or a broader range of 'rights'. Clearly, adopting a new model, which will allow disadvantaged groups including migrant workers to share more equitably social surpluses derived from the urbanization process, should be a priority in policy making in the near future.

References

Alpana S (2003) Housing supply in Delhi. Cities 20(2):135–141
Ananya R (2012) Urban informality: the production of space and practice of planning. In: Weber R, Crane R (eds) The Oxford handbook of urban planning. Oxford University Press, Oxford, pp 691–705
Beijing 6th Census Office (2011) The spatial distribution of Beijing's migrants in 2010. http://www.bjstats.gov.cn/lhzl/rkpc/201201/t20120109_218566.htm. Accessed 12 Jan 2013
Beijing Labour and Social Security Bureau (1999) The regulations on Beijing's migrant workers [Beijing shi waidi laijing wugong jingshang renyuan guanli tiaoli]. http://www.bjld.gov.cn/LDJAPP/search/fgdetail.jsp?no=2206. Accessed 12 Feb 2014
Beijing Municipal Bureau of Land and Resources (2006) The second land survey of Beijing Municipality Municipal Bureau of Land and Resources. Beijing
BJD (2011) Gongzufang xiang 'gaoduan rencai' qingxie yin zhengyi, yizu bugan qidai [The policy of public rented housing favourable to the high-end talent]. http://www.bjd.com.cn/jryw/201109/08/t20110908_1048416.html. Accessed 24 Aug 2012
Castillo MJ (2000) Urbanisms of the informal: spatial transformations in the urban fringe of Mexico City. Dissertation, Harvard University
De SH (2000) The mystery of capital: why capitalism triumphs in the West and fails everywhere else. Basic Books, New York
Fainstein SS (1996) Justice, politics, and the creation of urban space. In: Merrifield A, Swyngedouw E (eds) The urbanization of injustice. Lawrence & Wishart, London, pp 18–44
Fan CC (2008) Migration, *hukou*, and the Chinese city. Working paper. http://china.usc.edu/App_Images/Fan.pdf. Accessed 18 June 2012
Fan CC (2011) Settlement intention and split households: findings from a survey of migrants in Beijing's urban villages. China Rev 11(2):11–42
Gorell RA (1990) Families in shantytowns in São Paulo, Brazil, 1945–1984: the rural-urban connection. Dissertation, University of Kansas
He SJ, Wu FL (2007) Socio-spatial impacts of property-led redevelopment on China's urban neighbourhoods. Cities 24(3):194–208
House.focus (2011) Beijing changing shigezhuang dizu jujudi zheng xingcheng [A new low-income housing area is emerging in Shigezhuang, Changping, Beijing]. http://house.focus.cn/news/2011-07-06/1371009.html. Accessed 2 Aug 2012
Huang YQ (2012) Low-income housing in Chinese cities: policies and practices. China Q 212:941–964
Jeong JH (2000) Renegotiating with the States: the challenge of floating population and the emergence of new urban space in contemporary China. Dissertation, Yale University
Jeong JH (2002) Shifting central-local relations in post-reform China: case study of a migrant community in Beijing. Dev Soc 31(1):23–51
Kumar N, Aggarwal SC (2003) Patterns of consumption and poverty in Delhi slums. Econ Pol Wkly 38(50):5294–5300
Kundu A (2004) Provision of tenurial security for the urban poor in Delhi: recent trends and future perspectives. Habitat Int 28(2):259–274
Lefebvre H (1996) The right to the city. In: Kofman E, Lebas E (eds) Writings on cities. Blackwell, London, pp 63–184

Li LM, Li SM, Chen YF (2010) The *hukou* and resident card system and the consequential citizenship stratification in Shanghai. City Culture Soc 1:145–154
Lian S (2010) Shui de shidai: 2010 zhongguo 'yizu' shengcun baogao [Ant tribe II: whose era is it]. Zhongxin Publishing House, Beijing
Liu R (2014) The spatial mobility of Beijing's low-income residents during the transitional era: 1980s to the present. PhD dissertation, Nanyang Technological University, Singapore
Liu XL, Liang W (1997) Zhejiangcun: social and spatial implications of informal urbanization on the periphery of Beijing. Cities 14(2):95–108
Liu R, Wong TC, Liu S (2012) Peasants' counterplots against the state monopoly of the rural urbanization process: urban villages and 'small property housing' in Beijing, China. Environ Plan A 44:1219–1240
Liu R, Wong TC, Liu S (2013) Low-wage migrants in northwestern Beijing, China: the hikers in the urbanisation and growth process. Asia Pac Viewp 54(3):352–371
News.qq (2011) Beijing renkou tiaokong xian kunjing, 'shunyi moshi' zaoyu fuzhi nan [A pretty pass for Beijing's controlling on the floating population, the 'Shunyi Model' is impractical in the neighbouring districts]. http://news.qq.com/a/20110601/000028.htm. Accessed 19 Jan 2012
Peters PA, Skop EH (2007) Socio-spatial segregation in metropolitan Lima, Peru. J Lat Am Geogr 6(1):149–171
Pieterse E (2011) Rethinking African urbanism from the slum. Published online by Urban Age, LSE Cities, London School of Economics, London. http://files.lsecities.net/files/2011/11/2011_chw_5060_Pieterse.pdf. Accessed 2 Jan 2014
Pugh C (2000) Squatter settlements: their sustainability, architectural contributions, and socio-economic roles. Cities 17(5):325–337
Rojas GG (2002) Vulnerability to poverty in a context of regional economic restructuring in urban Mexico. Dissertation, University of Texas
Sheinbaum D (2007) Divided city: a historical perspective on gated communities in Mexico city. http://www.staff.uni-mainz.de/glasze/Abstracts_Papers_Paris_2007/Sheinbaum.pdf. Accessed 20 May 2010
Shu LN (2010) Tangjialing chaiqian: 'yizu' hechu shijia? [Demolition of Tangjialing village: where will the ant tribe move to?] China Rep 5:86–87
Sina (2014) The first village collectively-managed rental community would be completed this July, located in Haijingluo Village, Beiqijia Township, Changping District. http://news.sina.com.cn/o/2014-02-19/142029509263.shtml. Accessed 2 Apr 2014
Song Y, Zenou Y, Ding CR (2008) Let's not throw the baby out with the bath water: the role of urban villages in housing rural migrants in China. Urban Stud 45(2):313–330
Standing Committee (1998) Land administrative law of the People's Republic of China, the 9th national people's congress of the People's Republic of China (1st revision). Standing Committee, Beijing
Standing Committee (2004) Land administrative law of the People's Republic of China, the 11th national people's congress of the People's Republic of China (2nd revision). Standing Committee, Beijing
Tao R (2009) Hukou reform and social security for migrant workers in China. In: Rachael M (ed) Labour migration and social development in contemporary China. Routledge, London/New York, pp 73–95
Tao R (2011) Urbanization and land reform under China's current growth model: facts, challenges and directions for future reform. Working paper of Brookings-Tsinghua Center. http://www.brookings.edu/~/media/Research/Files/Papers/2011/9/21%20china%20tao/0921_china_tao.PDF. Accessed 2 Apr 2012
Turner JC (1967) Barriers and channels for housing development in modernizing countries. J Am Plann Assoc 33(3):167–181
View.news.qq (2010) Beijing fengcun luxiantu [Tracing Beijing's 'fengcun' policy]. http://view.news.qq.com/zt2010/lock/index.htm. Accessed 25 Feb 2012

Wang YP, Murie A (1999) Housing policy and practice in China. Macmillan, London
Wu FL, Zhang FZ, Webster C (2013) Informality and the development and demolition of urban villages in the Chinese peri-urban area. Urban Stud 50(10):1919–1934
Wu FL, Zhang FZ, Webster C (2014) Rural migrants in urban China: enclaves and transient urbanism. Routledge, London
Xinhua (2011) Guangzhou gongzufang xinzheng yin reyi: danwei zijian gongzufang heshi ma? [New policy of Guangzhou's Public Rented Housing supply: is it fair to encourage the Danwei to self-build housing for employees?]. http://news.xinhuanet.com/house/2011-09/27/c_122092090.htm. Accessed 24 Aug 2012
Xinhua (2012) Dalian fuhe tiaojian qiye keyi zijian jingji shiyongfang [The big companies who have land and money are allowed to build welfare housing]. http://www.ln.xinhua.org/2012-04/07/content_25025265.htm. Accessed 24 Aug 2012
Zhang L (2011) The political economy of informal settlements in post-socialist China: the case of chengzhongcun(s). Geoforum 42:473–483
Zheng SQ, Long FJ, Fan CC, Gu YZ (2009) Urban villages in China: a 2008 survey of migrant settlements in Beijing. Eurasian Geogr Econ 50(4):425–446

Chapter 18
Study on the Financial Support System for Development of Small Towns in Western China

Hongmei Zhang and Hai Zhu

Abstract The development of small towns is an important component in promoting urbanization in the Western region, and whether the financial support system is effective will be a crucial factor to its healthy development. This chapter explains the important role of financial support system from the perspective of functions and mode of financial operations. Literature review shows that researchers investigating the multi-layer financial demands of small town development in China's less developed Western region have shared the importance of financial support in promoting economic development of small towns and their agglomeration effects. They have also put forward suggestions with remedial measures to improve the present system of financing. Based on earlier studies and further in-depth exploration of the present financial support system, this chapter aims to supplement positive inputs to address a more effective financial concern with the hope to promote a healthy growth of small towns in Western China.

18.1 Introduction

Small towns are important collecting and distributing centres of rural goods and services, and a critical link to promote agricultural development. Development of small towns including expansion of their infrastructure and public service facilities can enhance rural agglomeration effects, promote distribution and consumption of agricultural products, and other locally produced goods and services. Active and

H. Zhang (✉)
Guizhou Institute for Urban Economics and Development,
Guizhou University of Finance and Economics, 550025 Guiyang,
Guizhou Province, China
e-mail: 754560989@qq.com

H. Zhu
College of Finance, Guizhou University of Finance and Economics,
550025 Guiyang, Guizhou Province, China
e-mail: zhuhaideyouxiang@163.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_18

steady promotion of urban development is of great practical significance towards building a sustainable and healthy economy. Growth and expansion of small towns relies essentially on financial support. However, due to differences in situations and conditions of various regions in China, financial mechanism and operations differ substantially between them. As a result, this leads to different features of economic development and outcomes (Fan and Zuo 2004).

Internally, the lowly developed regional, economic, social conditions and unfavourable environmental features of China's western region present deterring effects to the development of its small towns. This makes the region much more difficult in raising its level of development as compared with more developed eastern and central regions of China. Nevertheless, the key in the development of small towns in the western region is how to capitalize on its comparative advantages and resource-based inputs, based on which financial system is used as a means to promote rational allocation of such resources and efficiency of production. Consequently, by promoting the region's economic development, small towns would benefit from its contributory services and grow gradually in scale and scope. This chapter argues that urbanization should not be confined to big cities because the development of small towns is an important measure in promoting urbanization in the economically lagging Western region in the early stage. In this sense, this study investigates the importance of financial support system, and its operating functions in meeting the multiple-layer financial demands of small town development and the constraints in the western region that is made up of 12 provinces or autonomous regions and one municipality (Chongqing). Essentially, some basic theoretical discussions on how financial support system could assist urban development is first reviewed.

18.2 Theoretical Discussions About Financial Support and Urban Development

18.2.1 Review of Macro Theory

About four decades ago, a number of Western scholars gave their view that financial support was important to the economic growth of cities including small towns. In this respect, Goldsmith (1969), Mckinnon and Shaw (1973), for example, conducted studies from four aspects of investigation: financial structure, financial regression, financial deepening and financial liberalization. They argued that the financial market was the centre of the whole economic activities. More particularly, Goldsmith (1969), after analyzing the practices and regulations of the financial development of selected countries and their economic growth, proposed to use financial interrelations ratio to measure the effects of financial support. Almost 30 years later in 1997, leading economists Joseph Stiglitz and Kevin Murdoch further

elaborated the financial development theory, known as the "Financial Restraint Theory", indicating that appropriate financial regulations and government interventions were necessary, and they argued that financial liberalization in developing countries was still premature to solve their financial problems (see Sunil and Qian 2011).

In China, scholars such as Tan and Zhang (2007) explained the relationship between "expansion of financing amount" and "improvement of financial efficiency", which means expansion of financial support gave rise to a higher level of financial efficiency. They also interpreted the significance of county-level financial support. By linking the two financial operations of "demand-following" and "supply-leading", they claimed that county-level financing would help convert savings into investment and could therefore improve the marginal productivity of capital. Li (2010) summed up the experiences of financial support to underdeveloped regions in China. For Li, financial support covered support to businesses, financial aids by government sector and financial aids to private individuals. Purposes of support included infrastructure development, industrial restructuring, upgrading of enterprises, projects involving ecological and environmental protection and financial ecology construction. In the financial support to underdeveloped regions, Li (2010) stressed the essence of setting up a coordinated support system that ensures projects must set clear objectives and implementation measures.

Another team of Chinese researchers, Li et al. (2007), used the financial development model based on the division of labour theory. Their study used Shapley value decomposition to analyze China's regional financial development differences, and their conclusion was that the regional economic plus geographical conditions and national policy measures were the two main factors responsible for regional development gaps. Fang (2010) studied the relationship between financial support and economic growth using a space model; his finding suggested that regional financial support could play the role of generating agglomeration effects, contributing meaningfully towards regional economic growth. Another study by Zhao and Chen (2013) suggested that China's urbanization facing problems because of:

(a) slow upgrading of industries;
(b) inadequate stimulus towards the urbanization processes;
(c) financial undertakings facing higher fiscal and financial risks; and
(d) the urban-rural dualistic segregated system acting as a barrier against the flow of rural labour to the cities (Zhao and Chen 2013).

Among these factors, rising financial risks in financial undertakings are a key concern as it deters financial institutions from giving out support less readily to enterprises in particularly small towns. To sum up the general review, it is understandable that the development of Chinese cities, especially that of small towns in less developed western region, the focus of this study, financial support is critical where an appropriate approach will need to be further explored. Financial functions are thus a key factor.

18.2.2 Function Relationship Between Financial Support System and Economic Growth

Having argued that financial support is indispensable and is closely related to economic growth, an economic region indeed needs an efficient and stable financial support system. By prerequisite, economic development lays the foundation on which financial support can be made operational. Similarly, urban growth is the inevitable result of regional economic development. American mathematician C. W. Cobb and economist Paul H. Douglas defined the Cobb-Douglas function as follows while studying regional economic growth (Hicks 1987):

$$Y = AL^{\alpha} K^{\beta} \mu \tag{18.1}$$

In formula (18.1) above, Y stands for output, A for comprehensive technology level, L for labour input, K for capital, α and β respectively for the elasticity coefficients of labour and capital output, and μ for random interference.

The economic output is jointly determined by comprehensive technology level, amount of labour and capital. In the short run, A will not change much, assuming that A remains constant. Any changes in L and K will lead to changes in Y. The essence of any change in K means certain change in financial input will lead to modified allocation of resources and thus influence economic outputs. In financial market, changes of K are mainly reflected by indirect financial market X_B, direct financing market X_C and insurance market X_I. So, the relationship between economic growth and financial support can be described as:

$$Y = f\left(X_B, X_c, X_I, L\right) \tag{18.2}$$

Formula (18.2) shows the function relationship between regional economic output and indirect financing market, direct financing market and insurance market. Here, Y means economic output, usually measured by GDP of a certain area, and X_B, X_C and X_I stand respectively for a sub-index of financial support. Formula (18.2) also shows the important role of financial support in regional economic growth.

18.2.3 Important Role of Financial Support System Based on the Functional Perspective

The functional perspective is a kind of research method of financial system from the viewpoint of function, first introduced by Merton and Bodie (1995) in their study "Financial system and economical operation" in 1995. When compared with an earlier research method which was more from an institutional viewpoint, the functional perspective is based on two basic assumptions: first, the financial function is more stable than the financial institutional method; second, the financial function is

more effective in terms of organizational structure (Meng and Jiang 2006). With the expansion of currency circulation and credits, financial support acts therefore as a pillar in favour of regional economic development. Operation-wise, the financing institutions act as a credit intermediary and payment intermediary, organize currency circulation, and as a financial tool, to control and manage risks (see Shen and Bai 2006). On the basis of functional perspective, the roles of financial support system can be summarized as:

(a) To absorb scattered capital sources or savings and convert them into investment capital. During this process, in order to strengthen liquidity, improve risk management mechanism, lower acquisition costs and improve earnings, the financial system must create some financial tools, which will further activate the financial market;
(b) To reduce information costs and optimize resource allocation. Neither savers, financers, nor investors can fully understand all details of information in the market and have full capacity in risk management control. In this sense, the financial system can provide useful data to market participants;
(c) To effectively supervise and manage capital utilization, thus saving such cost of users in the financial markets. Practically, investors outside the financial institutions can hardly obtain internal information of fund operations or they have to obtain such information at higher costs (Huang 2013);
(d) To reduce investment risk. Financial system provides multiple channels to handle uncertainty and control risk. The development of financial system can help market participants to conduct risk trading, provide risk abhorrers with investment opportunities, and gather all the risk-concentrated investment to disperse and reduce risks; and
(e) To improve transaction efficiency. The smoother the transaction, the more the financial system reduces the transaction costs. This makes trading more convenient, enhancing labour productivity especially when more and more participants use online financial transactions.

18.2.4 Mechanism to Develop Financial System in Small Towns

The relationship between development of financial system and that of small towns is shown in Fig. 18.1 below. Ren (2007) describes this process in that the development of financial system would normally bring in innovative financial functions, leading to the rise of savings rate. Savings would then be converted into investment capital, accompanied by improved efficiency of capital use. Subsequently, the strengthened capital market would give rise to a higher concentration of production factors in favour of the development of small towns. Conversely, development of small towns would reproduce production factors and expand the financial market scale to support another round of financial operations.

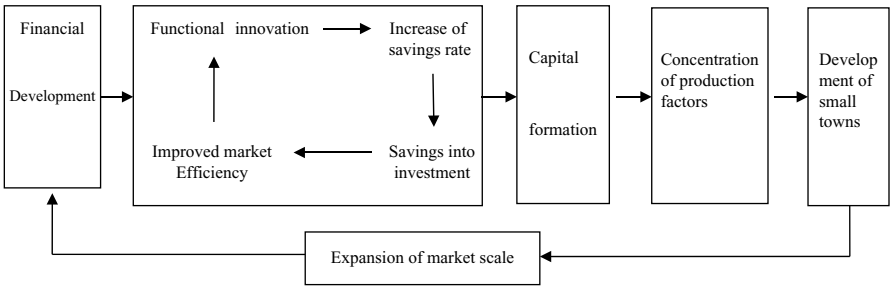


Fig. 18.1 Development relationship between financial support and small towns (Source: Conceptualized by authors)

18.3 Small Towns in Western China: Economic Base and Current Characteristics

18.3.1 Basic Definition of Small Towns

Chinese scholars have different opinions on the basic definition of a small town. Some refer to larger county towns, or small-scale towns and designated towns while others would mean village-level towns (Yan 2010). In public administrative terms, a "town" is an administrative unit below "county", with an administrative jurisdiction covering from tens to hundreds of square kilometres, including vast agricultural lands. As a matter of fact, a "town" is categorized into "town core" and "town coverage". The "town core" is where the town office sits, together with relatively centralized non-agricultural households and their activities. "Town coverage" includes the "town core" and outside the "town core" with farmlands, woodlands and other underdeveloped nature areas (Cai 2002: 274–275). To integrate the different opinions of the scholars, a small town may refer to the administrative centre for local government, and economic and cultural activities, with a certain size of non-agricultural activities, non-agricultural population, and supporting public services. Developing small towns means to develop not only the original town core area but also the urbanization of the agricultural areas.

The Western region of China comprises of the municipality of Chongqing, provinces of Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, and autonomous regions of Tibet, Qinghai, Ningxia, Xinjiang, Inner Mongolia, and Guangxi. The total area is 5.38 million square kilometres, taking up 56 % of the total area of the country, within which the political, economic, cultural and geographical features are complex and diversified. By the end of 2012, China had 19,881 small towns, of which 7,789 or 39 % were in the Western region. The populous Sichuan, Yunnan and Shaanxi made up 54 % of the total (see Table 18.1).

There are 1,079 county-level administrative divisions in the Western region, including municipal districts, county-level cities, counties and autonomous Counties. In his work "*World Urbanization and China's Urban Construction*", Zhu

Table 18.1 Statistics of the quantity of small towns in 12 provinces in Western China

Province/ autonomous region/ municipality	Number of small towns	Number of county-level administrative division	Province/ autonomous region/ municipality	Number of small towns	Number of county-level administrative division
Chongqing	604	38	Shanxi	1,136	107
Sichuan	1,831	181	Gansu	470	86
Guizhou	659	88	Qinghai	138	43
Yunnan	1,243	129	Ningxia	101	22
Tibet	140	74	Xinjiang	262	101
Inner Mongolia	490	101	Guangxi	715	109

Source: China Statistical Yearbook (2013)

(2003) claimed that the development of small towns in the Western region had the potential of diffusing economic impulses including information, resources and knowledge from urban to rural areas. In the hierarchical diffusion process, small towns would also receive positive elements (economic, cultural, consumption and social lifestyle) diffused from larger cities. In return, small towns would produce a demonstration effect on farmers and rural livelihood, thereby promoting their enterprises and productivity. As small towns grow, rural residents would be absorbed into them and even into larger cities. In addition, this urbanization process would encourage local ethnic groups to integrate with mainstream culture. Their unique ethnic and cultural traits will be great resources where they will have opportunities to better reflect their uniqueness in industry, tourism, localized culture blended with local ecological features.

18.3.2 Basic Economic Conditions of Western Region and Small Towns

The average GDP per head of the Western region in 2012 was lower than the national average level, quite equal to the Central region but far lower than much more developed Eastern region and Northeastern region. Particularly, in comparison with the Eastern region in sectoral production values, there was still a big gap. In addition, the Eastern region with 18 % of national land area provides 47.4 % of the national employment as against the western region (56 % of national land area) provided only 22.0 % of the national employment (see Table 18.2).

Table 18.2 also shows the disadvantaged position of the Western region in industrial output, a clear reflection of its lagging industrial development compared to other regions. The table's data however must be read with reference to Western region's sheer physical and population size, which explains why its railway mileage is by proportion higher than other regions. The purpose of showing the sectoral output values is an attempt to link up with the future development potential of small

Table 18.2 Comparison of GDP and other outputs in China by regions, 2012

Indicators	Total nation	Eastern region (%)	Central region (%)	Western region (%)	Northeastern region (%)	Total (%)
Land area (10,000 km^2)	960.00	18.0	10.7	56.0	15.3	100.0
Population (million)	1,354.04	38.2	26.7	27.0	8.1	100.0
Urban employment (10,000)	15,236.4	47.4	17.7	22.0	8.9	100.0
Primary industry (100 million yuan)	52,373.6	35.0	26.8	27.4	10.8	100.0
Secondary industry (100 million yuan)	235,162.0	49.5	17.5	20.0	9.0	100.0
Tertiary industry (100 million yuan)	231,406.5	57.1	17.1	17.8	8.0	100.0
Industrial output (100 million yuan)	199,670.7	50.4	17.5	19.1	9.0	100.0
GDP per capita (yuan)	38,420.0	57,722	32,427	31,357	46,014	–
Railway mileage (km)	97,625.0	23.0	22.9	38.2	15.8	–

Source: Adjusted from China Statistical Yearbook (2013)

towns in each region and their related infrastructure development. Intra-urban and inter-urban infrastructure investment per capita in Western region would tend to be much higher than more developed regions in the near future in view of its vast territory with more scattered settlement patterns and mountainous features. Consequently, small town development in the Western region will need much policy consideration in infrastructure.

Current Status and Characteristics of Small Towns

As mentioned earlier, till the end of 2012, there were only 7,789 small towns in the Western region, with 14.48 small towns every 10,000 km^2 on average. This shows a lower urban density, and a lower urbanization level compared to the national level. The Western region has rich natural resources and its economic base is however different from other regions; as such small town development pattern and prospects in the Western region would take a different path. Particularly, transport and other resource-based development will be an important reflection of future undertakings in investment patterns, bearing in mind that distribution of natural resources is unevenly distributed and access could be difficult and costly. At present, small towns in the Western region have the following features (China's Bureau of Statistics 2013):

(a) Small in number, relatively low population density and scattered distribution pattern. Low density along with low-level development of transportation has led to the low resource utilization effect;

(b) Scattered and low-efficiency exploitation of resource-based minerals taking place near small towns has resulted in serious environmental pollution. Example: Tongren Town of in the east of Guizhou Province;
(c) Poor and low quality infrastructure provision as compared to more developed Eastern region. At this stage, the Western region has the lowest aggregate GDP output among the four national regions (see Table 18.2 below). Infrastructure development has the potential to bolster GDP growth; and
(d) Development of the Western region is much resource-based. In 2012, the Western region's crude oil and cement production accounted for 31.3 % and 31.1 % respectively of the national output, an evidence of its strong resource dependency. Township development would move inevitably in the similar direction.

18.4 Multi-level Financial Needs for Development of Small Towns in Western China

In order to understand better how the financial support system should best operate to help develop the small towns in the Western region, it is crucial to identify their specific financial demands. Based on the experience and common features observed on small town developments, there are five key aspects of demands, classified as savings demands, financing demands, investment demands, intermediary business demands and insurance business demand. Demands can be from private individuals, enterprises and government institutions/agencies.

18.4.1 Multi-level Financial Needs of Small Town Residents

Financial demands in Western small towns come not only from town residents but also farmers from their neighbouring areas (Ren 2007). Being remote and having a less developed economy, financial demands of the small towns mainly focus on savings demands and loan demands. Savings demands increase following improvements in income levels and quality of life. People save their money to prepare for future needs and due to lack of other investment channels in an underdeveloped financial market. Figure 18.2 shows the steady rise in savings from 2007 to 2012. Savings in the Western region was on a gradual rise but the growth was much slower than the national trend because of its lower income levels.

Loan demands are created mainly by the weak rural economic base where farmers need to take seasonal loans to prepare their production activities, and sometimes on emergency needs or in times of natural disasters. As farmers take in better farm equipment or use more farm technology to improve productivity, they need also more credit. In addition, with the increasing development of financial market, local population's financial awareness and knowledge is increasingly strong. This makes

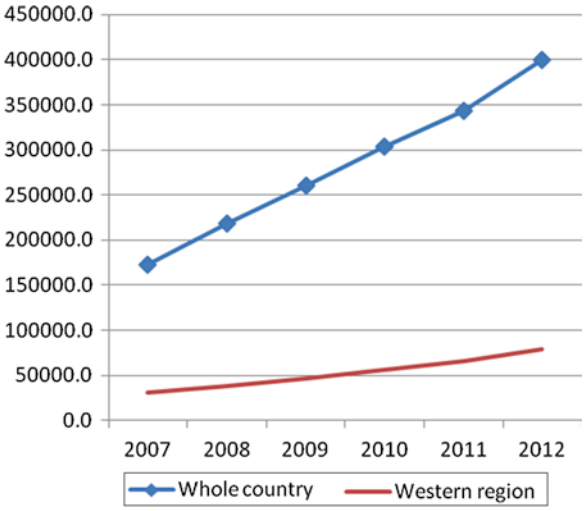


Fig. 18.2 Resident Savings between 2007 and 2012 in Western region and China compared. Note: unit: 100 million yuan (Source: Adjusted from China Statistical Yearbook 2013)

them more accessible to the financial market, including access to different varieties of loans such as financing shares, securities and insurance products.

18.4.2 Multi-level Financial Needs of Enterprises in Small Towns

Enterprises of western small towns are roughly divided into three categories: individual and private enterprises, small and medium-sized enterprises (SMEs), and large enterprises. Their financial demands are diversified, including savings demands, insurance demands, settlement demands, and credit demands, etc. (Shen 2011). In the Western region, most enterprises belong to private enterprises and SMEs, and are local resource-based enterprises. Their market is subject to volatile fluctuations of supply and demand. In addition, these enterprises possess limited operational capacity and run a high risk in their businesses. As a result, financial institutions can only provide them with limited loans to cut down risks. In China's rural areas, there are lots of agricultural banks, rural credit cooperatives and other financial outlets, which can basically meet the deposit demands and settlement demands of enterprises. Due to high insecurity or operation risks of enterprises in small towns, especially individual and private enterprises and SMEs, often characterized by irregular setup or lacking information to assure financial institutions, loans granted are usually small (Cao 2009).

Despite weaknesses of Western small town enterprises, they play an important role in promoting local economy, and are an important generator of local agglomeration effects, able to push urbanization ahead. Industrial development needs support from a lot of funds, and industrial restructuring also needs a lot of financial

support. For example, much of the Western region has a serious shortage of water supply, a critical source for industries. Financial support in water supply is therefore a key factor of success.

18.4.3 Multi-level Financial Needs of Government Institutions/Agencies

The key role of government institutions or agencies is to support infrastructure of small towns, promote market development, improve people's quality of life, and other public services such transportation, healthcare, education, water supply, electric power and other industries. As a public goods and service provider, and as a promoter of development, government institutions do not seek in principle economic benefits or the return to investment is long-term (Du 2001).

In the Western region, besides focusing on resource-based economic development, government institutions also need to support labour-intensive and capital-cum-technology-based enterprises, thus helping local enterprises to move towards production operations of scale, high intensity and sustainable development. Their funds involve investment as well as provision of credits. Figure 18.3 shows the local fiscal revenue and expenditure from 1993 to 2012, over a 20-year period in China.

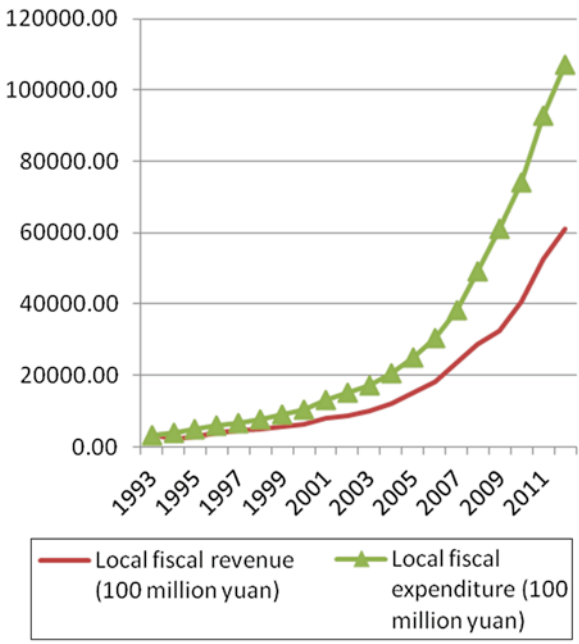


Fig. 18.3 Local fiscal revenues and expenditures (in the whole of China) between 1993 and 2012 (Source: Adjusted from China Finance Yearbook 2012)

From 2003 onwards, both revenues and expenditures have gone up sharply, but the deficits between them have widened, indicating a worrisome outcome.

18.5 Finding Appropriate Financial Support Mechanism to Suit Small Town Development in Western China

The earlier section has provided background and analyzed the multi-layer financial demands in the development of Western small towns. Further discussion of the financial functions is of great significance for a better understanding of the relationship between supply and demand in financial services. This will be helpful in the search of an appropriate mechanism to support the development of small towns in China in general and in Western China in particular. Financial functions can be classified into basic functions, core functions and extended functions.

18.5.1 Basic Functions

The basic function of finance is service. Service function means that finance facilitates economic operations, including the provision of computerized measurements in standards, services in savings and loan choices, foreign exchange settlements, property management and other basic services (Shen and Bai 2006). This basic function has grown substantially over the last two decades during which the urbanization process and urban construction activities have been very active. In 2011, for example, there were 33.83 billion cases of non-cash payment in China, amounting to 1,104.35 trillion yuan, a sharp increase from two earlier years. Of this amount, there were 847 million cases of bill transactions totaling 301.11 trillion yuan. The same year recorded total payment transactions of 199.438 billion yuan, equivalent to 42.3 times of the national level GDP. Overall, payment and clearing services in the financial market are safe and effectively executed (China Finance Yearbook 2012). Remote and underdeveloped small towns in the Western region should find this basic financial function useful and accessible in meeting the demand of their development plans.

18.5.2 Core Functions

One of the most important core functions of finance is resource allocation where rationalized applications of capital resources are directed. By rationalized resource allocation, at least in theory, the distribution channel should be established between credit providers and recipients on the basis of more equitable distribution of funds

in society, thus helping to achieve an overall improvement of social welfare (Zhang 2011). This core function is mainly reflected in savings deposits and credit allocations to businesses from financial institutions. Taking the example of Agricultural Bank of China, its county-level personal deposits amounted to 3,034.422 billion yuan in 2012, as against the county-level personal loans of 626.577 billion yuan. Also, county-level corporate loans (excluding discounted bills) accounted for 1.4 trillion yuan, compared to corporate deposits of 1.41 trillion yuan (Agricultural Bank of China 2013). Large loans thus given out at county level have a strong implication that small town development would have much benefited therefrom.

The Finance Yearbook of China 2012 has also shown that the loans released by village banks totaled 130.4 billion yuan by the end of 2011. Nation-wise, 58.3 % of such loans granted by village banks went to Zhejiang province (23.1 billion yuan), Liaoning province (11.3 billion yuan), Sichuan province (7.7 billion yuan), Guangdong province (7.2 billion yuan), Henan province (6.8 billion yuan) and Shandong province (6 billion yuan). Loan amount granted to the provinces in the Western region was overall low (CFEP 2012). This reveals the urgency at this stage to pay more attention to the multi-layer financial demands of Western small towns; steps are needed to speed up the credit market and expand financing channels, and loan allocations.

18.5.3 Extended Functions

The extended function of finance is risk prevention and management. Due to high levels of uncertainty of economic activities and business undertakings, risk prevention and management is an inherent and critical issue of finance (Zhang 2011). The risk prevention function of finance include risk aversion, risk diversification, risk hedging, and risk transfer, etc. In fact, risk prevention function is a horizontal expansion partner of the basic function and core function in financial operations. As Western small towns develop and grow, there will be more demands on risk prevention, with its nature of management being increasingly diverse (Wang 2013). Up to the end of 2011, there were a total of 148 insurance companies, including 10 insurance groups, 59 property insurance companies, 61 life insurance companies, 7 reinsurance companies, and 11 insurance asset management companies in China. Also, there were 2,554 professional insurance intermediaries, of which there were 1,823 insurance agents, 416 insurance brokers, and 315 insurance assessment companies. In the whole 2011, the insurance industry paid the claims and benefits of 392.937 billion yuan, with the increase of 27.59 % over 2010. Of these, the property insurance indemnities accounted for 178.693 billion yuan. The premium income of life insurance business was 130.093 billion yuan, while claims and benefits expenses of health insurance business totaled 35.967 billion yuan (CFEP 2012). The main types of insurance premiums of property insurance companies in 2011 are shown in Table 18.3 below.

Table 18.3 Premium income of insurance companies in China in 2011

Item	Insurance type	Amount (100 million yuan)	Growth over 2010 (%)	Item	Insurance type	Amount (100 million yuan)	Growth over 2010 (%)
1	Property insurance for enterprises	329.81	17.43	7	Guarantee insurance	56.51	146.60
2	Insurance of contents	23.32	17.18	8	Marine insurance	55.87	9.98
3	Motor vehicle insurance	3,504.56	16.66	9	Cargo insurance	97.83	24.25
4	Engineering insurance	73.76	4.00	10	Special risk insurance	35.43	32.23
5	Liability insurance	148.01	27.73	11	Agricultural insurance	174.03	28.10
6	Credit insurance	115.46	20.31	12	Other insurance	3.23	17.25
Total premium income		4,617.82	18.54				

Source: Adjusted from China Finance Yearbook (2012)

18.5.4 Proposal Towards a More Effective Financial System

In promoting small town urbanization, due to lack of skilled human resources, facilities and other resources, the financial support for the development of small towns should focus on improving its financial functions and operations, rather than devotion to the expansion of its physical and tangible financial asset. To sum up, the current development of financial system of Western small towns is not in a good position to meet effectively its multi-layer financial demands. So, it is suggested that the financial institutions and the government should jointly explore a more appropriate financial support system. For this purpose, we readdress here three key points for consideration (Tong et al. 2007; Wu and Duan 2004):

(a) Conceptual Change

Before taking any change in concepts, the financial institutions/agencies need to have a full understanding on the importance of Western small towns to bolster their economic growth, accepting first their huge potential in this respect. To achieve this end, they have to shift their conventional development notions, and give full recognition to the role that individual and private enterprises and small and medium-sized enterprises in small towns can play and contribute. In approach, their financial support system should promote optimization and restructuring of local industries. They should also change their previous single credit funding methods, and encourage market integration, product innovations which will enhance the competitive edge of

locally produced goods and services. Higher quality and differentiated products will receive greater attention of financial grants and support.

(b) Develop Cooperative Finance

Cooperative finance refers to the economic and business operations based on "cooperation" principles. Participants in the cooperative can be in the form of financial asset or involvement in any extent in its financial activities. The "cooperation" principle will establish a non-market-oriented incentive system that breaks away from the traditional capital-labour pattern. It will respect more rights of capital and views of member participants in the cooperative. With the deepening of China's financial reform, rural credit cooperatives as a kind of cooperative financial organization have the greatest potential in rural financing. Through the cooperatives, local small town residents can be guided to enter a bigger market, and improve their organizational skills for their businesses.

(c) Develop a Higher Quality of Financial Services

New financial policies should aim at improving the service quality of financial operations. Quality improvement of financial services in the Western small towns should consider the following three aspects:

- The economy of western small towns is mostly resource-oriented. As rapid economic development in the Western region brings higher risk in the financial market, great support should be given to the infrastructure of small towns in risk management;
- On the basis of multi-layer financial service demands in small towns, financial services should be strengthened with innovative approaches in credit allocation facilities; and
- On individual and private enterprises in small towns which run small-scale and high risk businesses, support should be given to help them in restructuring, upgrading their operations as well as organizational and .marketing skills.

18.6 Conclusion

This study has argued that, in public policy, there is an urgent need to increase financial support and improve facilities to help develop small towns, especially those in the less developed Western region of China. Through multiplier and agglomeration effects generated from the growth processes, growth of small towns is able to help narrow down the gaps between the more developed coastal region and the lagging Western region. Due to regional variations throughout the vast territory of the China, measures to be taken and operations to be followed up should be made more flexible, adjusted according to the characteristic features suited to local conditions. In the Western region, resource-based financial target linked to growth potential of small towns is one of such features.

Overall, there is much room for improvement in financial functions such basic functions, core functions and extended functions. To build a more effective financial system, there is also a strong need in conceptual change towards higher quality of services and multi-layer packages. Restructuring, upgrading of financial operations, organizational and marketing skills are equally essential.

Acknowledgement This study project is funded by the National Social Science Fund in China under the "Research on Security Identification, Management & Control and Emergency Treatment of Major Ecological Risks of Ecological Fragile Region in Western China" (Number: 13AZD074), as well as by Guizhou Soft Science Research Project (Qian Ke He Ti R Zi [2013] LKC2028).

References

Agricultural Bank of China (2013) Agricultural Bank of China – Annual report, 2013. Beijing
Cai X-L (2002) On construction of small towns – element concentration and system innovation. People's Publishing House, Beijing
Cao Z-P (2009) Problems and structure of urbanization in Western region. Reform 1:62–67
China Financial & Economic Publishing (CFEP) (2012) China Finance Yearbook, 2012. Beijing
China's Bureau of Statistics (2013) China yearbook of statistics 2013. Beijing
Du Y (2001) Study on China's urbanization strategies and related policies. Chin Rural Econ 9:4–9
Fan Z-B, Zuo Z-Q (2004) Study on regional financial development and Guangdong's urbanization. Econ Rev 12:31–34
Fang X-M (2010) Study on financial support and economic growth on the basis of space model. Financ Res 10:68–82
Goldsmith RW (1969) Financial structure and development. Yale University Press, New Heaven
Hicks JR (1987) Theory of economic history (Chinese version). Commercial Press, Beijing
Huang G-P (2013) Reform and improvement of financial support system that promotes urbanization development. Comp Econ Soc Syst 4:56–66
Li Y (2010) Construction of financial support systems for economic development of underdeveloped areas. Econ Issues 11:158–164
Li J, Ran G-H, Wan G-H (2007) Interpretation on regional financial development differences in China. Econ Res J 5:42–54
Mckinnon RI, Shaw E (1973) Money and capital in economic development. Brookings Institution, Washington, DC
Meng Y-H, Jiang R-H (2006) Study on financial support of economic development in underdeveloped area. Reform Strateg 12:68–70
Merton R, Bodie Z (1995) Financial infrastructure and public policy: a functional perspective. Harvard Business School working paper no. 95-064
Ren Z-J (2007) Study on ethnic regional economic development and financial support strategy. Econ Issues 12:89–93
Shen H (2011) Main problems and resolutions of China's current urbanization. World Econ Polit Forum 2:162–172
Shen J, Bai Q-X (2006) Financial structure, financial function and financial efficiency. Finance Trade Econ 1:23–28
Sunil SP, Qian B (2011) Competitiveness and efficiency of the banking sector and economic growth in Egypt. Afr Dev Rev 23(1):99–120
Tan C-Z, Zhang J-S (2007) Financial support of Brazil to underdeveloped areas and implications. Reform Strateg 1:89–92

Tong L-L, Liang X-C, Yan (2007) Evaluation and discussion of Jiangsu's urban and rural coordinated appraisal system. Spec Zone Econ 10:55–56
Wang H-Y (2013) Features and implications of American urbanization and development. Rev Econ Res 36:5–10
Wu H-Y, Duan Q-L (2004) Study on comprehensive evaluation of basic competitiveness of county-level economy in Western region. Cent Univ Finance Econ 2:64–67
Yan Q (2010) The conception of small towns. Planners 08:118–117
Zhang J (2011) Study on county-level economic development and financial support of underdeveloped area. China Econ Trade Her 6:61–63
Zhao Y-H, Chen Y-M (2013) Development trend and new problems of China's urbanization. Econ Rev 1:54–124
Zhu P-R (2003) World urbanization development and China's urbanization construction. World Econ Polit Forum 3:29–31

Chapter 19
Experiences of Citizen Participation in Old City Regeneration in Yangzhou, China

Ting Tian and Longbin Zhu

Abstract Citizen participation, as a categorical term for citizen power, enjoys broad international applications. Although citizen participation in urban planning and development started late in China, it has gained growing public support. This chapter discusses citizen participation in urban regeneration based on in situ investigation of the historic city area in Yangzhou, China. It starts with an introduction of the background and framework of internationally acknowledged principles for urban conservation that emphasize on the protection of living environment and citizen participation. Two pilot projects in Yangzhou involving public-international collaboration were conducted in 2006 and 2011 respectively, with each providing a systematic account of citizen participation experiences. Further analysis on the participation levels, stakeholders, approaches and supporting mechanism is provided. The chapter finishes by giving a forward looking perspective and suggestions aimed at enhancing citizen participation as an instrument to promote sustainable urban regeneration in China.

19.1 Introduction

The protection and regeneration of historic cities and neighbourhoods constitute a challenge for the urban development in China. Many Chinese cities have started old city protection and regeneration programmes, but the focus has mainly been on the preservation of historic monuments and tourism. These programmes have been usually based on top-down and commercial approach which often leads to demolition of traditional neighbourhoods and relocation of the original inhabitants. This business-led tendency has been rectified recently and citizen participation has been

T. Tian
College of Resource and Environmental Management,
Guizhou University of Finance and Economics, 550025 Guiyang, China
e-mail: tianting0811@163.com

L. Zhu(✉)
College of Architecture, Nanjing Tech University, 210009 Nanjing, China
e-mail: longbinzhu@hotmail.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_19

included as the Chinese heritage authorities began to look more abroad for references. This chapter is based on an international collaboration in heritage conservation which introduces citizen participation experiences and processes of two cases (Wenhua Li and Xincang Xiang) in old city regeneration in Yangzhou. Motives behind positive citizen participation are also addressed and analyzed.

19.2 Heritage Conservation in International Stage

In the international context, there has been a growing awareness of participation in heritage conservation from the 1960s. Concerns are not only individual buildings to be considered but rather the whole group of buildings and – in a wider sense – the traditional "urban fabric" that constitutes the cultural heritage. It has also been recognized that unlike other historic artefacts, most buildings are part of a "living environment" where social as well as economic functions and lifestyles are part and parcel of a particular neighborhood which can hardly be separated from physical structures. Consequently, a more comprehensive approach where social and economic factors as well as the local communities has been given an important role to play in urban conservation (Zhu et al. 2007a).

Following the second International Congress of Architects and Technicians of Historic Monuments convened in Venice in late May 1964, the International Charter for the Conservation and Restoration of Monuments and Sites, generally known as the "Venice Charter", became the baseline for international policy and law. The Charter recognizes the importance of monument conservation to safeguard cultural heritage, but it relies more on restoration rather than renewal. This is most characteristically reflected in Article 1 of the Charter where the concept to embrace both historic monuments as architectural work and urban or rural setting was highlighted (see ICOMOS 1964).

At the level of international organizations where signatories are multinational, the 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage is considered a milestone in the History of the United Nations. It has identified cultural heritage to be conserved under three categories with clear specifications, as follows (see UNESCO 1972):

(a) Monuments: architectural works, works of sculpture and painting, elements of structures of an archeological nature, inscriptions, cave dwellings, and combinations of features which are of outstanding value from the point of history, art or science;
(b) Groups of separate or connected buildings: because of their architecture, their homogeneity or their place in the landscape, connectivity and integrity of buildings are of outstanding universal value from the point of history, art or science; and
(c) Sites: Works of man or the combined works of nature and man, and areas including archeological sites which are of outstanding value from the historical, aesthetic, ethnological, or anthropological points of view.

Although the 1972 Convention fails to recognize the importance of "living cities", it stresses the significance of groups of buildings and ensembles and lays the legal foundation for internationally recognized "world heritage sites".

The Washington Charter 1987, known as The Charter on the Conservation of Historic Towns and Urban Areas (ICOMOS), could be perceived as a more progressive approach. It combines conservation goals with aspects of sustainability that have been developed only in the aftermath of the UN Rio Conference 1992 as part of the Agenda 21 process. This Charter initiated basic development principles to involve citizen participation which were incorporated in the UN Istanbul Declaration of Human Settlements 1996 and the Millennium Declaration of the UN 2001. The latter calls for an "integrated and participatory approach and management" (ICOMOS 1987).

This innovative approach is based on the observation that for sustainable urban conservation an integrated approach is needed that combines economic, social as well as physical aspects heritage conservation projects. ICOMOS Charter recognizes that the cultural heritage can well be an asset for economic development without destroying the local identity if the participation of the local communities is assured. The following are some of its key statements concerning the conservation of historic towns (see ICOMOS 1987):

(a) Conservation of historic towns and other historic urban areas should be an integral part of coherent policies of economic and social development and of urban and regional planning;
(b) Participation and support of residents of conservation areas and their involvement in the decision-making process are essential;
(c) Improvement of housing and living conditions should be a basic objective of conservation; and
(d) Encouragement and involvement of residents are only effective if general information programme is set up.

19.2.1 Difficulties of Implementation in Developing Countries

Although the concept of heritage conservation and rehabilitation has won increasing support worldwide, and implementation is more effective in more industrialized countries, a very different situation can be observed in most developing countries. Till the present, cities in the developing world have paid – and will continue to pay – very little attention to conserve their older housing or dilapidated areas in the city centre. Here, either wholesale renewal has been carried out or no actions taken due to lack of public funding or lack of interest from developers. As a result, these areas continue generally to decline, with their physical, social and economic functions disrupted and their potential contribution to the city's overall housing stock is negligible. If this trend continues, there is a real danger for the future that only fragments of their urban heritage would remain in many cities in developing countries (Steinberg 1996).

As in many other countries, China has developed its own national legislation based on UNESCO principles. Monuments have been listed and huge efforts have been made to conserve buildings and urban quarters. Despite these efforts, many historic neighborhoods of "secondary" importance with few listed monuments and less significant buildings have been neglected, leaving houses in disrepair and under-equipped infrastructure. Residents are accustomed to rely on government's top-down regeneration initiatives. Lack of effective ways from the public authorities, the historic neighbourhoods face increasing risks of deterioration and constant threat from business-oriented redevelopment which gives little consideration to genuine conservation plans.

In Yangzhou, China, an integrated and participatory approach has been introduced based on international experiences and tested in two regeneration pilot projects. The following section discusses the practices of citizen participation in the two pilot projects and illustrates how the residents were retained in the historic neighborhoods to participate actively in decision-making and planning to conserve the community. They became winners in the regeneration process. In particular, this paper analyzes the approach's objectives, organization and level of participation of local residents in each project. It ends with recommendations for citizen participation in urban regeneration in China.

19.3 Citizen Participation in Old City Regeneration in Yangzhou

19.3.1 Yangzhou Old City

Yangzhou is a city located in the centre of the Yangtze River delta in Eastern China with a population of two million people. Historically, the city has always been famous for its culture, economic prosperity, and livable communities with beautiful gardens and waterways. Yangzhou's "old city" area of 5.09 km^2, which is home to about 100,000 residents, has been preserved and protected from large-scale redevelopment (see Fig. 19.1).

From 1990 to 2004, Yangzhou underwent rapid urbanization. Many of the city's historical buildings were torn down and replaced by high-rise buildings, and narrow pedestrian walkways were widened to accommodate cars. Local citizens were concerned about Yangzhou losing its traditional characteristics, which is seen by many as the soul of the city. In response to this concern, a city-wide conservation strategy was put into place in 2006 by the government. The efforts have been recognized by the international community, the United Nations Habitat (UN Habitat). Convinced by the good intentions of the conservation strategy, the UN institution granted an award to the Yangzhou Municipal Government to carry out the conservation plan.

Implementation of the conservation strategy, however, was no easy task. Multiple challenges, including technical, financial, social and political ones laid in front of an

Fig. 19.1 Historical areas in the Old City of Yangzhou (Source: GTZ Project Team)

old city in poor shape. Houses then were much rundown, the drainage system could not handle heavy downpours, and public green spaces were scarce. Poor services and problems had driven younger middle class couples to newer, more developed parts of the city, leaving behind the poor and elderly.

What follows below is the discussion of the implementation of the urban conservation strategy in two pilot projects conducted in 2006 and 2011 respectively. Attention is focused on the ways in which participatory approach was applied and tested.

19.3.2 Wenhua Li Project and Community Action Plan

The Wenhua Li pilot project was first identified in 2006 by the international Yangzhou Experts Team (iYET) together with other government counterparts of Yangzhou: It is located in a traditional neighborhood area in the old city of Yangzhou (see Fig. 19.2). Developed by the municipal government of Yangzhou, the conservation strategy was supported by German Technical Cooperation (GTZ) and the Cities Alliance. Applying the concept of sustainable urban conservation, this conservation strategy identified the vision of sustainable renewal, sub-strategies and

Fig. 19.2 Aerial view of pilot block Wenhua Li and poor living conditions (Source: GTZ Project Team)

implementation framework at the old city of Yangzhou for the next 10–15 years. A key issue was to link the preservation of historic heritage and the improvement of living conditions of the inhabitants. Ultimately, the original inhabitants should stay in situ, enjoying an improved living conditions through upgrading and "self-help" initiatives, and public participation (Zhu et al. 2007a).

Objective of Conservation and Problem Solving

This 1.4 ha conservation area contained about 147 households. It included major problems that were typical of traditional neighborhoods in China's pre-reform "old city quarters", summarized as follows:

- Sanitary conditions of the houses were often poor, individual toilets or bathrooms are often lacking. Most residents resorted to public toilets outside their houses.
- Houses were generally in dilapidated conditions, desperately in need of repair and upgrading.
- Major storm water drainage system needed upgrading. It was the main discharge pipe for grey water and sometimes sewage waste from toilets. Major collection pipes for sewage along major roads leading to a sewage treatment plant were poorly connected. There was no gas supply, and power supply required substantial improvement.
- Years of arbitrary house extension had reduced public and access spaces; room for community interaction and petty vendors in the neighborhood ended up smaller. Emergency access, public maintenance and services needed to be addressed.

Due to the deteriorating physical conditions of the neighbourhood, many younger and richer residents have moved to new city areas. As a result, the majority of the residents are low income earners. Approximately 37 % of the residents are older than 61 years, and this forewarns a significant change in demographic profile within the next 10 years (GTZ/Yangzhou Municipality 2005).

As said earlier, the pilot municipal project was assisted by the GTZ experts working with local counterparts, known as the iYET. A special government institution 'Old City Office' (OCO) was also established as primary partner representing the city, and was the key counterpart of the iYET team. The implementing partner was the Yangzhou Famous City Company (YFCC), supported by several other city agencies such as the Cultural Bureau, Planning Bureau, Construction Bureau, House Management Bureau, and Environmental Protection Bureau (Zhu and Goethert 2006).

One of the challenging tasks of the project was to help residents to stay put through conservation and get involved in self-improvement. If successful, this Yangzhou project would serve as a rehabilitation and upgrading model of a historical site for China. Arguably, the 'Community Action Planning' (CAP) approach highlighting family and historical values was introduced with an aim to raise the awareness of residents and encourage them to be proactive in community building. In a word, the objective was to establish a participatory planning approach for rehabilitating and upgrading the historical neighborhood. Citizen participation was therefore a key element of the planning approach.

Participants

The Participants included all stakeholders: residents of Wenhua Li, private enterprises, local community leaders, representatives from the various interested institutions (Old City Office, Urban Planning Bureau, Construction Bureau, YFCC and neighborhood committee), and the experts from GTZ/ Cities Alliance. Their interactive exchanges and collaboration had led to a problem solving process.

Process of Community Action Planning

Pre-CAP Stage

This stage identified common problems and opportunities of the study area, with the expert team designing a framework that was interesting and easy for the citizens to participate and implement during the period 14–18 November 2006. First, 10 household representatives were organized to participate in "The Old City in My Eyes" photo taking activities, focused on three issues that required rehabilitation: houses, facades and lanes. Representatives were asked to identify with their photos what they would call good historical elements and non-historical elements in the workshop sessions.

CAP Workshop

The workshop was the key forum of planning activity which lasted 3 days from 19 to 21 November 2006, hosted by the GTZ experts. Participants included more than 30 resident representatives from east Wenhua Li, west Wenhua Li, small Taiping Xiang, and those from relevant government agencies. The three-day activity was organized in the following manner (see Fig. 19.3):

- Day 1: Citizen's civil awareness on the protection of historic districts was reemphasized and built into the mindset of participants. From photos taken, they were grouped under different categories such as street types, house façade types and house interior types. For each category, areas that need improvement or rehabilitation were identified by the participants who would set action priorities according to the seriousness of the problems, the estimated investment fund, and degree of technical difficulty.
- Day 2: The workshop focused on more specific problems and issues. All the stakeholders, the experts, resident representatives and government department agents would examine the details for all three categories at length before marking the proposed renovation ideas on the drawings.
- Day 3: An action plan would be prepared for the whole district under study. First, the residents were grouped to identify different levels of problems with different colour papers. Yellow represents more serious issues to be dealt with, followed by blue. Each group would do a summary with a complete list of issues and details for their respective action plan. The plan would include what to do, who

Fig. 19.3 CAP activity (Source: GTZ Project Team)

to do what, how to do it, and set an indicative timeline for completing the upgrading of streets, house facades and house interiors.

Post-CAP

Implementation of the rehabilitation plan would be supported by the professional support team, using the Upgrading Guidelines as the basis for neighbourhood improvement. These guidelines were earlier refined and summarized into an easy to understand format which was a simple, visual matrix for users. This version is clear and transparent with a template for upgrading standards and associated costs. It is intended to be used as the model package for the whole old city for upgrading purposes ('Phased Upgrading Decision Matrix', see Fig. 19.4). Varied standards and costs provides a long-term advantage in that residents could have different options based on their income levels and their expectations in their house improvement.

In support of the house upgrading, a 'Rapid House Assessment' procedure was also put forward to help residents make informed decisions on renovation needs and cost

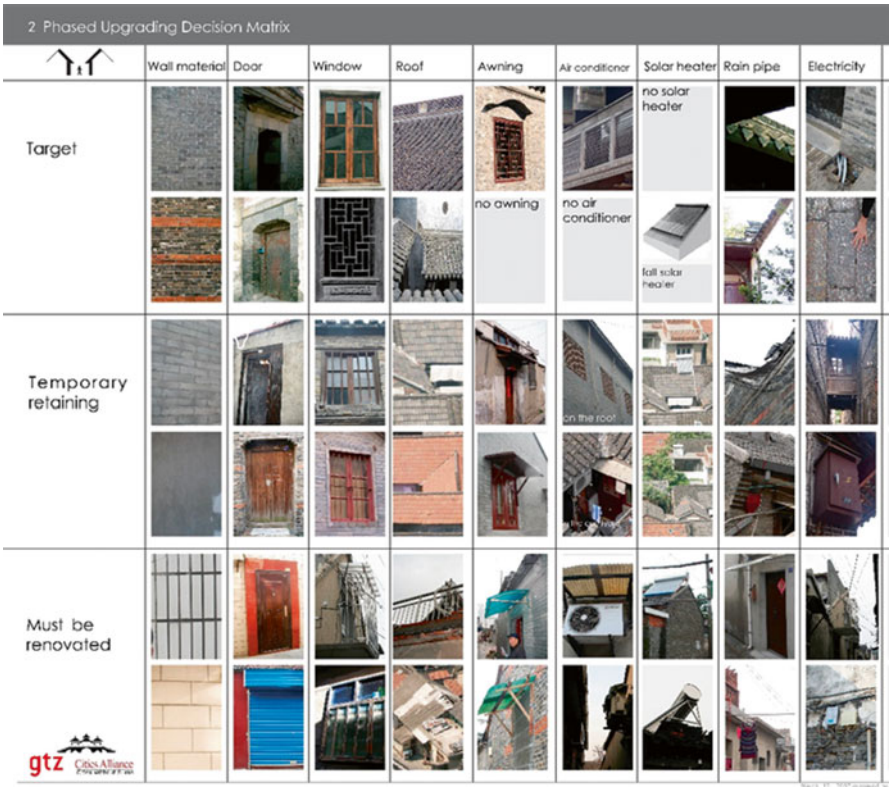


Fig. 19.4 Phased upgrading decision matrix (Source: GTZ Project Team)

estimates. Moreover, a few representatives from each street were selected to be contact persons to assist in the monitoring of standards agreed upon in the workshop.

A workshop report with the results was finally presented to the Yangzhou municipal government, which was well received by the Deputy Mayor and the Directors of different bureaus and officials. They approved the master plan for the pilot area after the plan was further revised and updated with suggestions from the residents.

In subsequent months after the workshop, most of the houses in Wenhua Li were renovated. Also, a 'Mini-CAP' to improve a street in the neighborhood was carried out where plants, street furniture were reorganized. As a token of motivation, the city government granted a 30 % subsidy to support all private renovation works.

19.3.3 'Low Carbon' Community Project

In Yangzhou's old city area, there were 31 disused factories, mostly built between 1950 and 1970 and they have been completely abandoned in 2011. The city of Yangzhou planned to redevelop them by different phases. A 4,134-square metre site, located in the Xincang Xiang Community – a traditional neighbourhood in one of the four historic areas, was selected as the first pilot project site (see Fig. 19.5).

Fig. 19.5 Vacant plot in Xingcang Xiang community (Source: Author)

The project was organized by the Old City Office of Yangzhou municipal government, planned to become a community-based revitalization demonstration project. In order to draw on international experiences in urban regeneration and low carbon city, the city government invited an expert team from the Institute for Sustainable Communities (ISC) and Eco-city Institute of Nanjing Tech University to provide technical support for the project.

Objective and Actions

The objective of the Low Carbon community project was to explore a model to transform the industrial site into a vibrant place and a low carbon area, thus improving the residents' quality of life. The expert team realized that the redevelopment project could be an opportunity to create a Chinese resilient urban system model produced by citizens, government, and leading thinkers together. Such a process could also integrate the multiple goals of cultural protection, low carbon development and improved living quality of residents. Mobilizing community residents to participate in the development of a low-carbon community action plan was overall effective in the whole process.

Participants

At the preparation stage, the Yangzhou government used the Internet and newspapers to introduce the project to encourage residents to take part. Residents' opinions were collected using the community participation approach prepared collectively by the Old City Office, resident representatives of Xincang Xiang and the neighbourhood committee, and the experts from ISC and Eco-city Institute. After considering both the government and residents' interests, the survey design team put together good ideas into the redevelopment plan.

Process of Community Participation

Participatory Survey

In order to learn about the residents' needs on regeneration and the patterns of energy consumption/GHG emission, the project team conducted a series of participatory surveys. The planning team compared GHG emission levels from the old city area with the new city area. The results showed that GHG emission levels of the old city were only 2.6 t per capita per year, 30 % lower than the emission levels in the new city area. The difference in emission levels is mainly due to different means of transportation. Neighbourhoods of the old city are much more pedestrian friendly, although buildings throughout the new city area apply Green Building Codes to save energy.

Fig. 19.6 Citizen participation during the project (Source: Author *implementation of low carbon design*)

Public Consultation Workshops

At the start, the Director of Old City Office explained to the residents the advantages of low carbon living environment, citing successful international cases. This was followed by briefings by experts on low carbon knowledge. The workshop was led by experts from relevant government departments, the local and outside experts. In order to ensure redevelopment designs were reflective of the needs of local residents, several public consultation sessions were held in the initial planning stage (see Fig. 19.6). After analyzing the needs and opinions of the surveyed residents, the planning team had a consensus that the city's historical architectural features should be retained, and more open green spaces, fire facilities and energy efficient facilities were provided.

A local Yangzhou design institute was asked to provide technical assistance in designing the low carbon community. The terms of reference were to increase the community's resilience to climate change, to design vertical green spaces, permeable pavement and storm water harvesting systems capable of capturing 100 % of roof and surface run-off. All buildings were to be designed to be highly energy efficient, with an integrated energy system equipped with natural lighting, ventilation and solar roofs of the LEED-for-Homes Platinum Standard.[1] The neighborhood

[1] LEED (Leadership in Energy and Environmental Design) is a green building certification program that measures quality of buildings based on best-in-class standards and practices.

Fig. 19.7 Survey at Xincang Xiang (Source: Author)

would be a car free zone. Access to public transportation systems would be made convenient for all residents (Fig. 19.7).

19.4 Discussion of Results

The community action planning at Wenhua Li has produced informed citizens who have participated actively in the rehabilitation process. Most families in the neighbourhood have renovated their houses with a 30 % subsidy and technical support from the municipal government and international funding. They have added interior toilets and kitchens, and enjoy the upgraded infrastructure and living environment. Upgrading has attracted the younger generations to move back (Zhu and Goethert 2009) (Fig. 19.8).

The low carbon renewal project had involved community participation at the preparation and developing stage where the target, direction and implementation plan were finalized. During the preparation stage, the following fundamental question was addressed: How could Yangzhou, a city with over 2,000 years of history, improve the quality of life of its residents, by rejuvenating their old town to a modern city, yet without increasing carbon emissions or losing its historical character?)

Fig. 19.8 Pilot project house in Yangzhou before (*left*) and after renovation (*right*) (Source: GTZ Project Team)

In finding a good answer to this question, the ISC team held meetings attended by municipal officials, local residents, neighborhood committee leaders, and experts to build a shared vision for coherent action to be taken, such as conducting surveys, and preparing design plans for community gathering facilities, model homes, and green spaces. Their collective actions demonstrated that in order to achieve a low-carbon, resilient community, the key was not overly dependent on advanced technologies but to involve community and integrate technology in a cost effective way with affordability of the residents in mind.

This Yangzhou rehabilitation project was meant to serve as a model for China which has more than 600 large cities and 3,000 counties. According to China's central government's plan, it aims to launch nation-wide affordable housing programs to create new homes for 36 million households from 2011 to 2015. The redevelopment of existing neighborhood communities should thus be a key source of housing supply. The Yangzhou project has also provided evidence that an upgrading strategy involving small government investment, and citizen participation could produce a win-win result. Citizen participation in the whole process has enlightened us on the rationale of why, who and how to participate, summarized as follows (Fig. 19.9).

Fig. 19.9 Low carbon community in Yangzhou after renovation (Source: Author)

19.4.1 Why Participate?

Public participation is essential for good governance and may empower local communities. The main advantages and pre-requisites of this approach are to involve all stakeholders. Different levels of participation will result in different effects and results. The benefits of participation include:

- An opportunity to incorporate professional interest and concerns;
- The consideration of public interest and concerns in projects;
- An informal space within the community to exchange and discuss by an interdisciplinary group about needs, policies and actions with other stakeholders to find better solutions; and
- An opportunity to raise funds for activities.

These benefits were summarized by participants through personal talks, by letters and informational meetings to which all identified stakeholders were invited. The informational meetings and talks also proved to be a convenient opportunity to present further information about the idea of the project, inquire about the needs and interests concerning the historic area and the residents' motivation and expectation in the participation and the development of the planning.

19.4.2 Who Participate?

Participation can lead to more integrative policies and practice, due to the fact that the general public often perceives policies in a more comprehensive way than professionals. Using the concept of CAP applied in the Yangzhou projects, the roles of the participants were divided between community residents and government officials and professionals.

This rehabilitation project followed closely the research of Goethert (2006) who examined different levels and effects of public participation, and divided the undertaking into five stages:initiate, plan, design, implement, maintain (see Fig. 19.10 below). In the figure, the blue man refers to government representatives, relevant professionals and practitioners. At different levels of participation, the roles between residents and outsiders (including government and experts and so on) are different. "None" means residents do not participate in the planning while outsiders are in

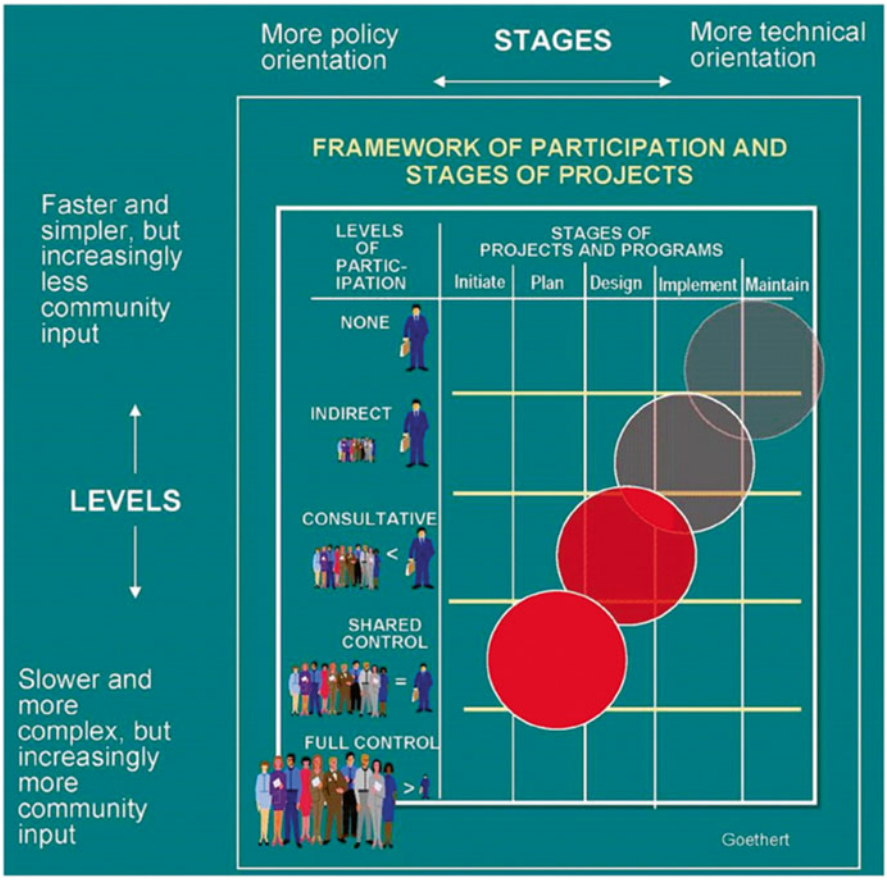


Fig. 19.10 Different stages, levels and effects of public participation (Source: Goethert 2006)

charge of planning. “Indirect” means that outsiders will find out the existing situation of local communities from indirect sources. “Consultative” is based on the indirect participation, information gathered through surveys and other collections to develop the planning for the self-interest of residents. “Shared control” suits small-scale planning, because the residents and outsiders participate in the planning together. However, it is difficult to unify the opinions, which makes the planning process lengthy and efficiency low. “Full control” means the residents are in full control of the entire planning process, while the outsiders only provide professional advice.

During the process undergoing the five stages of actions cited above, the policy content tends to gradually decline in influence whilst the degree of technical input moves up and get strengthened. The best result in decision-making is arrived at the point where the public shares control with the professionals and officials.

19.4.3 How to Participate?

Integrated old city regeneration or integrated projects require not only citizen participation but also new political and organizational arrangements and instruments. Administrative structure is essential at the process. It means the ability to give an organization a new direction or orientation if or when this proves to be necessary. The organization is thus a mutual process between politics and administration based on clear and open communications.

During the preparation of the old city regeneration, it proved expedient to build upon the established administrative structures – namely, the two projects was initiated by old city office at Yangzhou, who is responsible for coordinating the entire project. The old city office works in close collaboration with other government departments, the developer and residents. Regular meetings with the scientific advisory board and the design team resulted in a clear exhibition concept and proper project process.

Citizen Participation: A Growing Practice in China

Citizen participation is a fast growing institution all around the world, in recognition that the public is an open and unlimited source of social intelligent force which could be organized to make meaningful contributions to society (André et al. 2006). Until a decade ago in China, citizens, especially the ordinary citizens, had few opportunities to participate effectively in the planning or construction of their own community. All planning and construction of communities were led by the government’s top-down approach. In many cases where residents were passive or non-participatory, there were difficulties in implementing the plans.

During the past few years, citizen participation, a bottom up approach, has been increasingly considered as an important element for social inclusion, contributing

towards a better decision making process. Influenced by traditional social norms, the participation level has tended to be low, but the trend is improving. There is also a change recently in attitude from the public authorities in China which take public opinions more seriously. In China's Urban and Rural Planning Law (2007), a series of articles are dedicated to public involvements (see Government of China 2007). Two articles, for example, state thus:

In Article 26:

> Before filing an urban or rural planning for examination and approval, the draft of the planning has to be exhibited to public and opinions have to be collected from experts and general public by way of argumentation, hearing and etc. The draft should be exhibited for at least 30 days"; and

In Article 46:

> The planning institution for a provincial planning, a city or a town master plan should organize related departments and experts to evaluate the implementation of the planning on a regular basis and collect public opinions by argumentation, hearing or other ways.

In this context of attitude change, citizen participation has good potential to serve as an alternative solution with public opinions, including urban renewal projects that aim at conserving historical heritage in China.

19.5 Conclusions

The significance of heritage conservation is to preserve old buildings and objects rich in cultural authenticity. Nevertheless, preserving cultural and historic heritage often clashes with economic-oriented renewal efforts. In the face of the Chinese government pursuing modernization and economic growth as a development priority, cultural heritage has to some extent been sacrificed. In the twenty-first century, urban conservation and regeneration are not only about preservation of historic buildings, but also about improvement of housing conditions of residents, about creating an efficient, resilient and prosperous community. The Yangzhou's old city regeneration example has shown the practice of citizen participation in preserving its valuable cultural and historic assets with positive results. Two case studies undertaken in the city have shown the possibilities and varying degrees of participation, depending on the aims of the projects. The significance is that the common mode of thinking has been transformed for a community participatory approach on the practical level.

With their active involvement, the stakeholders from different social and professional backgrounds took part in the decision-making, planning and implementation process by means of effective communications. Appropriate methods, such as participatory investigation, planning workshops were used. The conceptual neighborhood planning framework in Wenhua Li and Xincang Xiang has aroused the interest of residents in the historical and cultural heritage of their own neighbourhoods. Such awareness motivated them to participate voluntarily and contribute from their

bottom-up perspective, hence complementing the top-down views from the authorities and the experts.

The two cases in Yangzhou have long-term planning implications at both institutional and participatory levels. International institutions have tested their participatory methodology and played a key role in the organization of the participation activities. Their broader international and democratic outlook has fostered a more inclusive spirit in local institutions, urban planning professionals, (non-government organizations (NGOs) and community leaders. Professionals, NGO and community leaders can act as a bridge to bring closer together the government officials and local residents, by actively publicizing and educating the latter group on historic district conservation values. NGOs, in particular, not only help the government to fulfill social responsibilities, but also play the role of a mediator in conflict resolution between the government and the public. As a new attempt in historic city regeneration, the application of participatory approach in Yangzhou projects can be used for reference of other Chinese cities facing similar challenges.

References

André P, Enserink B, Connor D, Croal P (2006) Public participation international best practice principles. Special publication series, No. 4, USA

Goethert R (2006) Yangzhou old city upgrading – testing community action planning, developing strategies and timeline for pilot area. GTZ, Yangzhou

Government of China (2007) The urban and rural planning law of the People's Republic of China. http://www.gov.cn/ziliao/flfg/2007-10/28/content_788494.htm. Accessed 30 May 2014

GTZ, Yangzhou Municipal Government (2005) Sustainable urban conservation in Yangzhou. GTZ, Yangzhou

ICOMOS (International Council on Monuments and Sites) (1964) International charter for the conservation and restoration of monuments and sites (the Venice Charter 1964). http://www.international.icomos.org/charters/venice_e.pdf. Accessed 30 May 2014

ICOMOS (International Council on Monuments and Sites) (1987) Charter for the conservation of historic towns and urban areas (Washington Charter 1987) http://www.international.icomos.org/charters/towns_e.pdf. Accessed 30 May 2014

Steinberg F (1996) Conservation and rehabilitation of urban heritage in developing countries. Habitat Int 20(3):463–475

UNESCO (1972) Convention concerning the protection of the world cultural and natural heritage. http://whc.unesco.org/archive/convention-en.pdf. Accessed 30 May 2014

Zhu LB, Goethert R (2006) Historic neighbourhood upgrading with community participation. http://web.mit.edu/urbanupgrading/upgrading/issues-tools/tools/pdfs/CHINA-HERITAGE.pdf. Accessed 05 Mar 2015

Zhu LB, Goethert R (2009) Upgrading historic cities by integrated and innovative solutions. Municipal Eng 162(2):87–94

Zhu LB, Goethert R, Zheng L (2007a) Community action planning in the urban conservation of Yangzhou. Urban Plan Int 6:58–62

Zhu LB, Herrle P, Nebel S (2007b) Urban upgrading strategy Yangzhou. Phoenix Science Press, Nanjing

Chapter 20
Real Estate Management in China: An Innovative Financing Mode of Urban Complexes

Wen Han and Xiaoxi Liu

Abstract Meeting the increasingly strong financing demand is an important basis towards constructing a sustainable business ecosystem for urban complex development. This study explores innovative financing modes with an objective to break the current bottleneck faced by real estate projects especially large-scale urban complexes. The chapter is divided into three main parts. It first analyzes China's real estate's current financing situation and identifies the types of problems the sector faces. Subsequently, it explores new and innovative financing modes such as building up trusts, private equity funds, asset securitization of real estate properties and mezzanine financing. A low-risk as well as high-efficiency and diversified financing system with bank loans as the main channel of support is proposed. Lastly, a more effective financing and management approach is proposed by improving the efficiency of capital allocation, reducing investment cost of property companies, and enhancing the agglomeration effects of urban complexes. These are contributory factors essential for building a sustainable business ecosystem.

20.1 Introduction

In recent years, the accelerating urbanization process and the diversification of urban functions in China have made urban complexes an emerging commercial real estate feature in Chinese cities. By definition, an urban complex is a large-scale urban development project which is multi-functional, comprising offices, conference venues, business operations, residences, food and beverage services, entertainment

W. Han (✉)
Guizhou Institute for Urban Economics and Development, Guizhou University of Finance and Economics, Guiyang 550025, Guizhou Province, China
e-mail: han68721782@qq.com

X. Liu
College of Finance, Guizhou University of Finance and Economics, Guiyang 550025, Guizhou Province, China
e-mail: 406884983@qq.com

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8_20

etc. It is a holistic built-in business ecosystem designed with highly efficient, diversified and sustainable synergistic effects that facilitates human interactions (Hong and Yang 2012; Zhang 2012). Looking from its gigantic scale of development and operations, there is no doubt that its financing demand is very strong if it is made to operate as a sustainable business ecosystem.

As a matter of fact, undertaking an urban complex development requires as a prerequisite that large flows of funds be smooth and optimally planned. Traditionally, the financing mechanism to support urban complexes is highly restricted, such as insufficient equity funds, single financing mode and heavy dependence on bank credit system. As rapid urbanization has brought about much more real estate developments, greater capital demand and financing efficiency also follow suit (Gao 2006). In this sense, this study explores innovative modes in response to rising financing demands of urban complexes in China.

The chapter is organized into four sections. It begins with a brief review of financial modes of real estate developments before analyzing China's current real estate development which focuses on the financial dilemma faced by urban complexes. Subsequently, it explores innovative modes to break the financing bottleneck of urban complexes by looking into investment trusts and private equity funds, which aim at promoting the securitization of real estate assets and mezzanine financing. In doing so, we hope to construct a low-risk and highly efficient financing system with bank loans as the main source of financing channel. Finally, an effective financing and management approach is proposed. This proposal hopes to raise the efficiency of capital allocation, reduce investment cost of real estate enterprises, and enhance the agglomeration effects of urban complexes, leading to a sustainable business ecosystem.

20.2 Review of Real Estate Financing Theories

20.2.1 Views of Western Scholars

In the 1950s, Western scholars had begun to study the financing mode of urban complex development. A few decades of research into this complex financial system, their findings have helped the European and American real estate financial markets to become much more mature today (Ju 2008). The Americans Tresco M. Crawford Reid and G. Stacey Simon divided the financing of real estate enterprises into persistent financing and non-persistent financing modes. Persistent financing is divided into long-term fixed-rate loans, equity participation loans for land acquisition, and sale-leaseback loans. Non-persistent financing can be divided into land purchase loans, development loans and building loans (see Atteberry and Rutherford 2007; Korajczyk and Levy 2003). Sirota (2005) grouped the source of real estate funding under two categories: trust institution and semi-trust institution. By trust institution, it includes banks, savings associations, life insurance

companies, pension funds and credit unions. In contrast, semi-trust institution includes real estate mortgage brokers, mortgage bankers, real estate mortgage loans, investment trusts and real estate bond traders.

20.2.2 Views of Chinese Scholars

In 1986, with the reform of China's land use and housing system, coupled with the promotion of private property market, real estate development had quickly become an independent industry. This developmental change and its corresponding impact in conceptual thinking attracted keen interest from Chinese scholars to study the market-led real estate financing theories. From 1996 to 2005, He et al. (2002), Chen (2004) and Liu (2004) analyzed the development trend of China's property market. Overall, their investigations revealed the root cause of the market-led property financing problems was attributable to the single financing channel inherent in China's real estate market. There were then no other financing channels such as trusts, real estate funds, real estate finance leasing business, developers' entrusted loan discounts and real estate investment banks, etc. They suggested that the state should consider broadening the financing channels in property market.

From the 2000s, high rates of GDP growth and the booming property market have created high inflation rates, particularly in housing prices. As the Chinese government explores persistently ways to manage the runaway market through macro-control policies, Chinese scholars continue to seek a new and diversified real estate financing channel as a means of managing property sales and legitimate transactions. Using typical cases of selected major Chinese cities, Hu et al. (2010) and Wang and Li (2012) claimed that in order to ease the financial pressure of the cumulative effects from the national macro-control policies, the entrusted loans, real estate trust, real estate investment trust (REITS), initial public offerings (IPOs), and equity financing, etc. should be taken as the new financing options. They argued that such an enlarged channel would reduce financing costs of both developers and buyers, secure a more smooth chain of funding, thereby improving flexibility of capital use.

Xiong et al. (2008) in their analysis on the financing differences of China's real estate sector, pointed out that the central government needed first to understand thoroughly the financing situation of real estate market, and categorize their specific market types before it could come out with more effective rules and regulations to manage it. Hou et al. (2011), on the other hand, argued that the financing modes of real estate enterprises in less developed areas should first undertake restructuring innovatively via merger or reorganization of SMEs. Subsequently, banks and enterprises should work jointly in a mutually assistance mode to promote financial leasing. The contribution of Chen and Zhao (2012) was in their in-depth analysis of the characteristics and operations of mezzanine financing, and exploration its feasibility in China's real estate sector. Using the panel data model, Li and Xiang (2012) made a meaningful finding in that economic fluctuations during the period of 1999–2009 had strong influence on the financing structural change and the regional variations

in China's real estate sector. As a result of the economic fluctuations, their conclusion was that the variations in financing modes in the more developed eastern cities were more substantial than the less developed central and western regions of the country.

20.3 The Situation of China's Real Estate Development

In January 2000, China began to implement the 'western development strategy', which is of great strategic significance for promoting the development of the whole national economy. The strategy is also an important regional economic approach to help out lagging regions. However, the key problem was what industries should be given priority to be developed as most critical to lead the development process. A decision was finally made based on the world trend of regional economic development that the key city command centres should be playing the coordinator role with real estate development as leading sector of the urbanization path. There are three advantages that the real estate sector could offer (Pei 2008; Wang 2012):

(a) It helps speed up the process of city growth. Taking a leading role, it has great potential to drive other related sectors such as agriculture, building materials, manufacturing including the machinery industry and services. It also has a direct impact on almost all other fields in society, setting up new growth and consumer points in the national economy through its relationships with other sectors;
(b) By its modern standards adopted, it promotes the development of urban complexes, and expands urban spatial structure while protecting the physical and living environment. By strengthening the urban infrastructure, it helps with revenues thus generated towards improving local education standards and building a more open system; and
(c) Development of the real estate industry is integral with the urbanization process whereby it is impacted by changes in employment, population and consumer demand structures. The real estate industry not only reflects its inherent basic functions and operations, but also manifests itself in the chain relations with production and livelihood economic activities in the national economy. As an emerging form of market-oriented real estate development, urban complexes in the Western region still lags much behind the Eastern and Central regions. Hence, the management and financing approach in the Western region needs a more comprehensive and large-scale undertaking to achieve economies of scale.

20.3.1 Real Estate Development in the Eastern, Central and Western Regions Compared

Table 20.1 below shows that there is a significant regional variation in China's real estate development. In 2012, the Eastern, Central and Western regions accounted for respectively 54.46 %, 21.95 % and 21.59 %, in the total national real estate

Table 20.1 Real estate development and sales in China's three regions compared in 2012

Indicator	Region		
	Eastern region	Central region	Western region
Real estate investment (100 million yuan)	40,541.36	15,762.82	15,499.61
Housing floor area under construction (10,000 m^2)	289,323.21	138,172.71	145,921.60
Housing floor area –construction just started (10,000 m^2)	83,232.11	48,320.47	45,776.03
Completed housing floor area (10,000 m^2)	49,483.00	26,221.68	23,720.28
Real estate sales (10,000 m^2)	53,223.76	30,139.86	27,940.03
Use of foreign capital (100 million yuan)	300.38	57.63	44.08
Land acquired (10,000 m^2)	15,868.71	10,691.35	9,106.73
Land acquisition costs (100 million yuan)	8,198.60	2,032.66	1,868.89

Source: China Statistical Yearbook 2013

investment. The Western region accounted for only 38.23 % of that of the Eastern region (China Statistical Yearbook 2013). From the table, one can observe that the Western region was weaker than the Eastern region in all aspects compared such as total property investment, land acquisition, housing construction, sales etc. However, it is a 'blessing in disguise' that, due to the internal cost pressure imposed upon the Eastern region accumulated over the past years, the underdeveloped Western region is expected to benefit from investment transfer from the east. In the near future at least, the Western region will attract substantial inflow of property capital aimed at capturing its huge potential market demand and capitalizing on its much lower production costs (Pei 2008).

Indeed, with increasing support from the central government and its lower economic base, the Western region has seen gradual rise in real estate investment. Table 20.2 shows its increasing share in property development at the national level during the period 2000–2012. In monetary terms, the same period recorded a 20-fold increase in investment as against the average rise of 14 times at the national level.

20.3.2 Development and Dilemmas of China's Urban Complexes

Review of the Capital Sources and Investment Structure

The funds needed during the investment process of urban complexes come not only from various types of equity financing and debt financing channels but also sales revenues from pre-sale listings, namely deposits, prepayments and individual mortgage loans of buyers. Such funds usually flow in during project preparation and construction period, as an important prime-mover to ensure implementation of real estate projects.

Table 20.2 Real estate investment in the three regions of China, 2000–2012

Year	Eastern region	Proportion (%)	Central region	Proportion (%)	Western region	Proportion (%)	Total in China	Total (%)
2000	3,615.97	72.55	624.70	12.53	743.38	14.92	4,984.05	100.00
2001	4,511.25	71.11	822.70	12.97	1,010.17	15.92	6,344.12	100.00
2002	5,520.90	70.93	1,048.00	13.45	1,217.00	15.62	7,790.9	100.00
2003	7,056.86	69.50	1,470.34	14.48	1,626.60	16.02	10,153.8	100.00
2004	9,149.12	69.53	2,023.87	15.38	1,985.26	15.09	13,158.25	100.00
2005	10,547.70	66.30	2,695.30	16.94	2,666.20	16.76	15,909.2	100.00
2006	12,408.05	63.88	3,526.28	18.16	3,488.59	17.96	19,422.92	100.00
2007	15,651.39	61.89	4,774.31	18.88	4,863.13	19.23	25,288.83	100.00
2008	18,787.43	60.21	6,373.32	20.43	6,042.48	19.36	31,203.23	100.00
2009	21,102.69	58.23	7,940.99	21.91	7,198.12	19.86	36,241.81	100.00
2010	27,999.69	58.02	10,516.38	21.79	9,743.35	20.19	48,259.42	100.00
2011	35,591.52	57.59	13,328.57	21.57	12,876.80	20.84	61,796.89	100.00
2012	40,541.36	56.46	15,762.82	21.95	15,499.61	21.59	71,803.79	100.00

Source: Adjusted from China Statistical Yearbooks 2001–2013
Note: Currency unit: 100 million yuan

Currently, these fund sources in China are divided into four parts: domestic loans (loans from financial institutions), foreign capital, self-raised funds (self-owned capital funds, investment trusts, private equity, and inter-enterprise lending loans), and other funds (for instance sales revenue) (Luo 2008; Ren 2012). Table 20.3 shows those features, as follows:

(a) Domestic loans have been the main source of funds to support the development of the Chinese real estate industry. In 2003, however, the government started to control the excessive growth of real estate industry to avoid the outbreak of bubble economy; this brought down from 2004 its total loan to less than 20 % of the national total;
(b) Foreign financing agencies or firms obtain local real estate shares either via direct shares acquisition or acquisition of land or other forms of joint ventures. Foreign participation is very small and it accounted for only 1.08 % in 2010. Its involvement is also subject to government rulings aimed at controlling speculations;
(c) Self-raised funds would rise in proportion when bank credits are restricted. Self-raised funds are made available primarily through business listings, real estate investment trusts, private equity financing services; and
(d) Other sources of funding are diverse in nature and they made up nearly half of the total funding during the period 2000–2012. This source has remained a key pillar of real estate funding, no matter what the Central Bank control measures may be.

Wang and Li (2012) identify three main features from the perspective of supply and demand of real estate investment funds, as follows:

(a) The amount of funding requirements is far higher than the size of equity funds of development enterprises. This feature is especially obvious in China's listed real estate companies. Up to the end of 2011, the average asset-liability ratio of the listed housing enterprises reached up to 73 % (see also Lu 2011), and this means the proportion of equity funds was less than 30 %;
(b) The investment is uni-directional and the sources of funds are quite dispersed. In general, the real estate industry is divided into the three categories of real estate development investment, property management and real estate services. Among these, the real estate development investment demand is the largest, so most of the funds flowing into the real estate industry have entered the development investment field. But, due to the high costs of real estate, the single source of funding usually cannot meet its needs, thus the sources of funds flowing into real estate industry are quite dispersed; and
(c) The capital repayment period is short but the project development period is long, and the risk is relatively high. In general, real estate projects need 3–5 years to have capital return, and bigger projects need more time while facing poor liquidity during the period. By contrast, the repayment period of various funds is generally quite short, so there is the risk of capital chain rupture.

Table 20.3 Financial capital sources and distribution in the real estate sector in China, 2000–2012

Year	Domestic loans	Proportion (%)	Foreign capital	Proportion (%)	Self-raised funds	Proportion (%)	Other funds	Proportion (%)	Total in China	Total (%)
2000	1,385.08	23.13	168.70	2.82	1,614.21	26.96	2,819.29	47.09	5,987.28	100.00
2001	1,692.20	22.03	135.70	1.77	2,183.96	28.43	3,670.56	47.78	7,682.42	100.00
2002	2,220.34	22.81	157.23	1.61	2,738.45	28.13	4,619.90	47.45	9,735.92	100.00
2003	3,138.27	23.80	170.00	1.29	3,770.69	28.60	6,106.05	46.31	13,185.01	100.00
2004	3,158.41	18.41	228.20	1.33	5,207.56	30.35	8,562.59	49.91	17,156.76	100.00
2005	3,918.08	18.31	257.81	1.20	7,000.39	32.72	10,221.56	47.77	21,397.84	100.00
2006	5,356.98	19.74	400.15	1.47	8,597.09	31.68	12,781.33	47.10	27,135.55	100.00
2007	7,015.64	18.72	641.04	1.71	11,772.53	31.41	18,048.75	48.16	37,477.96	100.00
2008	7,605.69	19.20	728.22	1.84	15,312.10	38.65	15,973.35	40.32	39,619.36	100.00
2009	11,364.51	19.66	479.39	0.83	17,949.12	31.05	28,006.01	48.45	57,799.03	100.00
2010	12,563.70	17.22	790.68	1.08	26,637.21	36.52	32,952.45	45.17	72,944.04	100.00
2011	13,056.80	15.24	785.15	0.92	35,004.57	40.85	36,842.22	43.00	85,688.74	100.00
2012	14,778.39	15.31	402.09	0.42	39,081.96	40.48	42,274.38	43.79	96,536.82	100.00

Source: Adjusted from China Statistical Yearbooks, 2001–2013
Note: Currency unit: 100 million yuan

Analysis of Capital Sources and Investment Structure of the Urban Complexes in Guiyang

Guiyang city is provincial capital of Guizhou province, a landlocked region in southwest China. Despite being a lagging region in the levels of urbanization and economic development, urban complexes have also been launched in the capital city which show regional features. In 2010, Huaguo Garden estate was launched as an urban complex integrated with housing, businesses, offices, central park, central city square and other services such as schools and public services.

This project is developed by the Homnicen Group, the eighth largest property firm in China. The site is centrally located and it covered initially over 6,000 *mous* (400 ha), acquired from more than 20,000 households who were living in Pengjiawan shantytown-like site. In 2011, the Homnicen Group succeeded its expansion plan to redevelop an adjacent area (Wulichong area). Probably by 2015 when the scheme is fully completed, the proposed development would have invested 90 billion yuan, with a total floor area of 18.3 million square metres. Of this, 13.5 million square metres will be for residences (including 1.5 million square metres of luxurious apartments), 2 million square metres for offices, 2 million square metres for commercial premises, and 0.5 million square metres for public services etc. (Winshang Net 2013).

Of all the funding sources, the Huaguo Garden project received the equity funds of 1.5 billion yuan, bank loans of 0.45 billion yuan, trust financing of 1 billion yuan, and installment payments made by purchasers from sales including commercial residential buildings, apartments and ground-floor street stalls. From its opening in November 2010 to October 2012, the firm became Guiyang city's largest property sales corporation, with a cumulative gain of nearly 30 billion yuan. The Huaguo Garden project plans to house 350,000 residents. With an average low housing price of about 4,200 yuan/m^2, which is only 10–20 % of Shanghai's prime areas, the project's sales volumes have been able to support the firm's reinvestment in other sites (Teng 2013). However, there remain difficulties in the present system in financing large complexes and we now elaborate more on these difficulties.

Capital Dilemmas of Urban Complex Development Under the Traditional Financing Mode

(a) High threshold standard of public financing
Business listing is one of the best channels of the direct financing of real estate enterprises. Its advantages include resolving financial risks, reducing financing costs, and improving the financial structure, etc. But its profit-making mode is generally different from industrial enterprises. Capital flow of real estate business is discontinuous as it is characterized by fluctuating high and low flows. As such, it is difficult for real estate enterprises to meet the listing requirements of China's Securities Regulatory Commission on IPO issuance. Though they may conduct equity financing by reverse merger or back-door listing, restructuring

listing and overseas listing and other channels, they still face highly set entrance threshold standards.

For example, in August 2011, China's Securities Regulatory Commission began to tighten loopholes by clarifying the definition of "reverse merger". The Commission then added some specific provisions and new interpretations, thus avoiding injecting assets to listed companies to get away from by "decentralization" control. It also added a series of specific standards on the back-door party. China's domestic tightening of its own stock market has had repercussions on Chinese companies listed overseas. As Securities Regulatory Commissions overseas follow up with tougher measures of control including auditing, Chinese companies listed overseas have suffered low trading volumes, low earnings, and difficulty in re-financing (Wang and Li 2012).

(b) Non-scale of debt financing

In the 1990s, China real estate enterprises began to use bond financing. It is a financing mode which enjoys the advantages of minimum interest rates, fixed income, longer repayment period and risk control. But China has always been strict with enterprises issuing bonds. For example, China's existing *Corporate Law* and *Corporate Bond Regulations* clearly stipulate that the issuance of corporate bonds must meet the following conditions (Feng 2010)

- The net assets of a public listed company are no less than 30 million yuan, and the net assets of a limited liability company is no less than 60 million yuan;
- The cumulative total bond must not exceed 40 % of a company's net assets;
- The average annual distributable profit in the past 3 years is enough to pay 1-year interest of the company's corporate bonds;
- The funds raised meet national corporate policies; and
- The interest rate of bonds must not exceed 40 % of the term deposit rate over the same period.

In terms of approval process, China's National Development and Reform Commission as the competent approving authority has adopted strict control on the corporate bond issuance conditions. More especially since the Document No. 121 was issued by the Central Bank (13 June 2003), approving of bond insurance of real estate enterprise projects has been basically suspended. Control measures thus taken by the public authorities can be seen as a pro-active response to the current irregular standards used by some bond credit agencies, low-standards of operating personnel and too few bond varieties. These are reasons leading to low debt financing security, and real estate companies can hence only operate in small-scale bond financing.

(c) Limits of trust financing

In the 1980s, Real Estate Investment Trusts (REITs) was first put in operation as a subsidiary of China's International Trust and Investment Corporation to act as a real estate trust investment unit. It has the features of low capital cost, low

operational risk of funds, and high flexibility in product operation mode, able to satisfy the demands of many investors (Xue et al. 2009). But with the growing debt ratio followed by increasingly tight loan supply of financial institutions, credit risks have gone up. This has caught the attention of the national financial regulators, resulting in introduction of control measures. Meanwhile, the development of real estate trust financing is subject to the following restrictions (Xue et al. 2009):

- Given that laws and regulations in trust financing are still incomplete, investment regulations in this domain have yet to be standardized for implementation purposes;
- At present, China has no clear specifications on trust tax issues, though tax exemption is widely practiced by REITs in many other countries. Also, it is unclear about what tax benefits REITs are entitled to; and
- There is a serious shortage of managerial staff in handling professionally operations of real estate businesses. Such staff must be equipped with investment skills and are capable of executing strategic investment plans. They need to be proficient in both REIT's funding processes and knowledgeable in real estate market and its related business operations (Wan 2010).

(d) Low-efficiency of foreign financing

In comparison with the 1990s, the current Chinese real estate enterprises are more active in acquiring foreign capital in their daily businesses. Foreign financing agencies or firms are involved either via direct acquisition of local real estate company shares or direct acquisition of land or other forms of joint ventures. The amount of foreign capital utilization rose gradually from 2004 to 2008, followed by s sharp fall in 2009 as a result of the international financial crisis. But from 2010, quick economic recovery in China attracted foreign capital again into its property market, reaching 79.07 billion yuan in that year.

Overall, foreign capital involvement in property financing is highly restricted by the Chinese government. Consequently, its total engagement has been negligibly small, accounting only for 1 %. Occasionally, for example in 2006, new rulings were introduced to control inflow of foreign capital into China's real estate market aimed at controlling speculations (Wu 2010).

20.4 Proposed Innovative Financing Mode for China's Urban Complexes

20.4.1 Reinventing the REITs

As mentioned earlier, REITs business started late in China. Handicapped by incomplete rules and regulations, its market acceptability is limited. Having a good understanding of the REITs, Gao (2004: 98–100) suggested two major

methods to improve the present financing situation which fit well the context of China's existing conditions:

(a) Use the external management style (external sources of incentives acting as an indirect means to manage performance of personnel) to explore an appropriate internal management style (direct management of personnel from the enterprise itself). Under the external management style, a REIT is usually set up in the form of a trust. After it is public listed, such REIT will be run by a management firm providing professional and independent management services. Conversely, in the internal management mode, a REIT is usually set up in the form of a company with a structured governance in the general sense. It is equipped with a special internal real estate asset management division to run land banking and development projects. At the present stage, this regulatory governance is applicable to REIT pilot projects run by mature state-owned firms engaged in commercial real estate and affordable housing construction activities; and
(b) Develop by priority an equity market for the REITs with the objective of raising funds. From there, develop further in a gradual manner some new mortgage methods. Equity or asset REITs will used their raised funds to invest and reinvest in real estate business; their profit is gained multiple sources such as sales, rental, loans and other operating revenues, including at times rise in property prices. In other words, equity or asset REITs may mortgage their own assets to raise funds, or make interest earnings by providing loans to property developers and operators; revenues raised via these two channels are called hybrid REITs. There is an advantage for China's REITs to join the equity market because it is less influenced by interest rates, and is more stable and secure, a security management measure especially during economic downturns and operational difficulties.

20.4.2 Better Use of Private Equity Fund Financing

The private equity financing refers to funds collected from independent retail investors or institutional investors in the market who sign equity investment or subcontracting agreements with financiers to form a kind of investment relationship. This mode is basically similar to that of general private equity fund projects. It is usually designed by trustworthy fund managers with investment plans to persuade big investors to invest. Such a private financing has the following advantages (Guo 2009):

(a) Most real estate enterprises are able to accumulate funds via such a private financing channel, and get public-listed. Public listing would provide them with opportunities for further capital expansion;
(b) Private financing channel enjoys a wide range of funding sources which include individuals, risk funding agencies, buyout funds, etc. A wider source of funding means more investors share benefits and risks, hence reducing the risk of investors to some extent;

(c) Financial operations are simple and rapid. In comparison with equity financing, private financing is more time-effective because it can choose the best time to issue its equity shares without being hindered by registration obligations. Also, like ordinary bank loans, they can use intermediaries to negotiate directly with investors or interested parties to meet their specific needs, thus making the terms more flexible. Furthermore, private equity financing allows not only longer loan period, larger loan amount, but also provides loan takers with high quality management, technical and marketing services.

20.4.3 Implementation of Asset Securitization

Asset securitization means a housing mortgage loan financial authority gathers all its loans to form a mortgage loan cluster and sell it to investors in the form of equity securities with guarantees or after credit enhancements (Wang 2007; He et al. 2002). At present, banks play the central role in financial business in China, hence any risks arising from banks will affect the whole financial market (Zhu 2010: 150–151).

Banks issuing housing mortgage loans use floating-rates, adjusted based on rates fixed by the Bank of China, and the risks of higher interest rates are borne by house buyers. When inflation rates are high, house buyers are discouraged from the inflated market rate loans. Thus, the most effective method is to use fixed rate loans. As banks use securitization of real estate assets by selling loan clusters to gain earnings, the risk of interest rate fluctuations is also transferred away. For example, commercial mortgage-backed securities, as a kind of commercial real estate securitization financing mode, offer low issuing prices and strong liquidity. It attracts a great variety of loan takers who have no claim rights to the parent company; such an approach helps maintain future growth potential while marketing real estate assets to the public. Particularly, commercial mortgage-backed securities can provide higher earnings than government bonds, and offer investors fixed earnings (Wang and Zhang 2005; Wang and Li 2012; Hackbarth et al. 2004). At present, the Chinese government is examining legislations to regulate and implement the securitization of real estate assets.

20.4.4 Cultivating Mezzanine Financing

The mezzanine financing is another financing mode which offers companies ways to attain financing without going public and potentially ceding ownership of their company. It is a mixture of traditional debt financing and equity financing that enterprises would seek help (Chen 2011). This kind of financing mode adds another layer between traditional equity holders and debtors. The mezzanine financing provides real estate developers the following advantages (Ju 2008; Wang and Li 2011):

(a) Demand for the return on capital is relatively modest, usually with interest rates set between 10 and 15 % as against the normal target rate of return to investment set at 20–30 %;

(b) Lower requirements on real estate developers than loans. For example, it does not require the "four certificates" (permission to use state land, license of planning on construction land, license for engineering and design of the construction project; the construction license) or that loan takers need an initial capital of at least 35 % and the grade-2 enterprise qualifications (the registered capital of estate development enterprise is not less than 20 million yuan, and the estate enterprise has been engaged in property development for more than 3 years; etc.);
(c) More flexible and longer-term financing, and its "dilution risk" is smaller than the stock market; and
(d) The mode of payment may be negotiated according to the cash flow situation of the loan taking companies, which is very helpful to the real estate industry. Currently, though there is great demand for mezzanine financing, it is not fully developed due to macro-control policy and other restrictive measures imposed by the government.

20.5 Conclusion

With the acceleration of China's urbanization process and diversification of urban functions, urban complexes have become the rising star in commercial real estate market in urban China today. However, the financing system and mechanism of urban complexes falls far behind the need of developers, especially in the less developed Western region. In the face of such difficulties, new and innovative functions and approaches to facilitate operations in the financial market are critical.

This study firstly analyzes the situation of China's real estate development and its financial system with specific reference to the dilemma faced by urban complexes. With an aim to break the deadlock, innovative financing modes are suggested as a means to promote and develop a dynamic real estate market such as real estate trusts, equity funds, securitization of real estate assets and mezzanine financing and other forms of financing. In summary, the aim is to establish a low-risk, highly efficient and diversified financing system with bank loans as the main channel supplemented by other possibilities. As to the urban complexes which require more complex and large funding sources, it is recommended that improvement in the efficiency of capital allocation, cost cutting in real estate business be seriously looked into. Indeed, enhancing economic agglomeration effects of urban complexes in financial operations and functioning should bring about a more trustworthy and sustainable business ecosystem.

Acknowledgements This paper is funded by the National Social Science Foundation in China under the "Research on Security Identification, Management & Control and Emergency Treatment of Major Risks of Ecological Fragile Region in Western China" (Number: 13AZD074).

References

Atteberry WL, Rutherford RC (2007) Industrial real estate prices and market efficiency. J Real Estate Res 8:17–21
Chen LQ (2004) Study of financing strategies of real estate development. Mod Econ Inf 4:52–54 (in Chinese)
Chen HY (2011) Mezzanine financing: financing mode applicable to scientific SMEs. Wuhan Financ 7:30–32 (in Chinese)
Chen DQ, Zhao HZ (2012) Application of mezzanine finance in the financing of Chinese real estate. Constr Econ 5:61–64 (in Chinese)
Feng JX (2010) The thinking on developing and improving the enterprise bonds' financing system in China. Financ Account Mon 12:37–39 (in Chinese)
Gao B (2004) The controversy of the Japanese economy: the institutional origins of prosperity and recession. Shangwu Publishing House, Beijing (in Chinese)
Gao JH (2006) Status analysis and development vision of real estate financing channels. China Real Estate Financ 6:19–24 (in Chinese)
Guo YJ (2009) Comparison of traditional and new financing methods of China's real estate business. Money China 3:89–91 (in Chinese)
Hackbarth D, Miao J, Morella E (2004) Capital structure, credit risk and macroeconomic conditions. J Financ Econ 82(8):519–550
He XF, Zhang W, Shi KF (2002) Study of the financing structure of real estate industry. Southwest Univ Finance 12:2–3
Hong CY, Yang ZG (2012) Research on the emergence and development of urban complex. Shanxi Archit 10:9–11 (in Chinese)
Hou ZC, Shen K, Fan YQ (2011) Analysis on financing channels and innovation for real estate enterprises in underdeveloped areas. Commun Financ Acount 1: 84–85 (in Chinese)
Hu XL, Xz W, Shi W (2010) China's typical urban model of real estate credit development: a comparative study. Tax Econ 7(4):34–38 (in Chinese)
Ju HL (2008) Study on the financing channels of China's real estate enterprises. Doctoral dissertation of Guangxi University, Nanning (in Chinese)
Korajczyk AR, Levy A (2003) Capital structure choice: macroeconomic conditions and financial constraints. J Financ Econ 68:75–109
Li J, Xiang WM (2012) Analysis on regional differences of Chinese real estate financing structure. Stat Decis 4:147–150 (in Chinese)
Liu HY (2004) Financing dilemmas and countermeasures of current real estate development. Coop Econ Sci 8:18–19 (in Chinese)
Lu HF (2011) On China's real estate financing. China Urban Econ 2:50–54 (in Chinese)
Luo T (2008) Study on real estate financing structure. Southwestern University of Finance and Economics, Chengdu (in Chinese)
Pei HC (2008) Research on interaction development relation between urbanization and real estate industry in China's West. Chongqing University, Chongqing (in Chinese)
Ren XX (2012) Research on the relationship between the development of real estate sector and the structure of its funding sources. Southwestern University of Finance and Economics, Chengdu (in Chinese)
Sirota D (2005) Essentials of real estate finance. Shanghai People's Publishing House, Shanghai
Teng M (2013) Solution of the economic issue for super Huaguo Garden in Guiyang. Sina website http://blog.sina.com.cn/s/blog_6208bada0101eg57.html. Dated 15 July. Accessed 17 June 2014 (in Chinese)
Wan R (2010) Construct new financing mode of China's real estate – analysis of China REITs. Econ Issues 3:105–109 (in Chinese)
Wang M-G (2007) Innovations of contemporary real estate finance – asset securitization and its application to real estate field. Economic Management Press, Beijing (in Chinese)

Wang LY (2012) An empirical study of the relationship between urbanization and real estate industry in western China. Inner Mongolia University of Finance Economics, Hohhot (in Chinese)
Wang X-L, Li W-X (2011) Study on China's real estate financing innovation. Theory Reform 1:79–81 (in Chinese)
Wang XL, Li WX (2012) Research on the innovation of real estate financing. Theory Reform 1:79–81 (in Chinese)
Wang JT, Zhang HZ (2005) Economic analysis on diversification of real estate financing mode. Finance & Economics No. 6. http://www.cnki.com.cn/Article/CJFDTOTAL-CJKX200506006.htm. Accessed Sept 2014 (in Chinese)
Winshang Net (2013) Guiyang's Huaguo garden complex. http://www.winshang.com/zt/2013/huaguoyuangouwu. Accessed 20 June 2014 (in Chinese)
Wu GF (2010) Real estate development and modes of financing: an exploration. 10:32–37 (in Chinese)
Xiong FJ, Deng CR, Ma YK (2008) Analysis on financing differences of Chinese real estate companies. Soft Sci 2:142–144 (in Chinese)
Xue H-Y, Du X-J, Zhang T (2009) Implications of overseas RETIS development on China. Financ Theory Pract 2:107–111 (in Chinese)
Zhang BH (2012) Analysis and inspiration of agglomeration economy effect in the urban complex development. Soc Sci Front 9:68–72 (in Chinese)
Zhu X-R (2010) Currency finance. China Financial Publishing House, Beijing (in Chinese)

Index

T.-C. Wong et al. (eds.), *Population Mobility, Urban Planning and Management in China*, DOI 10.1007/978-3-319-15257-8